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GAMEHEARTS

Report & Recommendations for VGD



Project: Games, Heritage, Arts, & Sport: the economic, social, and cultural value of the European videogame ecosystem. GAMEHEARTS

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EXECUTIVE SUMMARY

This report was developed under the **GAMEHEARTS**¹ project, which focuses on exploring the opportunities, potential, and pathways for **enhancing the European Video Game Industry Ecosystem (EVGIE) value**. In particular it focuses on leveraging the existing understanding of the currently observed and potential role of the EVGIE for the European economy but also on recognising how greater cooperation of video game developers (VGD) within EVGIE and with representatives of other cultural and creative industries (CCI) may significantly increase **competitiveness and growth** of European VGD, European video game industry (VGI), other European CCI, but also European economy and society.

The material presented in this report can be considered from two complementary perspectives. First, given the thematic and more scientific standpoint, this report combines findings from multiple research stages to deliver a comprehensive analysis of **value co-creation, co-innovation, and organisational innovativeness of European VGD** with a particular focus on their strategic cooperation within EVGIE (i.e., intra-ecosystem cooperation) and with other CCI (i.e., cross-industry cooperation).

Second, adopting the pragmatic perspective, this report provides a wide range of **strategic recommendations** for enhancing co-creation, co-innovation, and organisational innovativeness as well as for improving regulations and supporting programs **addressed to video game developers, policymakers, and representatives of other cultural and creative industries**.

This integrative report brings together the results of mixed, sequential-simultaneous research that employed both secondary and primary data sources. The methodological approach included a systematic literature review (SLR), thematic analysis of industry reports, comparative analysis of cross-industry cooperation success case studies, large-scale surveying, in-depth interviews (IDIs), design thinking marathons (DTthons), and focused group interviews (FGIs). The **mixed-method research process took 18 months** and is summarised in Figure 1.

¹ Project's website: gamehearts.eu Project's LinkedIn profile: <https://www.linkedin.com/company/gamehearts-research/>





Section 3	Section 4	Section 5	Section 6	Section 7
SLR & Case study	Survey	IDIs	DTthons	FGIs
Review, analysis & synthesis of secondary sources	Quantitative testing	In-depth qualitative exploration	Design thinking-based verification & exploration	Group qualitative verification
Data: 61 academic articles, 55 industry reports, and 18 statistical reports from the Statista database, 3 major & 6 minor cases Thematic scope: Co-creation of value, value transfer, co-innovation, 3E & 4E model of cooperation Analysis: qualitative thematic & comparative Output: Deliverable 3.1. State-of-the-Art Report 1 (also summary in Deliverable 3.3. & Recommendations for VGD)	Data: 1270 of European video game developers Thematic scope: level, scope, phases of co-creation & co-innovation relationships, innovativeness level, impact of co-innovation relationships on innovativeness of VGDs Analysis: descriptives, cluster analysis, structural equation modeling, regression Output: Deliverable 3.3. & Recommendations for VGD	Data: 27 interviews with representatives from EVGIE and CCI Thematic scope: impacts of VGI, cross-industry cooperation, strategic recommendations Analysis: qualitative thematic Output: Deliverable 3.3. & Recommendations for VGD	Data: 3 national & 1 international edition (72 practitioners from EVGIE & CCI, 12 working teams) Thematic scope: cross-industry cooperation across 4E model, strategic recommendations Analysis: qualitative thematic Output: Deliverable 3.2. Dtthons Summary (also summary in Deliverable 3.3. & Recommendations for VGD)	Data: 1 national & 1 international focus group interview (8 game developers) Thematic scope: 5 insights from prior research steps investigated Analysis: qualitative thematic Output: Deliverable 3.3. & Recommendations for VGD

Figure 1. Synthesis of research steps

Desk research: systematic literature review, industry reports analysis, and case studies

The desk research included a thematic analysis of academic literature and industry reports, as well as a comparative analysis of case studies. The primary premise of the desk research was aligned with identifying mechanisms of value co-creation and value transfer in the context of intra-ecosystem and cross-industry cooperation of VGD. An additional methodological objective of this first research phase was to verify, expand, and refine the conceptual assumptions for all subsequent stages of the research process, including various field research types. The key findings from the desk research are as follows²:

- *Strategic importance and structure of EVGIE* – in Europe, the games market generated \$32 billion in 2024, almost a fifth of the global revenue, according to Newzoo (Buijsman, 2025). The EVGIE unites diverse actors whose cooperation requires political and regulatory facilitation, with the European Games Developer Federation (EGDF), national Video Games Europe (VGE) bodies, and the Pan European Game Information (PEGI) system as key anchors. State Aid, education, and talent development are essential pillars for future EU support.

² It is worth noting that the full report from this research stage was published separately (Kościewicz et al., 2025) in February 2025.





- *Technological gap and AI risks* – in general Europe lags behind the United States and China in AI adoption, regulation, and development, creating dependence on non-European systems that may shape creative direction and cultural frameworks. There is also a paradox in the regulatory dimension. While the European Union is both aware of the challenges and progressive in its policies, it remains slow and intricate in its processes due to the multilayered decision-making process and the autonomy of the nation-states. While such deliberate diligence makes the EU famous for its focus on civil society and sustainability, the rapid development of AI technologies and the related industry should prompt a call for a faster approach.
- *Ownership vulnerabilities* – rapid acquisitions of European studios by Chinese, Saudi, and US investors are shifting control of strategic IP away from Europe, increasingly towards investors from countries relatively new to the video games industry. While the non-EU investors may currently stay far from the creative decisions of the studio (deliberately or based on mutual agreement), it is hard to neglect the risk stemming from the political and cultural differences that, in the long term, may affect not only what can or cannot be but also what must or must not be included in the narrative design.
- *Cultural influence and dynamism* – the industry shapes cultural narratives, social norms, and sustainability agendas, with DEI recognised as vital yet challenging to integrate without compromising authenticity. The sector is highly dynamic, meaning findings and strategies can become outdated quickly without regular reassessment.
- *Co-creation and co-innovation processes of VGD* – it seems that strategic cooperation focused on co-creation and/or co-innovation should be designed as a not entirely linear 4E model, covering the phases of Establishment, Execution, Ending, and Endorsement.
- *Co-creation efficiency* – the current body of scientific knowledge points out three coordination mechanisms that are crucial in the execution phase of cooperation focused on value co-creation, namely: static-adaptive management, proximity, and knowledge management (part of the desk research results published in Klimas et al., 2025).
- *Co-creation success stories* – cross-industry practice provides solid evidence for real and mutually beneficial co-creation involving VGD. Through desk research, a comparative analysis of nine cases of successful cross-industry cooperation was conducted (Kościewicz et al., 2025), including three major (i.e., *Kingdom Come: Deliverance*, *This War of Mine*, and *The Assassins' Creed*) and six minor (i.e., *My Memory of Us*, *The Thaumaturge*, *Cyphers Game*, *Hellblade: Senua's Sacrifice*, *Eternal Sonata*, *Game Music Festival*) cases.





- *Cooperation of VGD with CCI* – significant potential remains underexploited. Value co-creation is limited and needs stronger financial coordination, co-innovation is constrained mainly by AI and IP risks, and most cooperation is one-directional value transfer. There is a lack of documented evidence on project failures, signalling a need for further research and better dissemination to increase the efficiency of future projects.

Quantitative field research: large-scale European survey

Quantitative research conducted on a large sample of 1,270 European VGD made it possible, on the one hand, to identify the mechanisms behind the functioning and use of value co-creation and co-innovation, and on the other, to determine the level of innovativeness among VGD - one of the key factors in the video game industry (Iddris et al., 2023; Klimas & Czakon, 2018; Mohammed et al., 2024; Ozalp, 2024). The research also confirmed the assumptions regarding the positive impact of both intra-ecosystem (within EVGIE) and cross-industry (with other CCI) cooperation of VGD on their level of innovativeness. In a nutshell, the results are given below.

- *The European video game industry ecosystem structure* - EVGIE encompasses a broad range of actors, extending far beyond the typical video game industry members: 23 types of actors were identified (Figure 2). From the perspective of VGD, these actors represent potential partners for intra-ecosystem cooperation. Notably, the majority of these actors are not currently engaged by VGD for value co-creation or co-innovation.



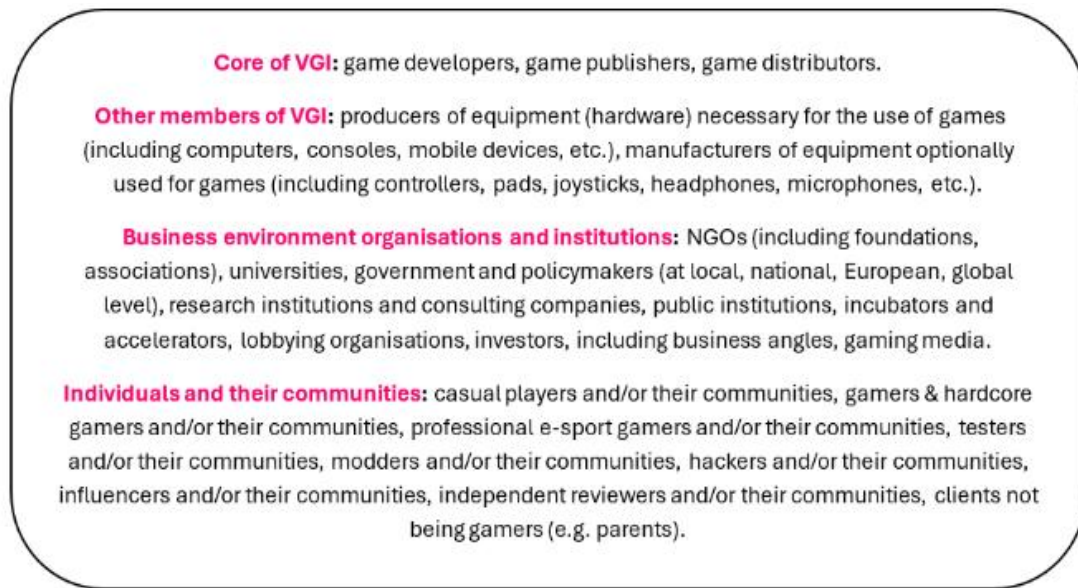


Figure 2. Active actors of EVGIE

- *Current exploitation of strategic cooperation focused on value co-creation and co-innovation by European video game developers* – our research reveals a marginal level of collaboration between VGD and representatives of other CCI, as well as a relatively low level of cooperation within the EVGIE itself. This may indicate an underutilised potential for strategic collaboration among European game developers in practice. In particular:
 - Cooperation with CCI is weaker and less dense than with EVGIE.
 - There is a slight tendency toward co-creation rather than co-innovation within EVGIE, while more co-innovation than co-creation with CCI.
 - Collected raw data exhibits slightly different patterns across various measurement variables depending on company size. This suggests that strategic movements focused on co-innovation and co-cooperation may require differentiated designs depending on video developer’s size.
- *Organisational innovativeness of VGD* – we found that it manifests itself (and thus should be measured) across behavioural (related to people working in the studio), product (related to released games), and process (related not only to game development but broader - to the organisation) dimensions. Considering detailed results, the key issues are as follows:
 - Self-assessment of organisational innovativeness is rather low. The lowest level was diagnosed in product innovativeness, while the highest level was found in behavioural innovativeness.



- Co-innovation relationships positively but moderately impact organisational innovativeness of VGD, while co-innovation relationships within EVGIE appear slightly more influential than those with CCI.
- Co-innovation with game users positively, while cooperation with industries focused on culture preservation has a negative influence.
- Co-innovation with the institutional microenvironment and culture preservation industries positively impacts the product innovativeness of VGD.
- Any co-innovation relationships significantly impact the process innovativeness of VGD.

Qualitative desk research #1: in-depth individual interviews³

This stage of research focused on further exploration of the mechanisms of value transfer and value co-creation by VGD within EVGIE and with CCI; the impacts and roles of VGI for technology, society, economy, and culture, as well as identification of practice-driven strategic recommendations for VGD. It should also be noted that the main emphasis was placed on cooperation between VGD-CCI, as VGD is a key element of EVGIE (Klimas & Czakon, 2022). Primary data was collected in two waves. The first wave engaged a wide range of EVGIE actors, while the second one engaged representatives of different CCI. The key cognitive findings are given below.

- *Games cultural stigmatisation* - among the cooperation constraints, the pivotal issue is the perception of games as ‘low culture’. We also found that the need to change the perception of games - viewing them as “games as culture” (mainly from the EVGIE standpoint) - which requires broader awareness and intentional cultural preservation, is currently being weakly addressed by policymakers.
- *Inclusiveness in games* - two specific issues emerged when investigating inclusiveness, namely exclusiveness (mainly the economic standpoint was pointed out) and over-inclusiveness (artificial intertwining of minorities in games, aimed to disseminate the value of inclusiveness).

³ It should be noted that while collecting data using the IDI technique, one game studio asked for a group interview to be organised. Finally, the interview with this firm took the form of a micro FGI with 4 participants representing the studio.





- *Supporting system* - the institutional support needs to be better tailored to specific needs and impose a progressive and future-oriented mindset regarding the legislation (especially regarding AI usage, evolving perception of games, games preservation) and funding systems (e.g., programs for new and mature firms, grants for newcomers, clear definitions of beneficiaries, etc.).
- *Impacts and significance of VGI for economy, technology, culture, society* - there is solid potential for developing new technologies and solutions that find application outside the video games industry. What we have discovered as still lacking, however, is the general awareness of the possibilities and the broad scope of technology transfer within EVGIE and to/from CCI. Moreover, video games increasingly serve as complex, multidimensional platforms - not only for communication and social interaction, but also for shaping attitudes, perceptions, and behaviours of different generational groups, with effects that may unfold in both positive and negative directions.

Qualitative desk research #2: design thinking marathons

The DTthons (three-day design thinking marathons) focused on cross-industry cooperation. They allowed us to improve the understanding of existing practices and mutual relationships, identify key barriers and success factors for cooperation between EVGIE and CCI, and outline insights for building a more resilient, inclusive, and scalable ecosystem of cross-industry collaboration.

The implementation and results of the DTthons are presented in Section 6 of this report⁴. The key findings are as follows.

- *The 4E Framework of Cross-Industry Cooperation* – the model, which includes the phases of Establishment, Execution, Ending, and Endorsement, was inductively validated and is recommended as a tool for designing and implementing future cross-industry collaborations. Notably, the Endorsement phase was found to be often overlooked, yet critically important for the long-term effectiveness of cooperation.

⁴ It is worth to note that the full report from this research stage was published separately (Wrona et al., 2025) in August 2025.





- *Implementation of cross-industry cooperation is full of tensions* – the DTthons revealed that cross-industry projects encounter significant challenges, primarily due to the fundamental differences between EVGIE and other CCI sectors. These tensions can be understood across six key dimensions: pace and rhythm of work, motivations, communication style, decision-making structure, visibility of outcomes, and definition of success.
- *Key success factors should be acknowledged* – twelve key success factors were identified for establishing effective, sustainable, and impactful cross-industry partnerships. Overall, the DTthons demonstrated that successful cooperation is not solely a matter of shared vision but also depends on shared infrastructure, well-designed processes, mutual understanding, and deliberate institutional support.
- *Key insights for the future* – six insights were identified, highlighting recurring barriers and strategic directions for further research, public policy development, and the establishment of resilient and sustainable cooperation between EVGIE and CCI. A frequently recurring theme was the need to create spaces (including virtual ones) for cross-industry interaction and cooperation, and to stimulate such cooperation by business environment institutions, not only through funding, but also via active facilitation and improvements in existing regulations.

Qualitative desk research #3: focus group interviews

The final stage of the research focused on verifying and further exploring five insights (each representing key challenges for the future of European VGD) identified during the previous four phases of the research process. The last stage employed focused group interviews, during which participants discussed the following challenges (Klimas et al., 2025a): **‘Profanum’** (games are still perceived as ‘low culture’), **‘Made in Europe’** (the increasing influence of Chinese capital in European game development), **‘Babel Tower’** (communication as a significant barrier to collaboration, including co-innovation), **‘Diversity Washing’** (the tension between growing pressure for inclusivity and gamer resistance to forced diversity), and **‘Innovation Mirage’** (surprisingly low self-assessment of innovativeness by VGD). Below are the key outcomes summarised.

- *The video games category suffers from ‘stigma’ perceptions* - if sustained, they will keep preventing the industry from financial growth. Social benefits of gaming need to gain the field and dominate the discourse.





- *Diversity, equity, and inclusion (DEI) are relevant for VGD, but how to incorporate them in game design remains vague. The political background and polarisation of societies make the issue even more complex.*
- *A 'silo' situation - the lack of contact points, differences in communication styles, and varied channels - limits the collaboration opportunities between VGI and CCI. Solutions could involve a net of boundary spanners, connecting VGI and CCI, facilitating communication, knowledge sharing, and collaboration.*
- *Newcomers and small studios would benefit from more elastic grant procedures, dedicated funding and business consultancy to speed up their innovation and innovativeness.*

Key strategic recommendations

In accordance with the assumptions - and indeed the very title - of this report, *Report & Recommendations for VGD*, the overarching aim of the entire research investigation, and the essence of all implemented research activities, is developing and presenting recommendations for video game developers. However, due to the richness of the collected empirical material, this report provides recommendations not only for VGD but also for EVGIE, policymakers, and other CCI with which VGD currently cooperate or may cooperate in the future.

Strategic recommendations are primarily presented in Section 8, while more concrete and integrative suggestions aimed at improving intra-ecosystem and cross-industry cooperation are provided in Section 9 (see Table 38). Moreover, all sections presenting research findings (i.e., Sections 3-7) detail the outcomes and offer interpretations that may be used when shaping the future of EVGIE and VGD in particular, and thus can be seen as sources of indirect strategic inspirations. In summary, the key recommendations can be structured along three developmental pathways, each targeting different key stakeholder groups:

- *Business & organisational development of VGD* – recommendations focus on four core operational areas: implementing inter-organisational cooperation, customer management, innovation management, and product management.
- *Societal development in Europe* – recommendations aimed at building and increasing public awareness of games, their specific nature, cultural and social significance, and broader potential.





- *Development of game industry support in Europe* – recommendations primarily directed at policymakers, which may be thematically grouped into four key areas: (1) Awareness building, (2) Infrastructure development, (3) Funding (in two dimensions: scope & beneficiaries, and institutional changes), and (4) Law & regulations (in two dimensions: the need for a systemic approach, and the need to fill regulatory gaps).

Key methodological contributions

In addition to numerous original findings relevant to theoretical knowledge applicable to the strategic management of VGD, EVGIE, and CCI, the multi-stage research conducted also generated significant methodological contributions for implementing future scientific or industry research. The key methodological contributions are twofold:

1. The use of three-day *design thinking marathons as a novel research method* enabling a participatory, engaging, and creativity-driven process of qualitative data collection. In addition, the report presents various operational templates used during the DTthons, as well as feedback and recommendations from participants and facilitators regarding the use and improvement of DTthons in future research.
2. The conducted quantitative *research provides validated measurement scales* for assessing the organisational innovativeness of game developers (covering behavioural, product, and process innovativeness), as well as their co-creation and co-innovation relationships – both within EVGIE (i.e., with the institutional microenvironment and game users) and with CCI (i.e., with industries focused on cultural preservation and those focused on cultural expansion). The developed scales can be reliable tools for monitoring these constructs in future studies.





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1. PROJECT SUMMARY⁵

This integrative report was developed under the **GAMEHEARTS**⁶ project, which focuses on exploring the opportunities, potential, and pathways for enhancing the European Videogame Industry Ecosystem (EVGIE) value. This focus extends beyond economic value, incorporating broader social and cultural dimensions. Particular attention is given to identifying new or better utilising existing developmental trajectories for the EVGIE, with a central emphasis on fostering cooperation, specifically cooperation oriented towards co-creating value and co-innovation, as well as enabling value transfer both within the EVGIE and across the wider Cultural and Creative Industries (CCI).

The **main goal** concentrates on maximising the value of the EVGIE within the broader social context of the CCI. Nonetheless, its achievement is based on reaching five, more detailed objectives (referred to in Section 2.1), which correspond to seven work packages (WP), including five research WPs:

- WP2: Stakeholder workshops,
- WP3: Videogames industry ecosystem,
- WP4: Governance challenges and opportunities,
- WP5: The impact of videogames in shaping a more inclusive society, and
- WP6: Ludic experiences build & audience research.

The project is run under a **consortium** of five universities (i.e., Universities of Salford (UK), Tampere University (Finland), University of Vienna (Austria), Breda University of Applied Sciences (Netherlands), and Wroclaw University of Economics and Business (Poland)) and industry partners (i.e., Ubisoft (France), Imperial War Museum (UK), Manchester City (UK), and London Symphony Orchestra (UK)).

⁵ This section is the same for all deliverables prepared under WP3, namely: Deliverable 3.1. State-of-the-Art Report 1 (available here: <https://zenodo.org/records/14882916>), Deliverable 3.2 DTthons Summary (available here: <https://zenodo.org/records/16812906>), and Deliverable 3.3 Report & Recommendations for VGD (this report).

⁶ Project's website: gamehearts.eu Project's LinkedIn profile: <https://www.linkedin.com/company/gamehearts-research/>





1.1 WP3 Summary

This report is the third deliverable developed under WP3: Videogames industry ecosystem. According to the project's framework, WP3 concentrates on the identity, functioning, and best practices established by EVGIE to grasp the picture of how to engineer the growth of the entire ecosystem, aiming to contribute to several areas such as economic growth, job creation, physical and mental well-being, and social and cultural cohesion. Specifically, WP3 encompasses research activities that integrate desk-based research with fieldwork investigations.

The results of these fieldwork activities are covered in three deliverables, namely D3.1. State-of-the-Art Report 1 (desk research), D3.2 DTthons Summary (field research based on design thinking marathons), and D3.3 Report & Recommendations for VGD (mixed research including desk research summary and a wide range of field research following both qualitative and quantitative approaches).

Within the GAMEHEARTS project, WP3 adopts an industry perspective, focusing on EVGIE and CCI. The research process is structured into five mixed sequential-simultaneous stages:

1. **Exploratory Research:** Conducting a discussion panel to gather initial insights (implemented as a part of WP2⁷).
2. **In-Depth Literature Review:** Analysing academic literature, industry reports, and case studies of successful cooperation linking games/video games ecosystem with CCI to identify key trends, gaps, value co-creation mechanisms, co-innovation, and value transfer related to cooperation.
3. **Quantitative Research:** Survey on European game developers to assess the extent to which they utilise co-creation and co-innovation relationships, as well as test the impact of co-innovation relationships used by developers on their organisational innovativeness.
4. **Exploratory and Confirmatory Qualitative Research:** Conducting in-depth individual interviews with game developers, other representatives of EVGIE and CCI, as well as focus group discussions to deepen understanding in a given field, outline improvement recommendations, and validate findings generated earlier.

⁷ The outcomes included in D2.2 (Bagnall et al., 2024) but as we had a lot of raw data, this was used also to prepare an article entitled What are the Drivers, Barriers, Mechanisms, and Anchors of cross-industry cooperation? The Perspective of the Video Game Industry Ecosystem (Klimas et al., 2025) and conference poster Game On! Unlocking Synergies Between Video Games & Creative and Cultural Industries (Klimas et al., 2024).





5. Exploratory and Confirmatory Design Thinking Marathons: Organising design thinking-based participatory research to collaboratively explore and refine innovative solutions related to cross-industry cooperation linking game developers with other actors of EVGIE and representatives from other CCI.

This report directly refers to the third and fourth research activities focusing on the presentation of a wide range of results from empirical (quantitative and qualitative) investigations of EVGIE in the context of intra-ecosystem (within EVGIE) and cross-industry (with CCI) cooperation, as well as the role of such cooperation for video game industry development.

Moreover, **this report indirectly refers to the second, third, fourth, and fifth research activities** as it presents a wide range of recommendations not only for video game developers, but additionally also for representatives from other CCI as well as for policy makers developed based on all of our desk (i.e. systematic literature review and critical review of industry reports, case studies analysis) and field (i.e. large-scale quantitative survey, in-depth interviews within VGIE and CCI; DTthons – marathons of design thinking, virtual focus group interviews) research.





2. INTRODUCTION TO THE REPORT

This report aims to present the results of multi-stage, mixed scientific research conducted within the **GAMEHEARTS** project, focusing on the most general terms of **recognising the functioning mechanisms and potential development of EVGIE**. The context of EVGIE development was examined from various perspectives using a broad spectrum of research methods, namely:

- from the perspective of relational and ecosystem approaches that see development opportunities and generation of long-term and high-impact competitive advantage in strategic cooperation aimed at joint value creation, value transfer, and joint innovation development;
- from the perspective mainly, though not exclusively, of the European video game developers⁸. It is crucial to take a big picture of the investigated phenomena, various representatives of EVGIE participated in the field research, but also representatives of a wide range of other CCI;
- from the perspective of the significance and possibilities of using EVGIE development for the development of other (characterised by lower growth dynamics) culture and creative industries;
- from the perspective of various types of data from both secondary sources (e.g., scientific publications, industry reports) and primary sources (quantitative data from surveys and diverse qualitative data from individual in-depth interviews, design thinking marathons, focus interviews);
- from the utilitarian perspective, presenting numerous, diverse strategic recommendations in terms of subject and object, which are based on research conducted and collected data, may accelerate this development in the future.

2.1 Scope(s)

In a more detailed approach, the general objective of the report can be decomposed into specific components, which can be captured from the perspective of the scope of information presented. This scope is quite strongly determined by external conditions of a rather formal nature, such as the assumptions of the **GAMEHEARTS** project, or the WP3 European

⁸ It is important to emphasize that the entire research process, the results of which are presented in this report, focuses on video game developers of traditional games aimed primarily at providing entertainment. Game developers focused exclusively on serious games or gambling game creators were outside the scope of our research interest.





Videogames Industry Ecosystem included, and further, the predefined framework assumptions of the report itself, having the status of one of the deliverables. From a thematic point of view, it is also worth defining the scope of recommendations presented in the report's content.

Scope of this report – GAMEHEARTS project perspective

Adopting the perspective of the **GAMEHEARTS** project's assumptions, this report indicates possibilities for EVGIE development, not only in an ecosystem context, but also in a broader social, cultural, and economic context of CCI.

Significant attention is devoted to cross-industry cooperation, although also cooperation within EVGIE (e.g., Section 4), due to assumptions about the importance of cooperation for competitive advantage, which in turn requires, but also contributes to, greater business, cultural, and social effects of parties involved in cooperation, as well as cohesion between entities.

In a broader perspective of users and culture consumers, it contributes to increasing inclusivity and building a cultural experience. The report also addresses assumptions regarding the development of '**policy and managerial recommendations and road maps setting out how the European videogame industry ecosystem can and should grow and develop**' (as in the grant agreement).

At the level of specific **GAMEHEARTS** project objectives, the report fits into the following goals:

1. Gaining an understanding of the current and potential role of the EVGIE in contributing to economic growth, job creation, physical and mental wellbeing, and social and cultural cohesion - both directly and indirectly – particularly recognising various EVGIE roles, mechanisms of joint value creation and its transfer, as well as the degree of utilization, barriers, success factors of intra-ecosystem and cross-industry cooperation at the intersection of VGI and other CCI – mainly Sections 3, 5, 6, 7.





2. To critically consider existing EU, other European, and broader social policies, and explore the opportunities, risks, and social and cultural influence of the EVGIE, particularly identification of specific dysfunctions and non-functioning solutions at institutional, legislative, or regulatory levels and directions for improvement – mainly Sections 5, 6, 7, 8.
3. Identifying the pathways through which greater cooperation and co-creation between the EVGIE and other CCI might lead to greater shared value and growth – particularly recognizing the level of developer cooperation in EVGIE but also within CCI, identification of unnoticed/underutilized cooperation actors, identification of co-innovation relationships within EVGIE and CCI significantly affecting organisational innovativeness of developers (success factor of activity in this industry), mapping solutions and idea cases for effective and mutually beneficial cooperation – mainly Sections 4 and 5.
4. Increase accessibility to heritage, live music, and sport by better blending (through constructive partnerships) EVGIE practices and technologies, to offer more inclusive, engaging, and empowering cultural experiences – the report addresses inclusivity themes in Sections 3, 5, 7, and 8.
5. Recommendations to the EU and broader European policy to support sustained and ethical innovation and growth in the EVGIE – broader scope as expanded by the perspective of recommendations for EVGIE and CCI – mainly Sections 8 and 9, but also directly and indirectly the content of Sections 3, 4, 5, 6, and 7.

Scope of this report – WP3 perspective

The integrative specificity of this report means that its content directly **corresponds with all four research objectives of WP3 and presents results from all of the implemented research investigations.**

- **O3.1.** Identification and verification of value transfer and value co-creation mechanisms by EVGIE and CCI in the context of cultural audiences and the increase of (multidimensionally) inclusivity – Sections 3, 5, 6, and 7.
- **O3.2.** Exploration of impacts of co-creative innovation relationships maintained between EVGIE and CCI on organisational innovativeness of game developers (e.g., on three dimensions of innovativeness as identified in reference research of Polish VGD) – Section 4.



- **O3.3.** Development of strategic recommendations for VGD regarding the exploitation of co-creative innovation relationships with organisations representing CCI to leverage organisational innovativeness; practices recommended to efficiently transfer value already generated to organisations from CCI and/or efficiently and smoothly co-create value with organisations representing CCI, mainly under co-innovation processes – Sections 8 and 9.
- **O3.4.** Produce an Integrative research report – This entire report itself.

Scope of this report – Deliverable 3.3 perspective

Deliverable 3.3. assumes ‘*outlining the key findings of WP3*’ to develop our knowledge regarding the considered phenomenon of broadly understood strategic cooperation (mainly) of game developers, but also presenting recommendations and suggestions both for CCI practitioners (including VGD) and their surrounding institutional environment (current or future, as the recommendations include issues of creating specific new institutional solutions).

From the point of view of source material for the developed knowledge and formulated recommendations presented in this report, the report presents:

- Synthesis of results from a state-of-the-art review of **existing academic (61 papers) and industry-rooted (55 industry reports, 18 statistical reports, and 9 case studies) knowledge**, focusing on cooperation EVGIE & CCI – full results are presented in Deliverable 3.1. (Kościewicz et al., 2025) – Section 3.
- Original results of **a large-scale survey at the European level on 1270 VGD**, focusing on verifying findings from Polish VGIE, showing that co-creative innovation relationships maintained between VGI and entertainment entities on the innovativeness of VGD are positive and significant. The conducted survey expands previous research by exploring the impacts made by CCI – Section 4.
- Original results of **27 in-depth individual interviews** focusing on verifying and developing practices of value transfer and value co-creation by VGD in the context of support for CCI, as well as the impacts made by EVGIE on technology, society, economy, and culture. Additional focus was given directly to required changes in the context to foster industry development – Section 5.





- Synthesis of results from **4 design thinking marathons (DTthons) with 72 practitioners** focusing on verification and further exploration of the issues addressed during desk research and IDIs – full results are presented in Deliverable 3.2. (Wrona et al., 2025) – Section 6.
- Original results of **2 focus group interviews with 8 VGD**, focusing on in-depth discussion of key insights from desk research, IDIs, DTthons, and surveying to verify and deepen our understandings and interpretations – Section 7.

Scope of this report – recommendations perspective

In line with the assumptions – and with the very title of the report, *Report & Recommendations for VGD* – the overarching aim of the entire research is to present recommendations for video game developers. They constitute a key element of the video games industry and the broader ecosystem surrounding it, as highlighted in numerous industry reports and broader social perception (Klimas, 2019; Klimas & Czakon, 2022).

What needs to be strongly emphasised is that, given that the raw empirical materials collected in the entire research process were much broader regarding addressees of formulated and emerging recommendations, the team decided **to expand the scope of the recommendations** presented in Section 8.

Notably, this report provides recommendations for video game developers (as planned in O3.3) but also for policymakers and representatives of other cultural and creative industries. Expanding the scope of developed recommendations aligns with the **GAMEHEARTS** project's overarching goal to '*maximise the value of the European Video Game Industry Ecosystem (EVGIE) within the broader social context of the creative and cultural industries (CCI) in the future*'⁹.

⁹ It should be noted that taking a broad perspective on the target audiences for recommendations was recommended by the project's Advisory Board during the project's duration.



2.2 Structure

The report can be divided into four main parts.

1. The first includes sections 1 and 2, which present the report itself, but also the present one in the context of the **GAMEHEARTS** project and WP3.
2. The second part includes sections 3 to 7 of a methodological-empirical nature. These sections present the results of implemented research activities, their interpretation, and conclusions relevant to the project's assumptions.
3. The third part includes sections 8 and 9 of a conceptual-conclusive nature. These sections present a set of strategic recommendations and main conclusions from the entire scientific investigation.
4. The fourth part includes materials of a more editorial nature, such as an executive summary, reference list, lists of tables, photos, and figures, and appendices, which present the research tools used in quantitative research, qualitative IDI and FGI, as well as partial and detailed results of quantitative data analysis.

2.3 Key abbreviations

- CCI – cultural and creative industries
- CFA – confirmatory factor analysis
- CI – co-innovation relationships
- CR – co-creation relationships
- DTthons – design thinking marathons
- EFA – explorative factor analysis
- EVGIE – European video games industry ecosystem
- FGI – focus group interviews
- IDI – in-depth individual interviews
- IP – intellectual property
- MFGI – micro focus group
- SEM – structural equation modelling
- SLR – systematic literature review
- VGD – video game developers
- VGI – video games industry





3. DESK RESEARCH¹⁰

3.1 Aims

This desk-based analysis constituted a foundational component for understanding the structure, functions, and developmental dynamics of the EVGIE in relation to the broader context of CCI. The report from this research (Kościewicz et al., 2025) was based on a structured synthesis of academic literature, industry publications, and purposively selected case studies, consolidating existing knowledge and informing the design of empirical activities carried out in later project phases.

The primary premise of the desk research was aligned with Objective 3.1 of the **GAMEHEARTS** project, which focuses on identifying mechanisms of value co-creation and value transfer in the context of cooperation within EVGIE as well as CCI. Therefore, the conducted desk research was driven by the following **detailed aims**.

- To consolidate and systematise existing knowledge relating to the functioning of the EVGIE and its collaboration with adjacent CCI sectors, with particular emphasis on mechanisms of value co-creation, co-innovation, and the transfer of cultural, technological, or organisational assets.
- To identify and interpret structural trends influencing opportunities and constraints for inter- and cross-sectoral cooperation. These included digital acceleration, platform convergence, the growing cultural significance of video games, and increased demand for adaptive and diversified business models.
- To address critical concerns surrounding inclusion, accessibility, and representational equity in workforce structures and game content. The report drew attention to persistent imbalances and highlighted the potential of inclusive design practices to counter marginalisation and foster broader civic engagement.
- To define the conceptual and methodological framework for the project's empirical components, clarify key terminology and thematic priorities, and ensure internal consistency across the quantitative and qualitative instruments deployed in WP3.

¹⁰ This section provides a concise overview of the results obtained from the desk research. The complete results, along with interpretation, conclusions, and recommendations, are presented in D3.1 – State-of-the-art report 1 (Kościewicz et al., 2025). The full report is available in open access in the ZENODO repository (direct access here: D3.1 State-of-the-Art Report 1). The repository also provides a description of the reviewing protocol describing the course of the academic literature and industry reports review, including a list of analysed secondary sources (direct access here: Reviewing protocol of SLR of academic literature and industry reports run under GameHearts project).





- To outline forward-looking strategic and policy recommendations, particularly concerning the sustainability of creative ecosystems, innovation support mechanisms, and the development of cooperative capabilities within and across sectors.

3.2 Methodology

The methodological framework was based on a **triangulated approach**, integrating three complementary sources of evidence: academic literature, industry reports, and case studies. The multi-source strategy in the report was selected to ensure analytical depth and sectoral relevance, acknowledging the complexity and evolving nature of cooperation between the EVGIE and other CCI.

Systematic literature review of academic sources

The academic strand followed a domain-based systematic literature review (SLR) (Paul et al., 2021), employing a five-stage process commonly applied in organisational studies: formulation of research questions, selection of literature, screening and evaluation, thematic analysis, and reporting. A structured protocol was established and registered in an open-access repository to ensure transparency and replicability (Klimas et al., 2024a).

Search queries were performed using the Scopus database, guided by a defined set of keywords aligned with the thematic scope of the **GAMEHEARTS** project. No publication time limits were imposed. Full-text access and English-language availability were used as core inclusion criteria. The articles were categorised as ‘*selected*’ (directly relevant), ‘*inspiring*’ (indirectly relevant), or ‘*excluded*’. In total, **61 academic publications were analysed**, encompassing both conceptual and empirical contributions.

The project’s research questions informed the thematic analysis and were operationalised using the Theory–Context–Characteristics–Method framework (Paul & Rosado-Serrano, 2019). A basic frequency analysis supported the review, offering insights into the maturity and thematic orientation of the research domain.





Review of industry reports

In parallel, the review covered **55 industry and consultancy reports** from commercial and public sources, as well as **18 statistical reports** accessed via the Statista platform. The selection was further refined through input from project partners and industry experts.

Sources were assessed according to relevance, credibility, and originality. A selective citation strategy was employed, underpinned by collaborative review and iterative validation to ensure industrial consistency and analytic coherence. The findings drawn from this stream were systematically cross-referenced with the academic literature to reinforce the triangulation process.

Exploratory multi-case study analysis

The third component of the methodological design involved the explorative analysis of **9 purposefully selected case studies**, divided into major and minor categories, illustrating concrete examples of EVGIE–CCI cooperation. Case selection drew upon expert recommendations, thematic discussions from **GAMEHEARTS** workshops, and earlier findings from the industry review.

Each case was examined using a consistent analytical structure, covering the background of the game and studio, the nature of collaboration with CCI actors, and the primary insights relating to value co-creation, co-innovation, and ecosystem development. Cultural, historical, and market-specific contexts were considered to ensure appropriate framing. The data sources comprised workshop contributions, industry publications, internal project knowledge, and relevant press materials.

The case study analysis adhered to established principles for multi-case research, incorporating purposive sampling, cross-source triangulation, and thematic pattern identification. A cross-case synthesis was conducted to detect recurring insights and to isolate critical factors that influenced the success or limitations of the collaborative initiatives.





3.3 Key findings

3.3.1 EVGIE in the European vs global context – significant insights

The concept of a geographically bound video game industry, such as the EVGIE, is increasingly difficult to uphold in light of how the global industry operates. Despite efforts to frame national or regional ecosystems as cohesive and internally structured, the reality is that the video games industry, particularly its development pillar, is transnational by design. Studios, talent, outsourcing chains, and even creative IPs function across borders, often disconnected from the formal location of headquarters. **Geographic qualifiers like ‘German VGIE’ or ‘Finnish VGIE’ can be misleading and risk obscuring the real patterns of influence, production, and ownership** that shape the sector.

What remains geographically grounded, however, is the institutional and regulatory layer. European law, funding frameworks, tax incentives, labour policy, and educational systems still significantly influence how and where games are developed. This hard infrastructure gives the EVGIE its defining shape - and the leverage point for European policymakers. In this context, the European Union has a strategic opportunity to assert cultural and economic agency, especially as the industry faces mounting global pressures.

It seems that two structural trends have made this urgency even more visible. The first is the **rapid increase in mergers and acquisitions involving European studios**. Chinese and Saudi capital, exemplified, for instance, by Tencent’s increasing presence in major European players, has reshaped ownership structures. This shift affects not only economic returns but also editorial control, cultural representation, and the strategic orientation of significant titles. As seen in the evolving role of Ubisoft, questions arise about whether studios headquartered in Europe still operate within a recognisably European framework.

The second trend is the emergence of artificial intelligence across all stages of game development. AI has become indispensable for efficiency gains, asset generation, and gameplay optimisation. However, **the European game lags behind the U.S. and China in AI regulation and techological competitiveness** (Kościewicz et al., 2025). While AI can significantly accelerate production workflows, it poses structural risks, such as deskilling the workforce, reducing entry-level opportunities, and concentrating control among a few dominant players.



The rapid growth of artificial intelligence in the cultural and media sectors offers Europe both an opportunity for accelerated innovation and a serious risk of technological dependence. While the United States invests billions in AI infrastructure and China builds its own state-driven ecosystem, Europe increasingly relies on external resources and corporations whose decision-making centres are rarely located on its territory. At the same time, emerging technological powers, including the wealthy Gulf states, are leveraging consumer technologies and video games as soft power instruments. European industries, by contrast, often operate in the shadow of global giants. The threat concerns not only the economy and technology but also culture. AI systems are trained primarily on data reflecting North American and Asian trends and aesthetics. As a result, there is a genuine danger of European values, narratives, and cultural sensibilities being diluted in the tide of more dominant foreign currents. To safeguard its agency and sovereignty, Europe must develop its own AI capabilities – from computational infrastructure and regulatory frameworks supporting local firms to initiatives that protect and promote European cultural heritage in the digital age.

Europe faces significant challenges in developing artificial intelligence, despite its clear potential. The EU is recognised globally for its ethical and regulatory frameworks, especially the Artificial Intelligence Act, but the thoroughness of these rules can sometimes slow technological progress. The Act classifies AI systems by risk and imposes strict requirements for compliance, transparency, and data use under GDPR. While these rules are vital for protecting rights and cultural values, they can limit access to the datasets needed for training advanced systems, increasing costs and delaying deployment for European companies. For instance, European firms developing generative AI tools or content recommendation systems must carefully navigate privacy restrictions. In contrast, in the United States, companies such as OpenAI or Google can access larger, less-restricted datasets to train similar models. China differs still further, combining state-driven investment with centralised coordination, enabling initiatives like AI-powered smart cities or surveillance networks at scale. Both regions benefit from fewer data constraints, giving them a clear competitive advantage. The implications for Europe are serious. Industries risk falling behind in innovation and losing influence over cultural narratives embedded in AI-driven media. Discussions about adapting parts of GDPR to enhance competitiveness show the tension between ethical standards and global relevance. Europe must carefully balance oversight with practical measures that reduce administrative burdens, improve access to data, and support domestic innovation to safeguard technological sovereignty and cultural distinctiveness.





European developers remain primarily dependent on foreign AI infrastructures and tools, many of which are trained on Anglo-American or Chinese datasets. This reliance carries cultural implications as algorithmic systems may shape or misrepresent the aesthetics, narratives, and values expressed in European games (Stuart, 2025). Without targeted investment in sovereign, culturally contextualised AI, Europe risks not only economic marginalisation but also gradual weakening of its capacity to tell its own (cultural) stories through digital media. These concerns call for direct action from policymakers and cultural institutions¹¹.

Despite all the pressures mentioned above, Europe continues to deliver highly impactful titles rooted in cultural, historical, and social specificity. Case studies, such as *This War of Mine*, *Kingdom Come: Deliverance*, and *Cyphers Game*, demonstrate that **games can be powerful tools of cultural preservation, education, and public discourse**. However, these cases are still exceptions - **dependent on local initiative, sporadic funding, or unique partnerships, rather than the result of a coherent European strategy**.

There is growing recognition from practitioners and analysts that Europe should stop being a passive observer in the global competition for digital influence. VGI reaches a significant portion of the worldwide population and functions not merely as entertainment but as a medium of value formation, civic identity, and ideological alignment. The current regulatory gap and ownership erosion represent a lost opportunity for economic development and a missed chance to shape the cultural imagination of future generations.

3.3.2 EVGIE development perspectives – major insights

A dual tension shapes the development trajectory of the EVGIE: on the one hand, its proven capacity for cultural innovation, civic engagement, and high-quality design; on the other, its structural vulnerabilities in funding, coordination, and global competitiveness. The case studies, literature, and industry analyses collected at the stage of desk research highlight several key levers for advancing the EVGIE's role as both an economic sector and a cultural force.

¹¹ Observations regarding the lack of, but also the necessity for greater attention from the European Union on AI, including the need for investments in this area, were accurate. Already during the development and publishing the results, information was made public regarding EU investment plans for creating AI gigafactories to allow companies to train their AI models (EuroNews, 2025).



A central insight **is the latent potential for deeper integration between EVGIE and other CCI**. Numerous successful examples demonstrate that such partnerships are possible and highly productive. Titles such as *This War of Mine* and *My Memory of Us* illustrate how narrative design, artistic direction, and social commentary - anchored in European cultural heritage - can reach a broad international audience. At the same time, projects like *Cyphers Game* show how educational and institutional actors can successfully enter the game development space when public resources and clear mandates are provided.

However, such instances remain fragmented and sporadic. A common theme across academic literature and industry reports is the lack of systemic frameworks encouraging sustained cooperation between developers and CCI entities. Where cooperation occurs, it often relies on individual relationships, one-off funding, or shared short-term goals. Value co-creation and co-innovation opportunities are routinely lost without matchmaking structures, intermediary organisations, or targeted policy instruments.

The analysis also underscores **the importance of financial instruments, both direct and indirect**. Grant schemes, public tenders, and project-based subsidies play a role, but they must be matched with structural mechanisms such as tax reliefs, incentives for educational game production, and publicly funded partnerships between studios and cultural institutions. In addition, more robust support for transmedia projects - where games intersect with books, music, theatre, and museums - could significantly broaden audience reach and cultural impact (Kościewicz et al., 2025).

The EVGIE is also positioned to lead in domains where **games serve as consumer products and tools for societal benefit**. *Hellblade: Senua's Sacrifice* demonstrates how games can address mental health through expert consultation and immersive design. It is worth mentioning and stressing that the game led to the creation of the ongoing research initiative, The Insight Project, an ambitious combination of technology, game design and clinical neuroscience, which was brought together to generate strategies to alleviate mental distress. Ninja Theory develops the project with Professor Paul Fletcher of the University of Cambridge. Similarly, *Assassin's Creed* and its *Discovery Tour* mode show the capacity to repackage entertainment IP into pedagogical formats suitable for schools and museums. The inclusion of *This War of Mine* in the Polish national curriculum is a milestone, and it should be seen as a pilot case for broader pan-European initiatives aimed at educational integration.



A future-proof EVGIE requires more than funding - it requires visibility, legitimacy, and protection. To achieve this, the European Commission and national bodies should **recognise the video games industry as a core component of Europe's cultural and industrial identity**. This involves formal inclusion in cultural policy frameworks, investment in research and development, and proactive defence against hostile acquisitions or offshoring of intellectual property (IP). The credibility of the European approach depends not only on outputs but also on whether the continent's most innovative studios remain under European ownership and aligned with European values, as case studies have shown substantial potential for it (Kościewicz et al., 2025).

Finally, regulatory and ethical foresight should accompany the industry's development. As a transformative force, Artificial Intelligence brings both efficiency and the risk of creative homogenisation and labour displacement. The EVGIE should build its competitive edge not by replicating the scale of American or Chinese studios, but by cultivating originality, interdisciplinary collaboration, and cultural specificity.

VGI has already proven that games can educate, commemorate, provoke reflection, and inspire. What remains is the political will and strategic coordination to scale these capacities - before they are absorbed into global value chains where Europe is no longer the author of its own digital narratives.

3.3.3 Cross-industry cooperation perspectives

Below, we provide a concise overview of the complex cross-industry cooperation between the VGI and CCI from a European perspective, emphasising two-layered dimensions: cooperation type (**co-creation, co-innovation, value transfer**) and cooperation stage (**Establishment, Execution, Ending**). A diligent and curious reader is invited to check the full report (Kościewicz et al., 2025).

Special recommendation is given for analysing key issues across the establishment, execution, and ending of cross-industry cooperation identified during the systematic review of academic literature and industry reports (Kościewicz et al., 2025). Also, two additional topics are discussed below – the role of adaptations and transmedia storytelling and the concept of the fourth phase of cross-industry cooperation – **Endorsement**.



Co-creation potential

Co-creation between the video game industry and other CCI demonstrates considerable potential, though it remains inconsistently realised. Select titles exemplify how interdisciplinary collaboration can yield games that are both artistically distinctive and socially impactful. *This War of Mine*, developed with input from humanitarian and educational actors, became the first video game included in a national school curriculum. This achievement reflects its resonance beyond entertainment. *Cyphers Game*, created in partnership with a museum and educational institutions, fused historical material with interactive storytelling, offering a model of how narrative design and public history can be jointly developed.

Establishment

At the establishment stage, **co-creation initiatives are typically motivated by factors such as** the ambition to preserve or promote cultural heritage, the pursuit of social education, or the alignment of institutional missions between VGIE entities and public or cultural organisations. **Key enablers** include access to skilled creative partners, public funding opportunities, and a shared interest in cultural legitimacy. However, the process often relies on informal personal networks or one-off institutional alignments rather than structured cooperation models. Cultural institutions and studios that share thematic or ideological goals - such as memory politics, civic engagement, or artistic experimentation - are more likely to initiate co-creative partnerships.

Execution

During the execution phase, **the co-creation mechanisms vary across scales and industries.** Large-scale productions like *The Witcher 3* involved a wide array of contributors - symphony orchestras, comic artists, screenwriters - demonstrating how game development can serve as a platform for converging artistic disciplines. Smaller studios often engage with NGOs, schools, and museums to create culturally or socially grounded games. Examples include developing serious and alternate reality games (ARGs) used in education to foster critical thinking and civic awareness. These projects typically require high levels of cross-disciplinary coordination, creative compromise, and iterative design, but they benefit from the creative capital of both sectors.



Ending

Despite notable successes, **the termination or stagnation of co-creation efforts often results from structural constraints**. The absence of intermediary organisations, limited funding continuity, and lack of long-term institutional frameworks mean that many promising initiatives fail to scale or become sustainable. **Barriers** such as misaligned expectations, insufficient communication, and difficulties in managing shared IP further complicate sustained collaboration. Nevertheless, despite operating within fragmented ecosystems, the successful cases demonstrate the transformative potential of co-creation: strengthening the cultural relevance of games, expanding their social function, and repositioning the medium as a legitimate platform for shared meaning-making across domains.

Co-innovation potential

Co-innovation between the video games industry and other industries presents a promising but underexploited frontier. The capability of EVGIE actors to generate technological solutions, creative formats, and design processes with cross-sectoral applications is evident, particularly where game engines, immersive environments, and real-time rendering technologies are involved.

Establishment

At the establishment stage, co-innovation initiatives typically emerge where the creative and technological capabilities of EVGIE actors intersect with the unmet innovation needs of other sectors. **Motivations** include efficiency gains, experiential design potential, and the ability to prototype or simulate complex systems. **Early drivers** often involve institutions or firms looking to leverage game technologies for non-entertainment purposes - whether to visualise data, engage users more effectively, or enhance interactivity. However, the absence of shared R&D ecosystems, limited cooperation history, and sectoral knowledge gaps often make the initiation phase dependent on visionary actors or exceptional use cases.

One of the most striking areas of co-innovation lies in the adoption of game engine technology beyond entertainment. The automotive sector, for instance, integrates tools like Unreal and Unity for interface prototyping, driver experience simulation, and R&D visualisation. Similarly, the pharmaceutical industry has begun employing interactive simulations and





gamified environments to support drug discovery and patient engagement, capitalising on the cognitive and experiential design strengths of the VGI. In architecture and real estate, interactive models built on video game frameworks now serve in spatial planning, stakeholder presentations, and immersive walkthroughs (Kościewicz et al., 2025).

Execution

During execution, co-innovation materialises through joint development processes, customisation of existing technologies, and integration of game design principles into traditionally non-game workflows. **These processes often require** bridging cultural, technical, and organisational divides between industries. In practice, successful collaborations involve adapting game engines to simulate real-world environments, creating visualisation platforms, or building educational and therapeutic tools rooted in game logic.

Co-innovation is also reflected in education and health, with serious games addressing mental health (*Hellblade: Senua's Sacrifice* or *Sea of Solitude*), history education (*Assassin's Creed: Discovery Tour*), and social training (e.g., games simulating migration or conflict scenarios). These examples illustrate the industry's ability to extend its creative capital into domains traditionally disconnected from entertainment media. They also highlight the importance of iterative feedback, user testing, and co-design in ensuring that game-based innovations meet external sector standards and expectations.

Ending

Structural and institutional factors often constrain sustained co-innovation. Sectoral silos and fragmented funding ecosystems can prevent long-term collaboration. The lack of established joint research frameworks or intermediary structures limits scalability and continuity. Moreover, emerging challenges - such as the role of artificial intelligence in content creation - introduce new uncertainties which may lead to unexpected termination.

Without structured coordination mechanisms, the EVGIE risks becoming a silent subcontractor for other industries' innovation agendas, rather than a co-equal partner. Intellectual property governance, unclear revenue-sharing models, and differing priorities across sectors can lead to asymmetrical partnerships or project fatigue. If these challenges are not addressed, the promising frontier of co-innovation may remain fragmented and under-leveraged.





Value transfer potential

VGI has proven increasingly capable of transferring cultural, technological, and organisational value across domains. While often under-recognised, this exchange operates in both directions - bringing creative assets into games and exporting interactive practices and design logic into other sectors.

Establishment

At the establishment stage, **value transfer is typically driven by recognising overlapping needs and complementary strengths between VGI and other industries**. Cultural institutions seek new forms of engagement, educators require immersive teaching tools, and industries like architecture or healthcare explore simulation and interaction design. Simultaneously, VGD look for new narratives, authentic content, and expanded relevance. Key motivators include the opportunity to preserve cultural heritage, reach broader audiences, and enhance credibility within non-entertainment contexts. However, initiating such exchanges often depends on visionary leadership or isolated funding schemes, rather than systematic matchmaking mechanisms or institutionalised transfer channels.

A clear instance is **the growing reuse of cultural heritage content in games**. Historical archives, museum materials, and artistic motifs are adapted into game environments, contributing to preservation and reinterpretation. For example, titles such as *My Memory of Us*, *Valiant Hearts: The Great War*, and *This War of Mine* drew upon collective memory and civic trauma, integrating external cultural narratives into gameplay. Another example would be *Skábma: Snowfall* game, engaging players in the North European Sámi culture.

Execution

Execution of value transfer takes diverse forms. On the **cultural and educational side**, game mechanics and immersive storytelling are repurposed to enhance learning and reflection. The *Discovery Tour* mode of *Assassin's Creed*, used in schools and museums, repositions entertainment IPs as teaching tools. This is one of multiple examples of video games deep-rooted in the historical content having a prospective educational value, as it is in examples as



well-known strategic games, including the series *Europa Universalis*, *Crusader Kings* and *Anno*, as well as a few other genres, including the critically acclaimed *Kingdom Come: Deliverance*. It is worth remembering that all those titles were and still are produced by European game developers and related to Europe-based publishers, which should not be omitted when looking for Europe-centred VGI-related strategies. Similarly, mental health applications - exemplified by *Hellblade: Senua's Sacrifice*, developed in consultation with neuroscientists and clinicians - illustrate how game studios can generate methodologies and representational strategies of value to external professional domains.

On the **technical and organisational side**, value transfer is visible in adopting development pipelines, iterative design practices, and user-centred testing protocols by cultural institutions. Agile workflows common in game production are increasingly mirrored in museums, galleries, and educational programmes aiming to modernise content delivery and engagement strategies. Visual assets and game engines are reused in architectural visualisation, theatre scenography, and digital exhibitions. Some museums and public bodies now co-develop serious games or interactive installations with game studios, blending technical innovation with curatorial or civic missions.

Ending

Despite compelling examples, the **full potential of value transfer remains underexploited**. Most initiatives are confined to pilot projects or short-term collaborations, rarely achieving sustained impact or institutional integration. **Key barriers** include restrictive IP regimes, a lack of standardised practices for adaptation or co-licensing, and minimal awareness within public institutions of what VGIE can offer.

Moreover, valuable practices and innovations risk remaining isolated without long-term frameworks or scalable partnership models. The absence of shared vocabularies, evaluation metrics, and coordination bodies means that successes are difficult to replicate or systematise. Still, where transfer is effectively managed, it enhances the utility of games as knowledge carriers, design laboratories, and cultural interlocutors - positioning VGIE as a partner in both creative and non-creative domains.



Adaptations and transmedia storytelling

A separate element - closely linked to value transfer but conceptually distinct in literature and practice - is the phenomenon of adaptations and transmedia storytelling. **The convergence of video games with film, television, literature, music, and other narrative arts has become a defining feature of contemporary media ecosystems.**

In the European context, this trend has gained momentum through high-profile cross-media collaborations that extend the reach of game-based IPs and enhance their cultural standing and social relevance. In the report, film and television are covered (Kościewicz et al., 2025), as well as providing more detailed examples in the case studies. Here, we present the insights and their implications.

The most prominent example is *The Witcher* franchise, originally rooted in Polish literature and globally expanded through CD Projekt RED's game series. Its subsequent Netflix adaptation - produced with direct links to the Polish developer - transformed *The Witcher* into a globally recognised multimedia property. This created a feedback loop of renewed interest in the original novels and game titles, particularly following the release of remastered editions and new expansions. The synergy between Polish game development, national literary heritage, and global streaming platforms illustrates how European narratives can achieve global scale while retaining cultural specificity. Importantly, this case also highlights the critical importance of intellectual property management. The contractual and reputational dispute between Andrzej Sapkowski and CD Projekt RED is a cautionary tale about ensuring equitable recognition and sustainable IP agreements within adaptation frameworks (Kościewicz et al., 2025).

Another notable case is *Cyphers Game*, a minor yet culturally significant Polish project developed in partnership with the Institute of National Remembrance and educational institutions. While not yet adapted to other media, its structure and narrative depth position it as a strong candidate for future transmedia development, particularly within educational and heritage-driven environments. This aligns with the broader trend of using video games as a platform for documentary storytelling and civic engagement.

Arcane's critical and commercial success - a Netflix television series based on IP and lore of the globally recognised game *League of Legends*, developed by U.S.-based Riot Games - further underscores Europe's strategic role in transmedia innovation. The show's distinctive



visual identity, designed and produced by the French animation studio Fortiche Production, exemplifies how European creative and technical capacities are instrumental in shaping globally resonant narratives. Beyond its aesthetic achievements, *Arcane* demonstrates the added value of cross-border and cross-sectoral cooperation: the series has been praised for its visual ambition and narrative depth, world-building, and emotional complexity. It stands as a benchmark for how transmedia partnerships can elevate adaptations beyond brand extension, positioning them as culturally relevant and artistically credible contributions to global media ecosystems.

Beyond these flagship examples, the proliferation of game-inspired soundtracks, orchestral concerts (e.g., *The Witcher 3* tours), graphic novels, and web-based miniseries demonstrates a growing permeability between the EVGIE and Europe's broader cultural industries. This includes the expanding use of game music as a standalone artistic product, with symphonic concerts drawing entirely new audiences to philharmonic venues and festivals. In these cases, music is no longer secondary or atmospheric but becomes a primary vector for cross-industry engagement, often involving co-creation between developers and composers. This shift mirrors a broader recognition of game sound design's sophistication and emotional impact (Schütze, 2003).

Recent years have also brought a visible shift in the success pattern of adaptations. While film adaptations of games long suffered from the so-called 'video game movie curse', this stigma appears to be eroding. Titles such as *Detective Pikachu* (2019), *Werewolves Within* (2021), and the record-breaking *Sonic the Hedgehog 3* (2024) have received both critical and commercial success (Statt, 2019; Scott, 2022; Malhotra, 2025). Conversely, failures like *Assassin's Creed* (2016) or *Borderlands* (2024) reveal persistent challenges, particularly when narrative complexity or tonal dissonance undermines adaptation. The adaptation format also matters: evidence suggests that television series are currently better suited than feature films to capture the narrative breadth and audience engagement characteristic of video games (Phan, 2023; Eakin, 2024; Romano, 2022). Projects like *The Last of Us* (HBO, 2023–2025) and *Fallout* (Amazon, 2024) indicate that episodic storytelling aligns more effectively with game-based world-building and character development.

However, despite commercial progress, **institutional support for transmedia projects in Europe remains fragmented**. Countries like France, Germany, and Poland offer targeted grants or tax incentives, but a coherent EU-level strategy is lacking. The absence of coordinated



frameworks for funding, IP licensing, or cross-sector matchmaking limits the scalability and sustainability of transmedia initiatives. Without this strategic backbone, Europe risks continuing as a high-value subcontractor to global entertainment giants rather than asserting authorship over its own digital mythologies.

Transmedia storytelling offers the EVGIE a pathway to amplify the cultural legitimacy of its content, increase long-term brand value, and generate diversified revenue streams.

When strategically aligned with other cultural sectors - literature, cinema, television, music, theatre, heritage institutions - it can redefine how European narratives are told, funded, and remembered. However, without robust frameworks to manage rights, balance creative priorities, and bridge sectoral divides, the opportunity may be unevenly realised or co-opted by external commercial agendas.

Towards a 4E model of EVGIE-CCI cooperation

Insights from the analysis of cross-industry cooperation between EVGIE and other CCI suggest the value of extending the initially applied three-phase framework. While the original assumption of desk research has accurately described a processual model - consisting of Establishment, Execution, and Ending - the empirical findings from case studies suggest a structural gap beyond these stages.

Specifically, many promising initiatives falter not due to creative, technological, or even organisational limitations, but because they lack long-term anchoring mechanisms. As a result, further analysis suggests the relevance of an **expanded 4E model**, introducing a fourth, prospective stage: Endorsement. This revised framework - **Establishment, Execution, Ending, Endorsement** - could better reflect the full lifecycle of cross-industry cooperation in its most durable and policy-aligned form.

The proposed endorsement phase addresses structural consolidation needs after a project or pilot concludes. It encompasses the institutional, regulatory, and political recognition of EVGIE-CCI cooperation as a strategic cultural and innovation priority. It could involve the creation of funding instruments, integration into cultural and digital agendas, establishing intermediary bodies, and supporting multi-annual collaboration programmes. Creative



partnerships are often successfully initiated and executed, only to dissipate due to a lack of systemic follow-through, particularly in policy environments where public procurement, rigid legal frameworks, or limited administrative capacity act as barriers. This need becomes visible across all core modalities explored:

- In **co-creation**, deeply impactful and socially resonant titles, such as *This War of Mine* or *Cyphers Game*, often emerge through high-trust, high-effort collaboration. Yet without long-term visibility or embedded mechanisms, such efforts risk remaining isolated and unable to scale or be integrated into cultural education or heritage policy.
- In **co-innovation**, video game technologies show strong potential across healthcare, architecture, automotive, and retail. In European healthcare, VR therapy and immersive surgical simulations are helping patients and trainees, while architectural firms use game engines for real-time visualisations and interactive walkthroughs. Automotive companies such as BMW and Volkswagen employ simulation tools for prototyping and UX testing, and retailers like IKEA and Sephora experiment with AR try-ons and virtual showrooms. Most of these projects remain one-off initiatives rather than ongoing collaborations. Without structured support such as shared platforms or co-financing schemes, this innovation will likely stay opportunistic rather than forming a systemic, Europe-wide approach.
- **Value transfer** has demonstrated broad relevance, particularly in its cultural or technical forms, from museum collaborations to agile design practices exported to heritage institutions. Still, the lack of legal clarity, standards, or licensing frameworks limits the diffusion and reapplication of such practices.

Recent developments in transmedia storytelling suggest a growing maturation in Europe's capacity to extend cultural narratives across multiple platforms. Titles like *The Witcher*, *Sonic the Hedgehog*, and *Arcane* exemplify how game-based intellectual properties can achieve narrative depth and global resonance through well-executed adaptations. Among the most compelling cases is *Cyberpunk: Edgerunners*, a Japanese-produced anime that successfully expands the world of CD Projekt RED's flagship video game while simultaneously drawing on the original tabletop role-playing system. The series received widespread critical acclaim and audience engagement, leading to the commissioning of a second season. This demonstrates European-origin content's narrative scalability and market viability when supported by strategic creative partnerships. Despite notable successes, the absence of a coherent European policy for transmedia development limits the broader impact of such initiatives. Many projects remain fragmented or reliant on non-European platforms without coordinated investment





and institutional backing. Europe's potential to develop and export its digital mythologies remains underutilised. Realising this potential requires integrating transmedia storytelling into long-term strategies for innovation, cultural influence, and technological autonomy. The endorsement phase, therefore, is not a postscript - it is a condition for structural continuity, scale, and legitimacy. It shifts the goal from temporary success to sustainable integration. It could take the form of:

- **Strategic alignment** of EVGIE–CCI cooperation with national and European cultural, digital, and innovation policies;
- **Public instruments** tailored to cross-sector formats, beyond conventional arts or tech funding;
- **Institutionalisation of intermediaries** capable of translating, brokering, and sustaining partnerships;
- **Legal and procedural frameworks** that support co-ownership, IP security, and rights management;
- **Recognition of video games' cultural function**, particularly in education, heritage, and civic engagement.

Adopting such a model would not eliminate risk or failure. Still, it could help convert successful pilots into replicable formats, reinforce legitimacy across sectors, and give collaborative creativity the long-term perspective it often lacks. Without such support, many initiatives may continue to depend on personal networks, isolated champions, or temporary grants, falling short of the systemic impact they might otherwise achieve.

In short, the 4E model does not replace the current process logic, but enriches it, offering a more realistic view of what sustainable cross-industry cooperation could require, not only in terms of creativity but also of continuity, infrastructure, and public commitment.

3.3.4 Additional insights and the current developments

In shaping a forward-looking strategy for the European Video Game Industry Ecosystem, the critical issue is not merely one of scale, but of alignment - cultural, operational, and strategic. While the continent is home to some of the industry's most recognisable names, the distinction between companies based in Europe and those representing European values has



grown increasingly complex. As the industry globalises, so should policy thinking evolve - not in pursuit of size for its own sake, but in defence of sovereignty, creativity, and cross-sectoral embeddedness.

Ubisoft illustrates this duality particularly well. As one of the most recognisable publishers with European origins, its contributions to the sector are substantial. The *Assassin's Creed* series alone has arguably done more than any other IPs to explore and visualise complex historical settings. It has delivered richly imagined environments ranging from ancient Egypt to Revolutionary France, and other locations, including, more recently, 16th-century Japan (*Shadows*). Each title showcases a high level of historical research and artistic direction, reinforcing Europe's capacity to shape culturally resonant digital narratives globally. At the same time, Ubisoft's corporate structure, significant development footprint outside Europe, and partial ownership by Tencent complicate its role as a symbol of European digital sovereignty. The publisher remains a crucial industry partner and a valuable contributor to European creative infrastructure, but one that increasingly functions globally. Respect for its legacy and continued engagement is essential; however, policymaking must avoid conflating *presence* with alignment. To shape a resilient and autonomous future, Europe must invest not only in its most prominent actors but in those studios whose practices most closely reflect continental priorities - be they cultural, social, or civic.

Studios such as **CD Projekt RED**, **Larian Studios**, and **Warhorse Studios** continue to illustrate the depth and diversity of what 'European video games' can mean. In 2023, *Baldur's Gate III* became a phenomenon far beyond the RPG niche, reaffirming Larian's mastery of early-access development, narrative branching, and community dialogue. In 2024, CD Projekt RED completed its *Cyberpunk 2077* redemption arc with the *Phantom Liberty* expansion, blending technical refinement with narrative depth. This was not just a product update but a statement of intent that reaffirmed the studio's long-term commitment to quality, repair, and cultural responsibility.

2025 has already brought further evidence of Europe's creative momentum. The sequel to *Kingdom Come: Deliverance* has garnered acclaim for its mechanics and cultural sensitivity, diving deeper into medieval life's social and daily realities. Warhorse Studios did not just revisit epic battles; they explored village life, religious influence, and the subtle social tensions of the era, turning an RPG into an educational experience rooted in lived history.





Another standout success is *Clair Obscur: Expedition 33*, a Franco-Belgian indie title praised for its haunting visuals, atmospheric storytelling, and philosophical undertones. Released in early 2025, it won accolades at several European arts game festivals, demonstrating that originality and cultural density can triumph even without blockbuster budgets or considerable publisher involvement.

These and other examples reflect a **growing ecosystem of national champions: studios embedded in their cultural contexts, oriented toward long-term quality** rather than short-term monetisation, and structured to collaborate with museums, musicians, educators, and the broader CCI landscape. Their agility and openness to experimentation make them ideal policy interlocutors - precisely the kind of actors that should be central to European video games strategy.

Importantly, these studios have also demonstrated that it is not just a competition that defines the European game development spirit. CD Projekt's public support for *KCD II* and Larian's respectful nods toward fellow RPG developers illustrate a non-competitive approach, with studios elevating each other's work and collectively reinforcing Europe's cultural profile.

Strategic implications of the current state:

- Rebalance cultural funding towards studios with strong local roots, creative independence, and a track record of collaboration with other CCI.
- Recognise European mid-tier and indie studios as the engines of cultural sovereignty; tailor support mechanisms to their unique needs.
- Support transmedia innovation, and the use of games in civic, educational, and heritage contexts - especially when tied to literary, historical, or artistic narratives.
- Incorporate community engagement into evaluation criteria, rewarding studios that maintain open development, transparency, and ethical design practices.
- Avoid over-concentrating policy efforts around mega-publishers whose operations are increasingly detached from the European context.

Europe does not lack influence in the global games industry - it lacks strategic clarity about where that influence resides and how to nurture it. By focusing on national champions that combine cultural integrity with international ambition, the continent can position its video games industry not as a regional satellite of global tech but as an autonomous, values-driven contributor to the world's digital imagination.





3.3.5 Inclusiveness in video games

Inclusiveness in the video games industry has become an essential dimension of cultural representation and workforce composition. While diversity rhetoric has gained prominence globally, the EVGIE reflects a more complex and often fragmented picture. The desk research findings underscore that inclusion is not merely a social imperative but a structural lever for industry sustainability, creativity, and civic relevance.

From a content perspective, games increasingly engage with identity, trauma, and marginalisation issues. Titles like *This War of Mine* exemplify how European developers can produce narratives that not only reflect socio-political realities but also foster empathy and critical reflection. Developed with humanitarian organisations and educational partners, the game positions players as civilians in warzones, subverting mainstream power fantasies and giving voice to often overlooked civilian perspectives. Its adoption into the Polish national curriculum marks a turning point, signalling institutional recognition of games as serious cultural media capable of engaging with socially sensitive themes.

Similarly, projects such as *My Memory of Us*, with its allegorical narrative rooted in historical trauma, show how smaller European studios are carving out space for underrepresented stories. These examples illustrate that inclusiveness in game content does not require compromise on artistic quality or commercial potential; instead, it can become a defining strength when supported by appropriate funding, partnerships, and editorial freedom.

On the production side, however, persistent structural imbalances remain. Industry reports point to the chronic underrepresentation of women and minorities in game development roles, particularly in technical and leadership positions. While some progress has been made - especially in Scandinavia and parts of Western Europe - diversity hiring remains sporadic and insufficiently institutionalised. Creative roles like narrative design and community management show better gender representation but are often devalued relative to programming or executive functions.

Furthermore, the industry's growing reliance on remote work, outsourcing, and transnational production raises additional challenges. Considering such phenomena, **inclusion should be reconceptualised to address local equity and global justice, particularly concerning**



precarious labour conditions, unequal access to funding, and linguistic barriers. This is especially relevant for indie developers and small studios in Central and Eastern Europe, who often operate without the support structures available in more established markets.

Beyond workforce demographics, desk research suggests that **inclusiveness should also encompass accessibility.** While some studios have embraced inclusive design, such as adaptable control schemes, visual and auditory aids, and neurodiverse-friendly gameplay, these practices are still far from industry standard. It would be acknowledged that inclusive design is not only a moral imperative but also a pathway to social impact and market expansion.

In 2025, the global narrative around diversity, equity, and inclusion (DEI) is under pressure. A striking example is Take-Two Interactive, publisher of Grand Theft Auto VI, which removed all references to DEI and LGBTQ+ initiatives from its annual report, replacing them with the vague concept of 'diversity of thought' (Farokhmanesh, 2025). This shift is widely seen as an act of **diversity washing** - signalling inclusion rhetorically while retreating from concrete measures.

These shifts also highlight that many earlier DEI programmes were driven by reputational or investor considerations rather than by structural reform. When initiatives are not backed by measurable outcomes and embedded governance, they are easily abandoned or reversed under political or market pressure. As recent U.S. trends demonstrate, uncritical continuation of outdated DEI frameworks can be counterproductive, feeding backlash rather than building legitimacy.

European institutions face a different landscape, yet cannot ignore the global climate. In June 2025, officials in France and Belgium explicitly rejected U.S. efforts to export anti-DEI narratives, reaffirming that equality and pluralism remain core European values (Associated Press, 2025). This contrast underscores a key lesson: Europe's DEI strategies must be designed for resilience, with clear objectives, transparent mechanisms, and long-term funding. They must avoid performative gestures and address the risk of opportunism head-on, ensuring that inclusion efforts are credible, sustainable, and shielded from ideological volatility. There is a potential risk that members of underrepresented groups (women, minorities, people with disabilities) may be hired not primarily based on their competencies, but to fulfil internal or external quotas, such as those associated with grants or formal programmes. Such dynamics require a cautious interpretation of reported DEI successes, as they may not fully reflect genuine organisational inclusivity or merit-based outcomes.



In sum, the EVGIE has demonstrated its potential to incorporate inclusive narratives and practices efficiently. Yet without systemic intervention - through funding priorities, regulatory mandates, and cultural policy integration - such efforts remain vulnerable to market pressures and institutional inertia. If properly resourced and structurally embedded, inclusiveness could become a defining advantage of Europe's VGI. The challenge is not whether the industry can deliver - it already has - but whether Europe is prepared to scale and protect what has emerged.

3.4 Conclusions

The desk research recognised the key patterns of value co-creation, co-innovation, and value transfer across multiple industries using the 3E cooperation model, showing also the need for model expansion by adding the endorsement phase.

Firstly, the research achieved its objective of **recognising the EVGIE's direct and indirect contributions to economic growth, job creation, and social cohesion**. By analysing academic and industry sources, the desk research confirmed the sector's relevance in promoting inclusivity and fostering civic, educational, and cultural values, not merely as a commercial industry but as a vehicle for societal influence. Projects such as *Hellblade: Senua's Sacrifice*, *Assassin's Creed: Discovery Tour*, and the use of game engines in architecture and health contexts exemplified the EVGIE's capacity to operate at the intersection of well-being, culture, and innovation.

Secondly, the study critically engaged with policy contexts by **identifying challenges and opportunities within the European regulatory landscape**. It highlighted the urgent need for coherent AI policies, raised awareness of ownership dynamics (especially in the face of increasing M&A activity), and demonstrated the strategic potential of games as platforms for cultural transmission. These insights advanced the project's aim to reflect on EU and broader social policies, offering an evidence-informed perspective on how current governance frameworks shaped - and sometimes inhibited - cross-sectoral innovation.

Thirdly, the desk research provided a comprehensive thematic **mapping of how cooperation between the EVGIE and CCI can generate shared value**. By systematically addressing the establishment, execution, and ending phases of cross-sectoral cooperation, it clarified



the operational mechanics of co-creation, co-innovation, and value transfer. Furthermore, it introduced a refined 4E model - adding the endorsement phase - to capture the institutional, regulatory, and political mechanisms required for long-term cooperation. This conceptual advancement supported the project's objective to identify pathways for sustainable collaboration.

Fourthly, the secondary data-based report **drew attention to inclusive and accessible cultural experiences**, particularly concerning digital heritage, representation of marginalised groups, and the use of games as instruments of educational empowerment. While some dimensions of inclusivity (e.g., economic marginalisation) remained under-researched, the report laid a robust foundation for further empirical work in this area, consistent with the project's commitment to inclusion and cultural democratisation.

Fifthly, the research highlighted several **knowledge gaps and structural challenges relevant to academic and policy audiences**. These included a lack of methodological consistency in industry reporting, underrepresenting non-Western and marginalised perspectives, and limited empirical data on the ending phase of cooperation.

Lastly, it captured a broader **shift in the EVGIE towards transmedia storytelling and adaptation**. Notable examples such as *The Witcher* franchise - originating from Polish literature and developed by CD Projekt RED - illustrate the cultural and commercial value of integrated cross-media strategies. Despite its multiple struggles and ambiguous partnership with Tencent, Ubisoft still emerged as a key actor in developing transmedia-ready IPs and forging cooperatives across cultural industries, educational platforms, and public institutions. This strategic engagement supports Europe's cultural sovereignty and positions its game developers as authors of globally resonant narratives.



4. QUANTITATIVE LARGE-SCALE SURVEY

4.1 Aims

One of the key issues examined within the investigation of WP3 entitled Videogames Industry Ecosystem was the impact of a broad spectrum of co-creative innovation relationships (also referred to as co-innovation relationships) maintained between game developers and both EVGIE and CCI on one of the fundamental drivers of game developers' development, namely organisational innovativeness (Klimas & Czakon, 2018; 2022; Hussain et al., 2023; Qi, 2024; Zhang et al., 2024). Therefore, the main goal of the large-scale survey on European VGD was to **test the following hypothesis:**

Co-innovation relationships maintained by VGD within EVGIE and with CCI positively impact their organisational innovativeness.

The overarching aim of this part of the empirical inquiry was inspired by the findings of Klimas (2019), who demonstrated that co-innovation relationships maintained by Polish game developers generally positively affect their level of organisational innovativeness¹². While these findings are geographically limited to Poland, they suggest that one potential route for enhancing innovativeness among game developers may lie in establishing and leveraging co-innovation relationships.

Therefore, given, on the one hand, the limitations of Klimas's (2019) study and, on the other, the **GAMEHEARTS** project's focus on ecosystem-based and cross-industry cooperation, the objective of the quantitative stage of our research was to examine the impact of co-innovation relationships maintained by European game developers - both within the VGIE (including industry-specific ties as well as interactions with players, their communities, or business support organizations, as defined and structured in the desk research report – Kościewicz et al., 2025), and with actors from other sectors classified as part of the CCI (Regulation (EU) 2021/818, 2021) - on their organisational innovativeness (in terms of Wang

¹² It is worth adding that in the research conducted by Klimas (2019), attention was focused on the co-innovation relationships that developers maintain and utilise: (1) within the video games industry, (2) with entities from other entertainment industries, and (3) within video games communities. As a result of structural model analysis, it turned out that co-innovation relationships maintained with entertainment industry entities and with video games communities have a positive and statistically significant impact on the innovativeness of game developers, while the impact of co-innovation relationships within the video games industry (which the study shows to be slightly negative) is not statistically significant.





& Ahmed, 2004). In other words, the research sought to investigate whether, from a European perspective, co-innovation relationships (both within and beyond the video games ecosystem but still situated within the CCI context) can be considered mechanisms for enhancing the innovativeness of game developers.

Accordingly, and in line with a cumulative knowledge-building approach, the quantitative study undertaken here (1) aims to verify findings from the Polish VGIE context suggesting that co-creative innovation relationships with entertainment actors have a positive and significant effect on developers' innovativeness, and (2) extends this earlier research by examining the influence of CCI-based cooperation.

Achieving the primary research objective concerned the formulation and pursuit of several specific sub-objectives, namely the development, validation, and adoption of measurement models (i.e., reliable means of measuring) for the variables outlined in the main objective: co-innovation relationships within VGIE, co-innovation relationships with other CCI, and organisational innovativeness.

In addition, drawing on the results of prior desk research conducted under the **GAMEHEARTS** project (Kościewicz et al., 2025), the study also sought to:

- Identify the extent to which VGD engage in co-innovation relationships across various stages of the co-innovation process as conceptualised in prior qualitative research on the Polish video games innovation ecosystem (Klimas & Czakon, 2022) - a framework that had not yet been empirically tested;
- Assess the extent to which game developers engage in co-value creation relationships (i.e., not limited solely to innovation, but more broadly concerning joint value creation and transfer) within the EVGIE and with other CCI actors - an area for which the literature indicates relatively limited application, with little insight into which potential partners (actors) VGD actually cooperate with in practice. The achievement of this objective required the development and measurement of additional variables, namely, co-creation relationships within VGIE and co-creation relationships with other CCI.





4.2. Methodology

4.2.1. Research approach

The specific nature of the main research objective - focused on **hypotheses testing**, including the verification of prior quantitative findings with acknowledged limitations (Klimas, 2019) - as well as the more detailed aims (development and validation of measurement approaches, and exploration of the extent to which VGD utilise various types of co-creative relationships) determined the adoption of a quantitative research approach. This approach was considered appropriate, as it not only facilitates the testing of theoretical assumptions but also supports the exploration and structured description of observed phenomena (Black, 1999; Casula et al., 2021).

Within this quantitative framework, the research process was organised according to a **cross-sectional research design** (Abutabenjeh & Jaradat, 2018), focusing on one-time data collection. The selected research method was a **survey**, which is both standard and dominant in quantitative research (Hinkin, 1995).

For data gathering, a **questionnaire** (Appendix A) based on a seven-point Likert-type scale (Likert, 1932) - dominant in social science research (Hinkin, 1995) - was employed. It should be emphasised at this point that, due to the use of the Likert scale, the study enabled a subjective measurement not of the phenomena themselves in the strict sense, but rather a **measurement of the subjective perceptions of key informants** regarding the phenomena under investigation. While this is a typical limitation of studies in social sciences, it must be constantly borne in mind during the analysis of results, their interpretation, and the drawing of conclusions that what was investigated were perceptions, not the objective state of affairs. The raw data collected were quantitatively analysed using various statistical methods, depending on the analytical stage and the specific objectives pursued. These included descriptive statistics, factor analysis, reliability assessment, cluster analysis, regression analysis, and structural equation modelling.

4.2.2. Sampling

Quantitative research was directed towards **European video game developers**. The detailed criteria for sample selection are described below.



Selection criteria for organisations

- European game developers/producers executing their projects on the following platforms: consoles, downloadable games for personal computers, browser-based games, and/or games for mobile devices.
- The type of games produced (e.g., skill-based, logic-based, strategy, simulation, adventure, role-playing, educational) was not relevant, excluding developers of 'serious games' primarily focused on training competencies or skills, such as those used for student training, military training, or employee recruitment.
- The size or legal form of operation was not important (although it was required that the sample should be diverse in terms of firm size); the game developer, even if it's an individual conducting business, had to be registered within the European Union or the United Kingdom.
- The sample must include game developers registered in the following six European countries (minimum 60 per country): Poland, France, the United Kingdom, the Netherlands, Finland, and Austria, as those countries are represented in the **GAMEHEARTS** project. It was assumed that the sample should be diverse regarding the country of registration; thus, no more than 15% of the sample should be registered in any single country.

Selection criteria for informants

- Senior/medium-level management or owners of businesses engaged in game development with knowledge in innovation and/or strategic cooperation with the external environment.
- A single-informant approach was assumed, meaning one informant per company.

Target sample size

- Initially, the sample size was estimated at 800, 1000, or 1200 VGD, depending on the data collection costs.
- Finally, within the assumed budget, the highest possible threshold was adopted, i.e., N=1200.

Sampling

- Convenience sampling using pre-defined criteria.





Sampling frame

- The operational/contact database is to be developed by the research agency.
- Supportively, the list of video games associations available via EGDF's website¹³.

4.2.3. Data collection

The data collection process was outsourced to a specialised research company experienced in conducting scientific research financed from public funds, including research with an international scope. The selection of the research agency was carried out following formal regulations applicable to scientific projects implemented at the Wroclaw University of Economics and Business.

To ensure thoroughness, before data collection, the WP3 research team discussed the scope of the study in detail with the research agency, including a discussion of sampling assumptions, reviewing the research tool, and clarifying any key concepts, terms, or phrases.

The research agency collected data using a research tool developed and validated (referring to construct validation and face validation) by the research team (Appendix A). The complete questionnaire encompassed approximately **130 questions** (including core thematic and demographics). As it was an international research, data was gathered in English only.

The data collection process was implemented between **July and September 2024**. To increase the response rate and minimise the risk of missing answers, it was assumed that data collection would be conducted using a mixed-mode approach (De Leeuw, 2005) using CATI (Computer-Assisted Telephone Interviewing), CAWI (Computer-Assisted Web Interviewing), and/or telephone-assisted CAWI. It was, however, ensured that only one technique was used for each respondent. Finally, given the preferences of the surveyed informants, data were collected using CAWI (1088 observations) and telephone-assisted CAWI (182 observations). The research sample included **1270 game developers from 29 European countries**. The average time for completing the survey questionnaire was 24 minutes (minimum: 15 minutes; maximum: two hours and 27 minutes).

13 The list of national members of EGDF was taken from: <https://www.egdf.eu/about/>. Access in June 2024.



4.2.4. Sample

A sharp identification of the European population of VGD is not feasible, as game development activity is not consistently classified under a single, distinct industry code (e.g., following NACE,¹⁴ no specific number is assigned solely to game development). In practice, the activity is often embedded in broader classifications. However, based on information from EGDF - the largest NGO representing the game industry in Europe - it can be estimated that the population of European VGD comprises '*more than 2,500 game developer studios*¹⁵'. Therefore, the effective sample size achieved in our study (N=1270) reached an unprecedented level to date - covering approximately 50% of the estimated population of European VGD. Given a broad scope of data collection and the fact that the research followed all scientific and methodological rigour, the sample characteristics may be seen as a sound and detailed picture of the European VGD community.

Below, the research sample is characterised from two perspectives, i.e., organisational (represented by VGD) and individual (informants). A synthetic view of the research sample (N=1270) is presented in Figure 3.

Please note that, as outlined in the earlier methodological description, the sample description and all of our results reflect participants' statements and are therefore declarative and subjective.

14 Nomenclature statistique des Activités économiques dans la Communauté Européenne.

15 As reported on the main page on EGDF website (<https://www.egdf.eu/>, access: May 6, 2025).



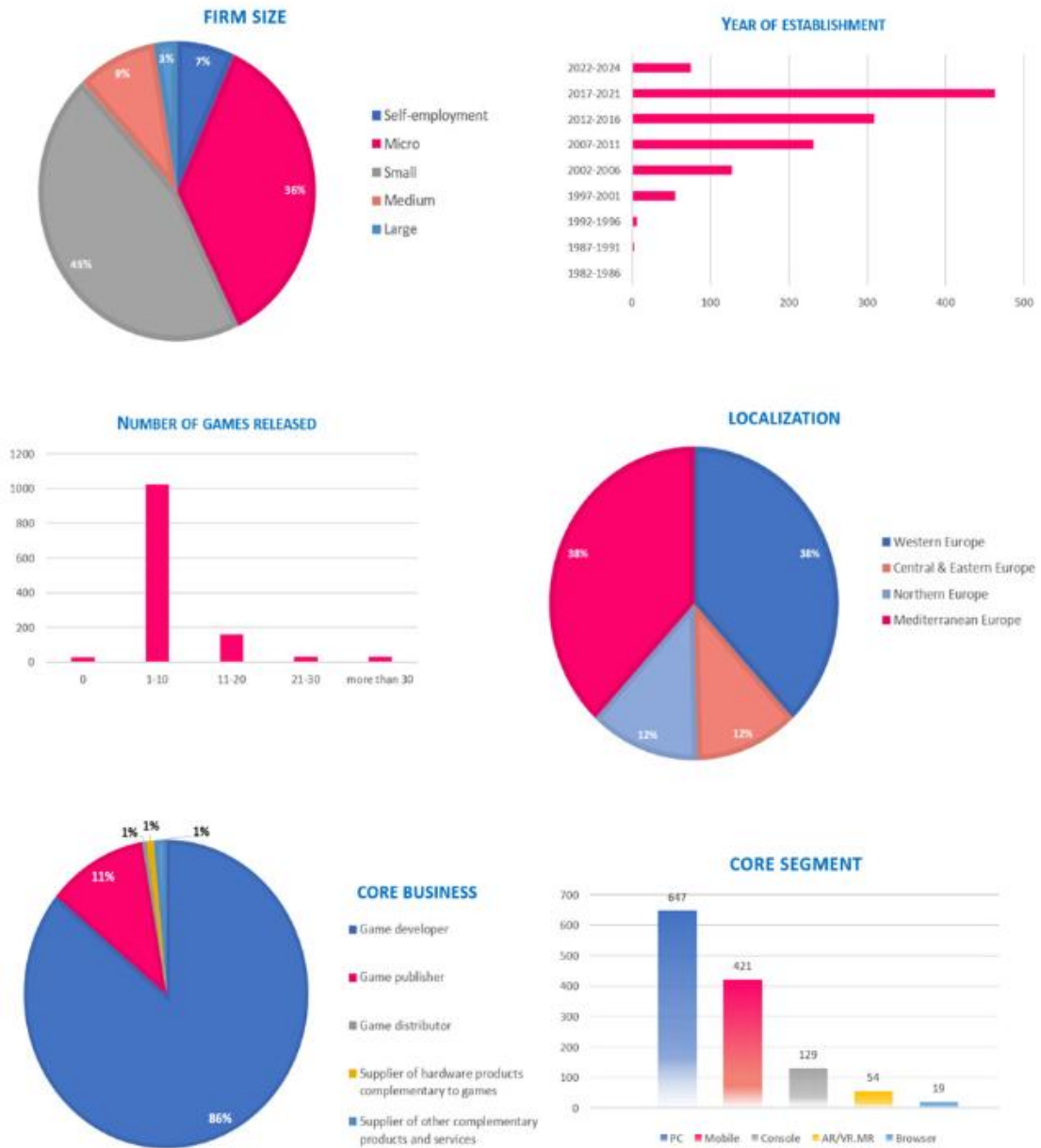


Figure 3. Summarising characteristics of the research sample



The profile of surveyed game developer studios

Country of headquarters

The social study used the survey method and involved 1270 VGD from various European countries (Table 1). The largest groups of participants came from **Great Britain (14.6%), Poland (14.3%), and Germany (14.1%)**. France (10.9%) also had a significant share. Next sample shares belong to the Netherlands (8.4%), Italy (5.4%), Finland (5.3%), Austria (5.1%), and Sweden (4.3%). The remaining countries analysed were Spain (3.7%), Belgium (3.5%), Denmark (2.8%), and the Czech Republic (1.9%). The remaining countries represented 1% or less than 1%.

Table 1. Research sample: country of headquarters of VGD

Country	Frequency	%	Country	Frequency	%	Country	Frequency	%
Great Britain	185	14.6	Belgium	45	3.5	Bulgaria	4	0.3
Poland	182	14.3	Denmark	35	2.8	Latvia	3	0.2
Germany	179	14.1	Czechia	24	1.9	Romania	2	0.2
France	139	10.9	Portugal	13	1.0	Hungary	2	0.2
Netherlands	107	8.4	Slovakia	12	0.9	Slovenia	1	0.1
Italy	68	5.4	Cyprus	11	0.9	Malta	1	0.1
Finland	67	5.3	Ireland	7	0.6	Croatia	1	0.1
Austria	65	5.1	Greece	6	0.5			
Sweden	55	4.3	Estonia	5	0.4			
Spain	47	3.7	Lithuania	4	0.3			

Firm size

The survey included organisations with a diverse employment structure, following the commonly used classification in Europe (Commission Recommendation..., 2003) - Table 2. The largest group included **small enterprises (10–49 employees)**, representing **45.4% of the sample**. A comparable share was held by microenterprises employing up to 9 people – 35.9% of respondents. Medium-sized enterprises (50–249 employees) constituted 9.3% of the respondents, while large companies employing over 250 people were represented by 2.7%. The presence of self-employed respondents, who constitute 6.8% of the sample, is worth noting. This distribution suggests that the study largely covered smaller entities from the SME sector, which may correspond to the structure of the video games industry, dominated by small, independent studios.

**Table 2. Research sample: size of VGD**

Firm size	Frequency	%
Self-employment	86	6.8
Micro (up to 9 employees)	456	35.9
Small (10-49 employees)	576	45.4
Medium (50-249 employees)	118	9.3
Large (250+ employees)	34	2.7

Firm size and headquarters location

Table 3 shows the percentage share of different types of VGD in several European countries grouped by the number of employees. Regardless of the country, in our sample, the most visible is **the dominance of micro companies**, which constitute the most significant percentage of VGD. For example, in Great Britain, the share of micro companies is 6.9%, in France – 5.4%, and in Germany – 4.2%. In countries such as Germany, the Netherlands, or Poland, this share is around 4%. Our sample's representatives of micro companies in other countries are less than 2%.

Table 3. Research sample: distribution of enterprise size by country

% of total sample	Self-employment	Micro (up to 9 employees)	Small (10-49 employees)	Medium (50-249 employees)	Large (250+ employees)
Great Britain	1.0%	6.9%	4.7%	1.7%	0.2%
Poland	0.7%	3.9%	6.6%	2.2%	0.9%
Germany	0.8%	4.2%	7.0%	1.7%	0.5%
France	0.8%	5.4%	4.0%	0.6%	0.2%
Netherlands	0.6%	4.0%	3.5%	0.3%	0.1%
Italy	0.3%	2.3%	2.8%	-	-
Finland	-	1.0%	3.9%	0.2%	0.1%
Austria	0.1%	1.3%	3.1%	0.5%	0.2%
Sweden	0.7%	1.5%	1.5%	0.4%	0.2%
Spain	0.6%	0.8%	1.7%	0.5%	0.2%
Belgium	0.2%	0.8%	2.2%	0.2%	0.1%
Denmark	0.5%	1.1%	0.9%	0.3%	-

Note: Only countries above 2.5% of the sample were included.





Core business activity

Given the dominant type of business activity, most organisations represented in the study were **game development studios, constituting 85.7% of the sample** (Table 4). Such a high percentage indicates the dominant share of entities mainly focused on designing and programming video games, which is consistent with the key organisational profile of the study. In second place were game developers with the dominant focus on game publishing, constituting 11.3% of the study group (N = 143). They represent slightly different needs of the video game industry, resulting from the process of popularising and distributing the finished product. The remaining categories of the key business activity had a smaller share: suppliers of complementary products and services (1.4%), suppliers of hardware related to games (0.8%), game distributors (0.6%), and unspecified core business activity (0.2%).

Table 4. Research sample: core business of VGD

Core business of the firm	Frequency	%
Game developer	1089	85.7
Game publisher	143	11.3
Supplier of other complementary products and services	18	1.4
Supplier of hardware products complementary to games	10	0.8
Game distributor	7	0.6
Not specified	3	0.2

Core business and headquarters location

The data presented in Table 5 shows a **diverse structure of the core business activities of VGD in different European countries**, with the dominant role of those focusing mainly on game development. Notably, in most countries, the share of VGD focusing mainly on supplying complementary equipment and other complementary products and services is relatively low.

**Table 5. Research sample: distribution of key businesses across countries**

% of total sample	Game developer	Game publisher	Game distributor	Supplier of hardware products complementary to games	Supplier of other complementary products and services
Great Britain	13.9%	0.1%	-	0.2%	0.2%
Poland	11.4%	1.9%	0.4%	0.1%	0.6%
Germany	11.6%	2.3%	-	0.1%	0.2%
France	9.8%	1.0%	0.1%	0.1%	
Netherlands	7.2%	0.9%	-	0.2%	0.2%
Italy	4.5%	0.9%	-	-	-
Finland	5.0%	0.2%	-	-	-
Austria	4.8%	0.2%	0.1%	-	-
Sweden	2.8%	1.3%	-	0.2%	0.1%
Spain	3.1%	0.5%	-	-	0.1%
Belgium	2.9%	0.6%	-	-	-
Denmark	2.3%	0.5%	-	-	-

Note: Only countries above 2.5% of the sample were included.

Core market segment

Developers focusing on PC games are the largest segment in the collected sample, namely 50.9% (Table 6). Mobile games account for 33.1% of the analysed sample, while console games account for 10.2% and Augmented, Virtual and Mixed Reality games account for 4.3%. The lowest share in our sample belongs to Browser games (1.5%).

Table 6. Research sample: core market segment

Core market segment targeted by the firm	Frequency	Percent
PC games	647	50.9
Mobile games	421	33.1
Console games	129	10.2
AR/VR/MR games	54	4.3
Browser games	19	1.5





Core market segment and headquarters location

Table 7 presents the structure of development activity in the VGI in selected European countries, with a distinction made between five platform categories. These data reflect the percentage share of companies in a country focusing on developing games under a specific market segment. **The largest share in creating PC games is held by Great Britain (11.3%), Poland (8.0%) and Germany (5.6%).** These three countries, at least in light of the structure of the research sample, constitute the core of European PC game development industry. In the case of mobile games, the highest representation in the sample was noted in Germany (6.1%), France and Poland (around 4.6-4.7% each), which may indicate the strong position of these countries in the developing mobile segment. In the console games segment, the shares are not diversified and revolve around 1%. In the case of browser games and games based on augmented and virtual reality (AR/VR/MR), the shares are small or even marginal (i.e., below 1%).

Table 7. Research sample: key market segments by country

Country	PC games	Mobile games	Console games	AR/VR/MR games	Browser games
Great Britain	11.3%	1.3%	1.1%	0.7%	0.2%
Poland	8.0%	4.6%	0.9%	0.3%	0.5%
Germany	5.6%	6.1%	1.6%	0.5%	0.3%
France	4.4%	4.7%	1.3%	0.4%	0.1%
Netherlands	3.3%	3.6%	0.8%	0.7%	-
Italy	2.3%	2.3%	0.6%	0.1%	0.1%
Finland	1.9%	2.3%	0.6%	0.4%	0.1%
Austria	3.1%	0.8%	0.7%	0.5%	0.1%
Sweden	2.1%	1.5%	0.6%	0.1%	0.1%
Spain	2.0%	1.3%	0.2%	0.1%	-
Belgium	1.7%	1.1%	0.5%	0.3%	-
Denmark	1.1%	1.2%	0.3%	0.1%	0.1%

Note: Only countries above 2.5% of the sample were included.



Core business, core market segment and firm size

Table 8 and Figure 4 show the distribution of enterprise size in the sample by dominant segment and dominant type of business activity. The study results allow to see interesting relationships in terms of business profile (producer, publisher, supplier) and product specialisation (target segment). These data show that **small and micro enterprises are the foundation of the European game development industry**. In both the key business and key segment, the most numerous are small companies (10-49 employees) and micro enterprises (up to 9 employees). They are the most common profile of game developers: small companies are 41.5%, and micro enterprises for 27.1% of the surveyed population. Their share in the platform segments is similar - 21.5% of small and 20.4% of micro enterprises develop games for PC, revealing this format's dominance among smaller development teams. Mobile games are also strongly represented in these categories (16.9% and 10.6%, respectively), possibly due to lower entry barriers and faster production cycles.

Table 8. Research sample: distribution by enterprise size, key market segments and key business

Core market segment & Core business	Firm size				
	Self-employment	Micro (up to 9 employees)	Small (10-49 employees)	Medium (50-249 employees)	Large (250+ employees)
Game developer	6.6%	27.1%	41.5%	8.3%	2.2%
Game publisher	-	8.3%	2.4%	0.4%	0.2%
Game distributor	0.1%	-	0.2%	0.2%	0.1%
Supplier of hardware products complementary to games	-	0.1%	0.6%	-	0.1%
Supplier of other complementary products and services	-	0.4%	0.7%	0.2%	0.1%
PC Games	3.0%	20.4%	21.5%	5.1%	0.9%
Mobile Games	2.7%	10.6%	16.9%	2.3%	0.8%
Console Games	0.8%	2.9%	4.3%	1.6%	0.6%
AR/VR/MR Games	0.3%	1.7%	2.2%	0.1%	-
Brower Games	-	0.4%	0.6%	0.2%	0.3%

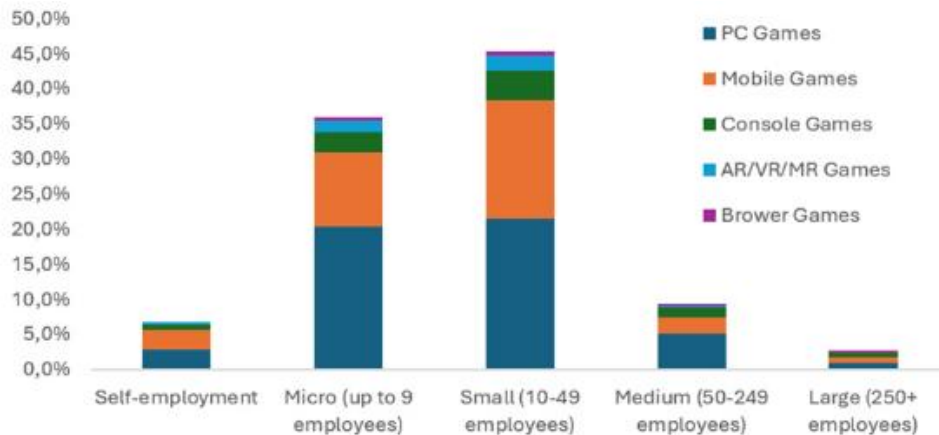


Figure 4. Research sample: distribution by enterprise size and key market segments

Interestingly, medium and large VGD have different distribution structures. For example, in our sample, medium companies (50–249 employees) constitute 8.3% of those focused mainly on game development and 5.1% of PC game production. The results of the study also allow us to conclude that medium companies more often than small or micro companies focus on service or publishing activities, or specialise in smaller segments, such as AR/VR/MR or consoles, where the technological threshold is higher, but the market is more concentrated. Large companies (250+ employees) constitute only 2.2% of all game developers in our sample. Their activity is evenly distributed, but at a low level, both in terms of core business and types of games produced. It is also worth noting the share of self-employed people. Their importance is most visible among game developers focused mainly on game development (6.6%) and mobile and PC games (approx. 3% each).

The profile of informants representing game developer studios

Role in the company

Considering the thematic scope of the quantitative research being conducted, it was essential to recognise the structure of informants in terms of the positions they hold/roles they perform in the organisations they represented in the study.



As shown in Table 9, **the largest group consisted of representatives of the management staff - owners, board members, department directors**, or other representatives of management - who constituted 59.7% of the sample. The second group of respondents were employees directly involved in the process of creating or developing games, comprising 39.8% of the sample (N = 506). Only 0.5% of respondents declared other functions in the organisation that were not included in the two main categories (among provided answers, there were, for instance, '*Studio Head and Creative Director*', '*Communication Manager*', '*Senior Engineering Manager*'). All in all, the distribution of informant types indicates that the study covered people who know the strategic processes and decisions, thus may be seen as indeed key informants.

Table 9. Research sample: informants' profile

Group of respondents	Frequency	Percent
A representative of the management / owner / board member / director of the department	758	59.7
An employee directly involved in the process of creating or developing the game(s)	506	39.8
Other (please specify)	6	0.5

4.2.5 Measurement

Our research focused on using co-creation and co-innovation relationships in innovation development by game developers and using co-innovation relationships to leverage their organisational innovativeness. Considering all research assumptions, **5 variables** were measured relating to phenomena key to the study of co-creation of value, co-innovation, and organisational innovativeness. Particular attention should be paid to variables directly related to objective O3.2, namely, co-innovation relationships of VGD within EVGIE and with CCI (independent variables) and organisational innovativeness of VGD (dependent variable).

The measurement of variables was conditioned by the adoption of previously established **conceptualisations for all key concepts and theoretical constructs** directly related to the research (concerning variables), but also concepts important for understanding and adopting a coherent cognitive context (concerning concepts important for better understanding of variables).



- **Ecosystem** – a complex system of organisations, institutions, and individual entities that influence the enterprise, its customers, and suppliers – in the broader view, affect the society and the economy. Given the relational approach perspective, it is assumed that each ecosystem consists of a unique set of actors and the relationships between them. Ecosystems naturally evolve over time, and each participant in the ecosystem undertakes to play a specific role or even multiple roles within it, however varied in terms of engagement and the level of activity (Klimas, 2019).
- **Industry ecosystems** encompass all players involved in the achievement of a certain socioeconomic goal: from the smallest start-ups and the most prominent companies cooperating to satisfy a new market need, the research activities supporting industrial innovation, the regulators steering economic activity through conducive policies, to the service providers and suppliers (Commission Staff..., 2021: 71).
- **Video Games Industry Ecosystem** (VGIE) - the entities of the video games industry ecosystem are primarily (from the perspective of the essence of the innovation ecosystem's functioning) game developers, but also (Klimas & Czakon, 2022):
 - *Other organisations within the video games industry*, such as publishers, distributors, and suppliers of complementary products;
 - *Organisations outside the video games industry but related in terms of the value proposition* directed at the market (i.e., providing entertainment) and at least partial cognitive, including technological, proximity (e.g., expanded competition and suppliers of substitutes operating in other entertainment sectors);
 - *Communities of individuals* interested in games, as well as the development and creation of games, such as informal video games communities, e.g., communities of testers who test games before their release, communities of modders who introduce modifications to the source codes of games already on the market;
 - *Individuals*, i.e., gamers, players.
- **European Video Games Industry Ecosystem** (EVGIE) – VGIE operating in Europe. Following Klimas and Czakon (2022) and using our own systematic literature review, it was possible to identify **23 different actors of EVGIE** (as shown in Figure 2 in the executive summary):



game developers, game publishers, game distributors, producers of equipment (hardware) necessary for the use of games (including computers, consoles, mobile devices, etc.), manufacturers of equipment optionally used for games (including controllers, pads, joysticks, headphones, microphones, etc.), NGOs (including foundations, associations), universities, government and policymakers (at local, national, European, global level), research institutions and consulting companies, public institutions, incubators and accelerators, lobbying organizations, investors, including business angles, gaming media, casual players and/or their communities, gamers & hardcore gamers and/or their communities, professional e-sport gamers and/or their communities, testers and/or their communities, modders and/or their communities, hackers and/or their communities, influencers and/or their communities, independent reviewers and/or their communities, clients not being gamers (e.g. parents).

- **Innovation ecosystem** - cooperation environment surrounding the innovation activities of its co-evolving actors, organised across co-innovation processes, and resulting in co-creation of new value delivered through innovation (Klimas and Czakon 2022a). It can also be understood as a set of *'interdependent actors who combine specialised yet complementary resources and/or capabilities in seeking to (a) co-create and deliver an overarching value proposition to end-users, and (b) appropriate gains received in the process'* (Walrave et al., 2018: 104).
- **Cultural and Creative Industries (CCI)** – the new Creative Europe Programme (Regulation..., 2021 - Art 2) defines the cultural and creative sectors as including architecture, archives, libraries and museums, artistic crafts, audiovisual (including film, television, video games and multimedia), tangible and intangible cultural heritage, design (including fashion design), festivals, music, literature, performing arts, (including theatre and dance), books and publishing, radio, and visual arts.
- **Co-creation relationships of VGD** are all types of strategically relevant connections between game developers and those around them, maintained and used to jointly implement the process of creating (new) value. In other words, co-creation relationships involve the participation of external actors (people or organisations) in creating, modifying, improving, or developing value proposition/s. Value co-creation can be focused on a wide range of issues e.g. knowledge, marketing, logistics, human resources, R&D, innovation, etc.





- **Co-innovation** – a shared work of generating innovative and exceptional design conducted by various actors from firms, customers, and collaborating partners (Saragih & Tan, 2018: 361). Co-innovation is an iterative process that brings together knowledge from many stakeholders to support changes in technology, markets, regulations and other practices that support the commercialisation and implementation of the knowledge to improve production, exports, profits and/or the environment (Vereijssen et al., 2017: 108).
- **Co-innovation relationship** – inter-organisational relationship (long-term, aimed at shared strategic goals, relevant from a strategic perspective for actors engaged in) through which co-innovation is implemented.
- **Co-innovation relationships of VGD** are all strategically relevant connections between game developers and those around them, maintained and used to jointly implement the process of creating innovations (new or significantly modified products). In other words, co-innovation relationships involve the participation of external actors (people or organisations) in creating, modifying, improving, or developing new games. Co-creation of innovations is a specific type of value co-creation focused only on innovation-related and jointly generated outcomes.
- **Organisational innovativeness** - the overall ability of an organisation to innovate. Following Wand and Ahmed (2004), organisational innovativeness is demonstrated by the firm's capacity to introduce new or significantly improved products and processes and even create new markets. This is achieved by combining a suitable strategic orientation with innovative behaviours and processes.

Initially adopted measurements

Based on the *a priori* adopted conceptualisations, operationalisations were developed or adopted (in accordance with the idea of replicating existing measurement solutions) for all key variables in the quantitative research. Variables were measured subjectively by recognising research informants' perceptions using a **7-point, symmetric Likert scale with a middle value of 4**: '*I don't know / I have no opinion*'. Labels were described in detail in the research instrument (Appendix A) - in most cases, they took the typical form from 1: '*Strongly disagree*' to 7: '*Strongly agree*'. Considering the above-mentioned conceptualisations and list of target variables, a total of 106 questions were asked in the instrument, representing the initially adopted measurement approach to all considered variables.



- **Co-creation relationships** maintained by VGD within EVGIE (a total of 23 questions) and with entities from other CCI than VGI (15 questions).
- **Co-innovation relationships** maintained by VGD within EVGIE (a total of 23 questions) and with entities from other CCI than VGI (15 questions).

Additionally, beyond measuring the maintenance of co-innovation relationships, measurement was also taken of which phases of co-innovation (i.e., co-creation, co-development, co-deployment, co-delivery and co-dissemination - Klimas & Czakon, 2022) innovation co-creation relationships are maintained by VGD within EVGIE (a total of 5 questions) and with CCI (a total of 5 questions). Based on the qualitative research results of Klimas and Czakon (2022) focusing on the course of innovation co-creation processes within the Polish video games innovation ecosystem, this study measured whether and to what extent VGD maintain co-innovation relationships across five phases of the co-innovation process, namely co-discovery, co-development, co-deployment, co-delivery and co-dissemination both within EVGIE and with CCI. The adopted model of the co-innovation process course is presented in Figure 5.

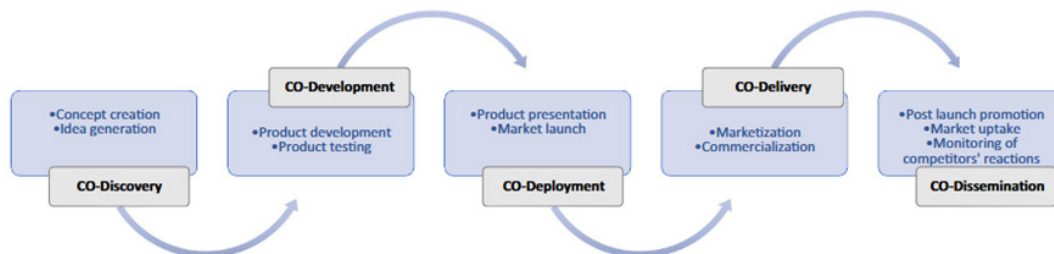


Figure 5. Adopted framework for the co-innovation process

Source: Klimas & Czakon (2022, p. 2219)

- **Organisational innovativeness of VGD** (total of 20 questions) developed and positively validated by Wang and Ahmed (2004), but also already used to measure organisational innovativeness of Polish VGD by Klimas (2019).

Regarding organisational innovativeness, an instrument developed and validated by Wang and Ahmed (2004) was used, capturing organisational innovativeness across five dimensions: product, process, market, strategic and behavioural. An important factor in selecting the measurement approach was the use of this approach for research on innovativeness



of Polish VGD by Klimas (2019)¹⁶, whose research showed that in the case of VGD, the original instrument is not fully replicable and requires adaptation to the empirical context, resulting in the measurement of organisational innovativeness of game developers not in a five-dimensional but three-dimensional approach. Klimas' (2019) research demonstrated the validity of understanding organisational innovativeness across product, process, and people-related innovativeness (3P model – people, product, process). Taking into account the geographical limitations of Klimas' (2019) study, in this research, it was decided to adapt the original scale (Wang & Ahmed, 2004) and then check if the European data support the original Polish study by Klimas (2019).

The list of the initial set of measurement items for the five applied measurement scales used in the study is presented in the survey questionnaire (Appendix A).

Development of final measurements

In accordance with the methodological rigour for verifying the quality of new measurement scales, it was necessary to undertake additional analyses to verify the initially adopted measurement scales before proceeding to the proper analyses. It is worth noting that the verification process is needed each time when measurement scales are being created are new, and to some extent also when they are replicated from other studies (Klimas, 2021).

Therefore, to get final measurements of the considered variables, we proceeded with each initial set of measurement items through the statistical procedures for measurement scale purification. The applied four-step procedure (described in detail in Appendix B1) has an iterative approach and is ultimately focused on determining a valid measurement scale. It can also be viewed as a type of one-step forward and one-step backwards procedure.

At the end of the adopted procedure, we had the preliminary validated measurement scales. The obtained final measurement scales differ from the initial scales in two ways:

- some questions were removed mainly due to lack of correlation with other questions that theoretically should measure the same constructs or theoretical sub-constructs; redundant questions were also removed, i.e., those measuring relatively the same thing;

¹⁶ Notably, the article presenting the measurement approach to organisational innovativeness by Wang and Ahmed (2004) is one of the most often cited in the field of innovation management research area.





- the remaining questions, mainly based on correlation, grouped themselves into internally coherent factors, thus revealing detailed constructs within the considered variables.

Generally, the modifications made result from the specificity of the studied sample and empirical context, which means that **the developed final scales are adapted to the study of European VGD**. Therefore, embedding the survey in a different national or geographical context would require adjusting the initial scales again. Nonetheless, the obtained final scales maintain theoretical value, but at the same time, better and more accurately measure the assumed theoretical constructs.

The final measurement scales are presented in Tables 10 – 14, and Confirmatory Factor Analysis (CFA) measurement models are presented in Figures 6 – 10. It is worth noting that the labels used for the identified constructs were developed following a heuristic approach and brainstorming sessions in the research team.

Co-creation relationships within EVGIE

In the case of the Co-creation relationships with EVGIE variable, a two-dimensional measurement scale was obtained comprising a total of 9 questions representing entities with which VGD maintain value co-creation relationships within EVGIE (Table 10):

1. **Co-creation relationships with institutional microenvironment** – related to relationships maintained with the institutionalised part of game developer’s microenvironment. A total of 4 types of actors.
2. **Co-creation relationships with game users** – related to relationships maintained with game users, importantly, not only customers, i.e., gamers. A total of 5 types of actors.

Notably, 14 types of actors considered on theoretical grounds were not included in the final measurement scale, including actors representing VGI in the strict sense (e.g., other VGD, game distributors, or game publishers). It is important to emphasise that eliminating a broad spectrum of actors theoretically or even operationally forming EVGIE does not mean that VGD do not maintain value co-creation relationships with them. The elimination from the measurement scale for the co-creation relationships within EVGIE variable indicates that coherent response distributions across the research sample are not identifiable in the case of excluded questions.

Table 10. Measurement scale for Co-creation relationships within EVGIE

Construct	Construct label (statistical and informative)	Item	Statistical Label	Informative label
		Within the VGIE, your firm uses co-creation relationships (focused on value co-creation) with ...		
Co-creation relationships within the institutional microenvironment	CR Institutional Microenvironment CRIM	1. universities	CCV7	CR Universities
		2. research institutions and consulting companies	CCV9	CR Research firms
		3. public institutions	CCV10	CR Public institutions
		4. incubators and accelerators	CCV11	CR Accelerators
Co-creation relationships with game users	CR Game Users CRGU	1. gamers	CCV16	CR Gamers
		2. testers	CCV18	CR Testers
		3. modders	CCV19	CR Modders
		4. influencers	CCV21	CR Influencers
		5. independent reviewers	CCV22	CR Reviewers

Figure 6 presents the final measurement scale for Co-creation relationships within EVGIE, along with factor loadings indicating the strength of the relationship between individual types of actors (questions, items) and the identified theoretical constructs (factors), Co-creation relationships with the institutional microenvironment, and Co-creation relationships with game users.

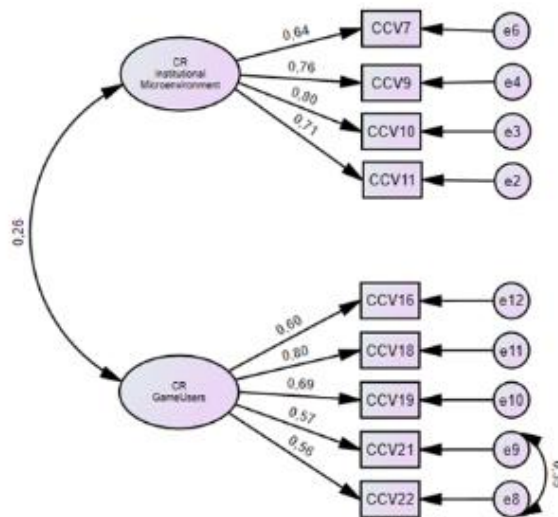


Figure 6. CFA model for Co-creation relationships within EVGIE

Note: Ellipses represent latent variables measured in the study. Rectangles correspond to measurement indicators (survey questions). Circles indicate residual components (measurement errors). Arrows between ellipses represent the strength of associations. Arrows from ellipses to rectangles show factor loadings, indicating the extent to which a given measurement indicator (survey question) is associated with the corresponding latent variable. The arrow connecting circles reflects the residual variance for a given indicator.



Co-creation relationships with CCI

Considering our second variable – co-creation relationships with CCI – the adopted analyses allowed us to develop a two-dimensional measurement scale covering eight (out of 15 initially assumed) types of actors representing different CCI (Table 11):

- 1. Co-creation relationships with industries focused on culture preservation** – VGD relationships with entities strongly oriented towards the culture preservation function, also through the use of games in this area. A total of 3 CCI industries.
- 2. Co-creation relationships with industries focused on expanding the universe** – VGD relationships with culture-creating entities, which often perceive games as a specific means to expand the universe. A total of 5 CCI industries.

Table 11. Measurement scale for Co-creation relationships with CCI (other than VGI)

Construct	Construct label (statistical and informative)	Item	Statistical Label	Informative Label
		Within the Cultural and Creative Industries (excluding VGIE), your firm uses co-creation relationships (focused on value co-creation) with organisations from ...		
Co-creation relationships with industries focused on culture preservation	CR Culture Preservation CRCP	1. archives	CCC2	CR Archives
		2. libraries	CCC3	CR Libraries
		3. museums	CCC4	CR Museums
Co-creation relationships with industries focused on expanding the universe	CR Culture Expansion CRCE	1. audiovisual	CCC6	CR Audiovisual
		2. design	CCC8	CR Design
		3. music	CCC10	CR Music
		4. literature	CCC11	CR Literature
		5. books and publishing	CCC13	CR Publishing

Figure 7 presents the final measurement scale for Co-creation relationships with CCI, along with factor loadings of particular items under the identified theoretical constructs, Co-creation relationships with industries focused on culture preservation, and Co-creation relationships with industries focused on culture expansion.

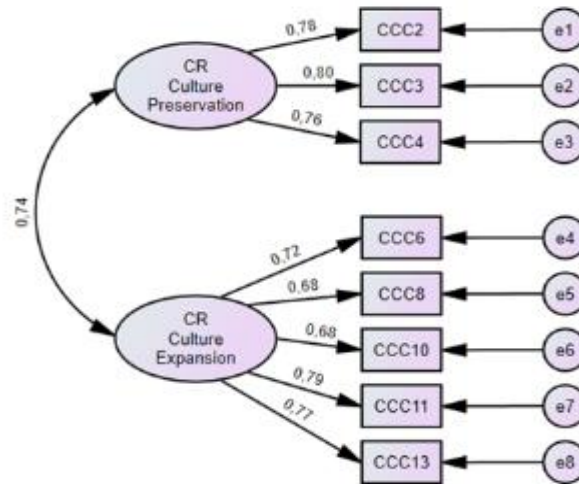


Figure 7. CFA model for Co-creation relationships with CCI (other than VGI)

Note: Ellipses represent latent variables measured in the study. Rectangles correspond to measurement indicators (survey questions). Circles indicate residual components (measurement errors). Arrows between ellipses represent the strength of associations. Arrows from ellipses to rectangles show factor loadings, indicating how much a given measurement indicator (survey question) is associated with the corresponding latent variable.

Co-innovation relationships within EVGIE

Regarding the Co-innovation relationships with EVGIE variable, a two-dimensional measurement scale was obtained comprising a total of 9 questions representing entities with which VGD maintain value co-creation relationships within EVGIE (Table 12):

1. **Co-innovation relationships with institutional microenvironment** – related to relationships maintained with the institutionalised part of game developer’s microenvironment. A total of 4 types of actors.
2. **Co-innovation relationships with game users** – related to relationships maintained with game users, importantly, not only customers, i.e., gamers or casual players. A total of 4 types of actors.

Table 12. Measurement scale for Co-innovation relationships within EVGIE

Construct	Construct label (statistical and informative)	Item	Statistical label	Informative label
		Within the VGIE, your firm uses co-innovation relationships (focused on co-creation of innovations) with ...		
Co-innovation relationships within the institutional microenvironment	CI Institutional Microenvironment CIIM	1. research institutions and consulting companies	CIV9	CI Research firms
		2. public institutions	CIV10	CI Public institutions
		3. incubators and accelerators	CIV11	CI Accelerators
		4. lobbying organisations	CIV12	CI Lobbying entities
Co-innovation relationships with game users	CI Game Users CIJU	1. casual players	CIV15	CI Casual players
		2. gamers	CIV16	CI Gamers
		3. testers	CIV18	CI Testers
		4. influencers	CIV21	CI Influencers

The final measurement scale for Co-innovation relationships with CCI, along with particular items and the identified theoretical constructs, Co-innovation relationships with institutional microenvironment, and Co-innovation relationships with game users, is presented in Figure 8.

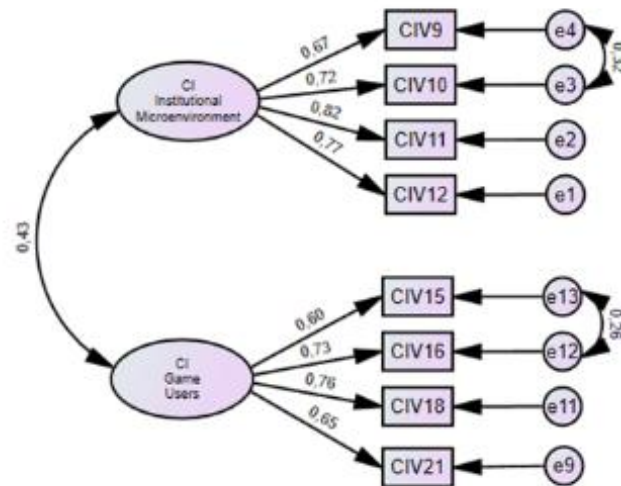


Figure 8. CFA model for Co-innovation relationships within EVGIE

Note: Ellipses represent latent variables measured in the study. Rectangles correspond to measurement indicators (survey questions). Circles indicate residual components (measurement errors). Arrows between ellipses represent the strength of associations. Arrows from ellipses to rectangles show factor loadings, indicating how much a given measurement indicator (survey question) is associated with the corresponding latent variable. The arrows connecting circles reflect the residual variance for a given indicator.



It is worth noting that while from the entity perspective the obtained measurement solution is very similar to the solution for the Co-creation relationships within EVGIE variable (Table 12; Figure 8), these are not entity-identical solutions. In the case of co-creation relationships oriented directly towards innovations, universities do not appear in the measurement approach for institutional microenvironment, but lobbying organisations do appear, while for relationships with game users, we see casual players, but we do not have modders and reviewers.

Once again, we emphasise that the results do not indicate the scope or intensity (or lack thereof) of cooperation with specific actors, but reflect the specificity of similarity (and its absence) within the research sample elements.

Co-innovation relationships with CCI

Fourth variable, were Co-innovation relationships with CCI for which we received a two-dimensional measurement scale covering eight (out of 15 initially assumed) types of actors representing different CCI (Table 13):

1. **Co-innovation relationships with industries focused on culture preservation** – VGD relationships with entities strongly oriented towards the culture preservation function, also through the use of games in this area. A total of 4 CCI industries.
2. **Co-innovation relationships with industries focused on expanding the universe** – VGD relationships with culture-creating entities, which often perceive games as a specific means to expand the universe - a total of 4 CCI industries.

Table 13. Measurement scale for Co-innovation relationships with CCI (other than VGI)

Construct	Construct label (statistical and informative)	Item	Statistical label	Informative label
		Within the cultural and creative industries (excluding VGI), your firm uses co-innovation relationships (focused on co-creating innovations) with organisations from ...		
Co-innovation relationships focused on culture preservation	CI Culture Preservation (CICP)	1. archives	CIC2	CI Archives
		2. libraries	CIC3	CI Libraries
		3. museums	CIC4	CI Museums
		4. artistic crafts	CIC5	CI Crafts
Co-innovation relationships focused on expanding the universe	CI Culture Expansion (CICE)	1. audiovisual	CIC6	CI Audiovisual
		2. literature	CIC11	CI Literature
		3. books and publishing	CIC13	CI Publishing
		4. visual arts	CIC15	CI Visual arts

Considering the structure of the obtained measurement approach (Table 13) in relation to Co-creation relationships with CCI (Table 11), one may notice that here we have an additional industry within the construct related to culture preservation (i.e., crafts), one additional industry (i.e., visual arts) and two less (i.e., design and music) within the construct related to culture expansion. The graphical representation of the final measurement model for Co-Innovation Relationships with CCI is presented in Figure 9.

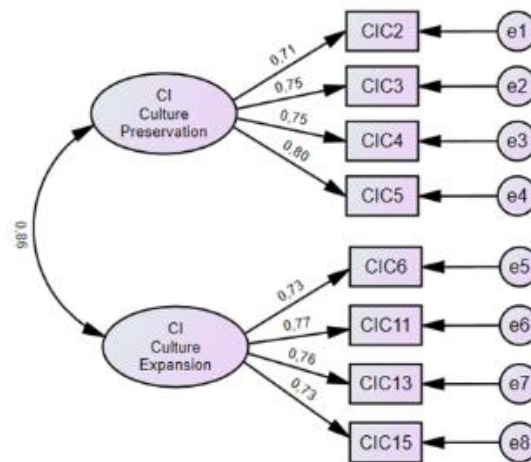


Figure 9. CFA model for Co-innovation relationships with CCI (other than VGI)

Note: Ellipses represent latent variables measured in the study. Rectangles correspond to measurement indicators (survey questions). Circles indicate residual components (measurement errors). Arrows between ellipses represent the strength of associations. Arrows from ellipses to rectangles show factor loadings, indicating how much a given measurement indicator (survey question) is associated with the corresponding latent variable.

Organisational innovativeness of VGD

The last of the considered variables is the organisational innovativeness of VGD. For this variable, the measurement approach by Wang and Ahmed (2004) was followed. The adopted analytical procedure revealed three final dimensions of organisational innovativeness measured by a total of 9 (out of 20 initial ones) measurement indicators (Table 14):

1. **Behavioural innovativeness** – concerning the innovativeness and creativity related to the human factor;
2. **Product innovativeness** – concerning the innovativeness of products delivered to the market;
3. **Process innovativeness** – concerning the innovativeness of internal processes.

**Table 14. Measurement scale for organisational innovativeness of VGD**

Construct (name and statistical label)	Item	Statistical label	Informative label
Behavioural BEH	1. In our company, we tolerate individuals who do things differently.	BEH2	B Innovative openness
	2. We are willing to try new ways of doing things and seek unusual, novel solutions.	BEH3	B Innovative practices
	3. We encourage people to think and behave in original and novel ways.	BEH4	B Innovative thinking
Product PRD	1. Compared to our competitors, our company has introduced more innovative products and services during the past two years.	PRD1	PR Innovation leader
	2. In new product and service introductions, our company is often first-to-market.	PRD2	PR Innovation pioneer
	3. Our new products and services are often perceived as very novel by customers.	PRD3	PR Innovation identity
Process PRC	1. Our company has developed many new management approaches for the past two years.	PRC2	PS Innovative management
	2. When we cannot solve a problem using conventional methods, we improvise using new methods.	PRC3	PS Innovative methods
	3. Our company changes production methods at a great speed in comparison with our competitors.	PRC4	PS Innovative production

It is worth noting that the final measurement scale does not confirm the original five-dimensional measurement approach of the scale creators (Wang & Ahmed, 2004), it does confirm the measurement structure revealed in research conducted on Polish VGD carried out by Klimas (2019). Although the internal measurement structure for the confirmed three dimensions is somewhat different in the case of European VGD (present study) than in exclusively Polish ones (Klimas, 2019), the general structure has been confirmed. The graphical representation of the final measurement model for organisational innovativeness of VGD is presented in Figure 10.

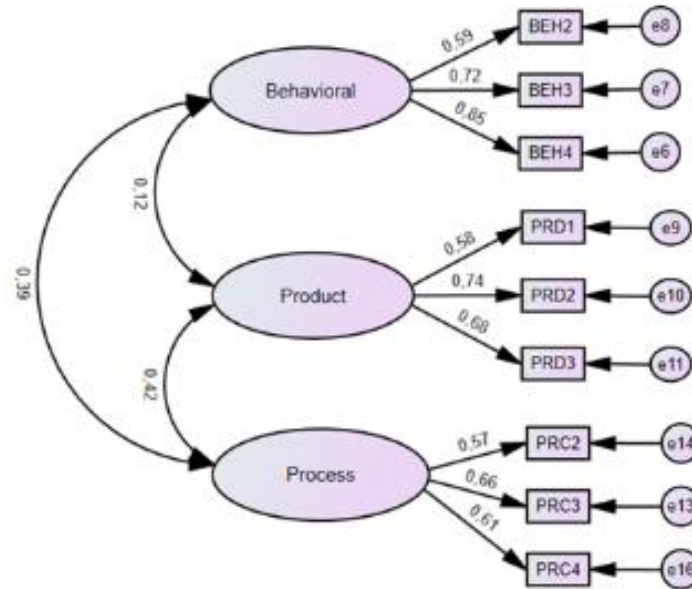


Figure 10. CFA model for Organisational innovativeness of VGD

Note: Ellipses represent latent variables measured in the study. Rectangles correspond to measurement indicators (survey questions). Circles indicate residual components (measurement errors). Arrows between ellipses represent the strength of associations. Arrows from ellipses to rectangles show factor loadings, indicating how much a given measurement indicator (survey question) is associated with the corresponding latent variable.

In the final phase of the adoption of final measurement models for all of our variables, we validated the factor analysis results and reliabilities for five variables and the reliabilities for all of the constructs covered by these variables. The summary of the results of our analytical validation is presented in Table 15. We can conclude that the final measurement scales are reliable¹⁷.

¹⁷ It should be noted that as recommended by Nunnally and Bernstein (1994) and commonly indicated the Cronbach's alpha should be a minimum of 0.7. It is so for all of our scales developed for the variables and for the majority of sub-scales developed for constructs covered by our variables. Nonetheless, for product and process innovativeness Cronbach's alphas are higher than 0.6 but lower than 0.7. It should be noted however that as indicated in one of the seminal books for multivariate data analysis by Hair, Black, Babin, and Anderson (2019) the threshold should be considered at the level of 0.6. Therefore, also for PRD and PRC we see the final measurement approaches as reliable.

**Table 15. Evaluation of final measurement scales for key constructs and corresponding sub-constructs**

Measurement scale/sub-scale	Reliability of measurement scales
Co-creation relationships within EVGIE	Cronbach's alpha = 0.77 CFA model fit: CMIN/DF = 3.68; NNFI = 0.912; CFI = 0.939; RMSEA = 0.046; SRMR = 0.043 EFA statistics: variance explained 58.19%; eigenvalues of factors are 3.16 for CRGU and 2.78 for CRIM; KMO = 0.80; p-value corresponding to Bartlett's test is <0.001
Co-creation relationships with institutional microenvironment (CRIM)	Cronbach's alpha = 0.80
Co-creation relationships with game users (CRGU)	Cronbach's alpha = 0.79
Co-creation relationships with CCI	Cronbach's alpha = 0.87 CFA model fit: CMIN/DF = 2.704; NNFI = 0.961; CFI = 0.976; RMSEA = 0.037; SRMR = 0.0260 EFA statistics: variance explained 65.04%; eigenvalue of factors are 4.21 for CRCE and 1.00 for CRCP; KMO = 0.89; p-value corresponding to Bartlett's test is <0.001
Co-creation relationships with industries focused on culture preservation (CRCP)	Cronbach's alpha = 0.80
CR Culture Expansion (CRCE)	Cronbach's alpha = 0.84
Co-innovation relationships within EVGIE	Cronbach's alpha = 0.81 CFA model fit: CMIN/DF = 3.572; NNFI = 0.936; CFI = 0.961; RMSEA = 0.045; SRMR = 0.029 EFA statistics: variance explained 64.71%; eigenvalue of factors are 3.44 for CIIM and 1.44 for CIGU; KMO = 0.82; p-value corresponding to Bartlett's test is <0.001
Co-innovation relationships with institutional microenvironment (CIIM)	Cronbach's alpha = 0.84
Co-innovation relationships with game users (CIGU)	Cronbach's alpha = 0.79
Co-innovation relationships with CCI	Cronbach's alpha = 0.89 CFA model fit: CMIN/DF = 2.312; NNFI = 0.957; CFI = 0.971; RMSEA = 0.032; SRMR = 0.027 EFA statistics: variance explained 66.72%; eigenvalue of factors are 4.21 for CICE and 0,83 for CICP; KMO = 0.92; p-value corresponding to Bartlett's test is <0.001
Co-innovation relationships with industries focused on culture preservation (CICP)	Cronbach's alpha = 0.83
Co-innovation relationships with industries focused on culture expansion (CICE)	Cronbach's alpha = 0.83
Organisational innovativeness	Cronbach's alpha = 0.71 CFA model fit: CMIN/DF = 3.488; NNFI = 0.886; CFI = 0.925; RMSEA = 0.044; SRMR = 0.037 EFA statistics: variance explained 48.01%; eigenvalue of factors are 4.63 for BEH, 2.26 for PRD and 1.26 for PRC; KMO = 0.85; p-value corresponding to Bartlett's test is <0.001
Behavioural innovativeness (BEH)	Cronbach's alpha = 0.72
Product innovativeness (PRD)	Cronbach's alpha = 0.66
Process innovativeness (PRC)	Cronbach's alpha = 0.63



4.2.6. Data analysis

Data analysis covered various data analysis methods, including descriptive statistics, cluster analysis, structural equation modelling (SEM), and regression analysis. In the analytical process, we used SPSS, AMOS, and Statistica software interchangeably as each software produces different statistics, offers various options for analysis, and displays data differently.

Descriptive statistics

To describe not only the key variables of the study but also **the profile of European VGD from the perspective of co-creation, co-innovation, and organisational innovativeness**, we have used classical descriptives, including mean, median, and mode frequency.

Although descriptive characteristics of the variables do not correspond directly to the objectives of our quantitative research, we saw it relevant to present such descriptions as they confirm findings from IDIs and DTthons regarding the low level of cross-industry cooperation and may be interesting for practitioners.

Cluster analysis

Cluster analysis was employed to **recognise the networks of cooperation utilised by VGD within EVGIE and CCI**. It focuses on extracting groups of similar objects, i.e., homogeneous in terms of measured variables, and distinct from objects belonging to other groups. As a result of the cluster analysis, extracted groups of objects are distinct, and the classification of the analysed objects is complete (all objects are classified into one of the extracted groups, and each object can be classified into only one group). We used the cluster analysis to identify and next characterise the networks of cooperation within EVGIE and CCI, i.e., groups of actors with which surveyed VGD have similar degrees of usage of co-creation and co-innovation relationships. For the analysis, we set the following:

- **Objects:** actors from EVGIE and CCI.
- **Measure:** the degree of usage of the co-creation and co-innovation relationships with the actors from EVGIE and CCI. The degree of usage is measured on the 7-point Likert scale, where 1 was labelled 'strongly disagree' and 7 – 'strongly agree' with the statement 'Your company uses the co-creation/co-innovation relationships with ...'.



- **Clusters:** networks of actors from EVGIE and CCI, which VGD similarly uses for co-creation/co-innovation relationships.

To cluster the actors into the networks, we applied the following procedure based on (Hair et al., 2010): (1) outliers identification, (2) measuring the distance (i.e., we used the **Manhattan distance**¹⁸), (3) grouping the objects, (4) identifying the number of clusters (i.e., we analysed the distance between clusters in such a way that at the output, we were able to indicate clusters that differ in terms of the degree of CR/CI relationship usage; we have also supported the visual inspection of the dendrogram with the analysis of the shape of the distribution of the CR/CI relationships usage apparent in the particular network), and (5) characterizing and labelling the distinct groups of objects.

Structural equation modelling

To test the main research hypothesis about the positive impact of co-innovation relationships on game developers' organisational innovativeness (Figure 11), we applied the composite SEM (McDonald & Ho, 2002), a combined measurement and path model. In a more detailed view, we focused on testing the assumptions about the positive impacts of co-innovation relationships covering both its types, namely those within EVGIE and with CCI on game developers' organisational innovativeness (details can be found in Figure 2 in Appendix B2).

18 For instance the distance between the usage of CR relationships by VGD with publishers and distributors, i.e., CR Publishers and CR Distributors (labelled as CCV2 and CCV3) measured by Manhattan distance was calculated as

$$d(CCV2, CCV3) = \sum_{i=1}^{1270} |CCV2_i - CCV3_i|$$



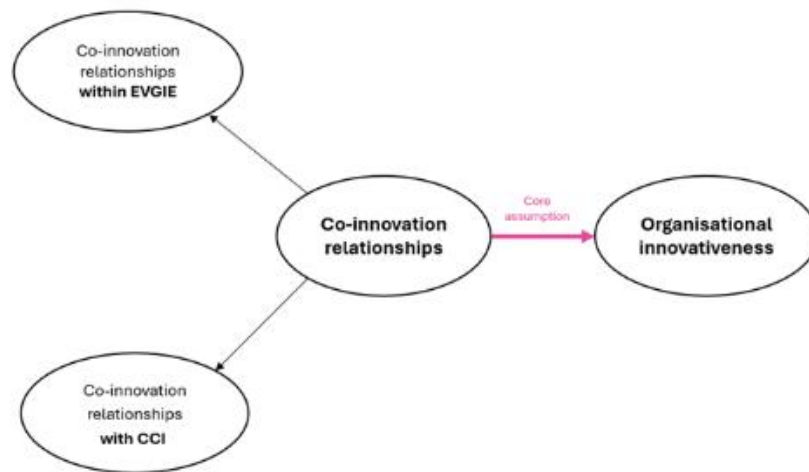


Figure 11. Conceptual model

We decided to estimate the composite SEM model as it combines the measurement error in estimating the parameter. Therefore, we estimate the ‘true’ structural coefficients, i.e., correlations among observed variables, which count for measurement error. The contrary is the regression analysis, where the regression coefficient estimation always understates the ‘true’ coefficient by the magnitude of the measurement error (Hair et al., 2010). For the same reason, estimates based on composite SEM are more reliable than sole path SEM models based on composite latent factors (i.e., we replace the measurement model with the so-called composites – values estimated by the CFA model).

To estimate the model, we applied from the available range (Jöreskog & Sörbom, 1996) the confirmatory modelling strategy, where we specified a single SEM model composed of the relationship between items and latent factors and directly between latent factors, following our research model (Figure 12). We assessed how well the model fits the data in the next step. When the model’s fit is acceptable, we will conclude in favour of the research hypothesis. When the result is unsatisfactory, we follow the competing models strategy and allow for slight modification in the model specification – the one that does not interfere with the research model logic. In this way, we still comply with the confirmatory modelling strategy.

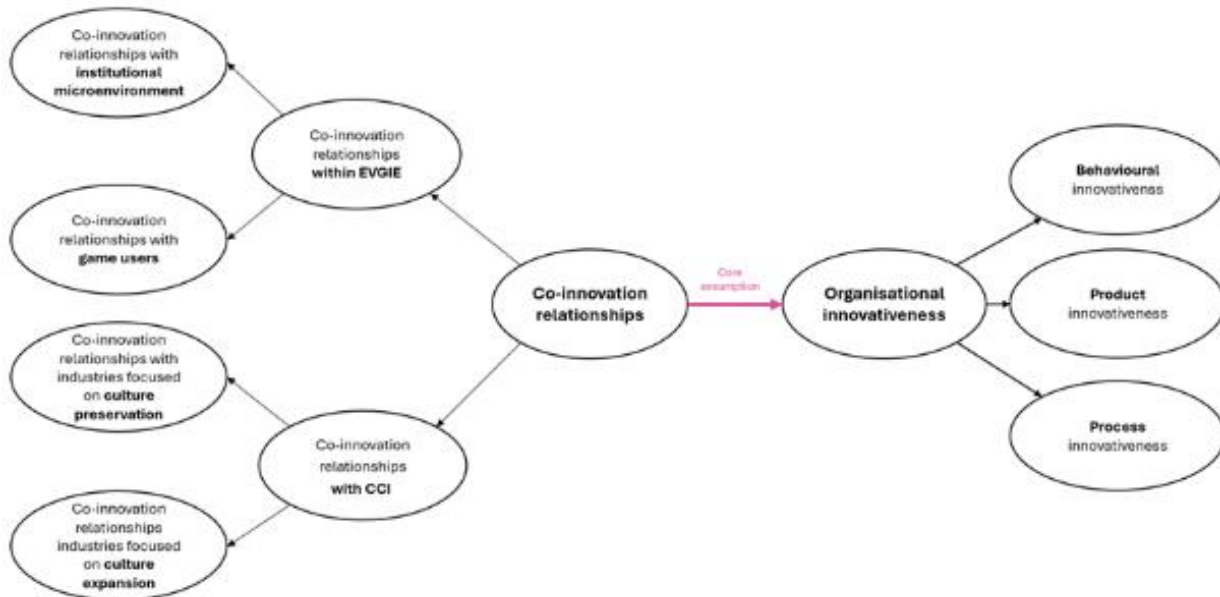


Figure 12. Research model

The CFA measurement model in our composite SEM describes three measurement scales:

1. Co-innovation relationships within EVGIE, which is built of two latent factors: Co-innovation relationships within the institutional microenvironment (CI Institutional Microenvironment) and Co-innovation relationships with game users (CI Game Users). The scale is depicted in Table 12, and it consists of 8 items.
2. Co-innovation relationships with CCI (other than VGI), which are built of two latent factors: Co-innovation relationships with industries focused on culture preservation (CI Culture Preservation) and Co-innovation relationships with industries focused on expanding the universe (CI Culture Expansion). The scale is depicted in Table 13, and it consists of 8 items.
3. Organisational innovativeness of VGD, which is built of three latent factors: Behavioural, Product, and Process Innovativeness. The scale is depicted in Table 14, and it consists of 9 items.



In our composite SEM, Co-innovation relationships within EVGIE and Co-innovation relationships with CCI (other than VGI) are exogenous constructs. At the same time, game developers' Organisational innovativeness is an endogenous construct (respectively equivalent to independent and dependent variables in regression analysis).

To assess the measurement model validity and final composite SEM model goodness of fit we used the suggested by Hu and Bentler (1999) the following indices combination: Nonnormed Fit Index (NNFI) introduced by Bentler and Bonett (1980), Comparative Fit Index (CFI) of Bentler (1990), Standardized Root Mean Square Residual (SRMR) introduced by Bentler (1995), and Root Mean Square Error of Approximation (RMSEA) of Steiger (1990). We added to this set the CMIN/df index of (Jöreskog, 1969). Following the recommendation of (Schermelleh-Engel et al., 2003), we sustain that the CFA model meets good standards of fit when $NNFI \geq 0.95$, $CFI \geq 0.95$, $SRMR \leq 0.1$, and $RMSEA \leq 0.08$. The CMIN/df index with an acceptable value of 5 or less (Marsh & Hocevar, 1985) indicates a good model fit. As reported in many studies, fit indices are sensitive to different estimation methods (Sun, 2005), and therefore, we allow for less respective, acceptable goodness of fit indices ($NNFI$ and $CFI \geq 0.9$). We also compared empirical and theoretical covariance matrices in detail and errors to identify the sources of error, which were measured on average by SRMR and RAMSEA.

Regression analysis

To test the main hypothesis, we used SEM. Still, regression analysis – as a distinct but complementary analytical approach¹⁹ – was used to test some detailed assumptions regarding the impacts of the identified types of co-innovation relationships on particular dimensions of organisational innovativeness.

Given the above, the additional lens of quantitative testing is that game developers' distinguished four types of co-innovation relationships have a significant and measurable impact on three considered dimensions of organisational innovativeness – Figure 13.

¹⁹ In the most general (and not heavily statistical) terms, hypothesis testing using SEM and regression differs significantly, particularly at the level of variable measurement. In SEM, it is possible to incorporate latent variables (directly unmeasurable theoretical constructs) measured by groups of measurement indicators. In regression, direct single-indicator measurement is assumed. Taking into account the complementarity of both approaches with different assumptions and capabilities, as well as the aim of more comprehensive recognition of the assumed relationships between co-innovation relationships and organisational innovativeness of VGD, regression analysis was also used.

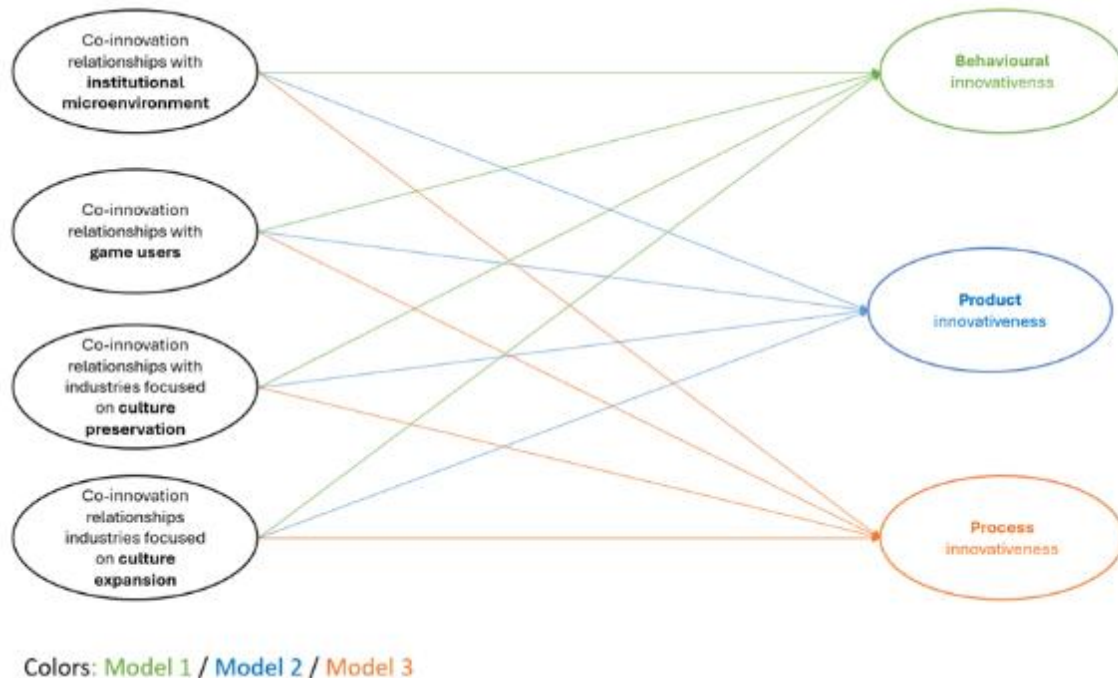


Figure 13. Research models for the 3 dimensions of organisational innovativeness

Following the regression-based approach, verifying such impacts required the construction of measurable variables and then assessing functional relationships between groups of variables. The analysis was based on linear regression models in this part of the analytical process. Therefore, the first step was to review the descriptive statistics for each construct. Then, the regression modelling procedure was performed, and the results regarding model fit were discussed. The last step of the analysis was to interpret the results.



4.3. Results²⁰

4.3.1. Scope of co-creation, co-innovation, and organisational innovativeness level

The first group of results concerns simple descriptive statistics for the constructs (variables) revealed as a result of scale development (presented in Section 4.2.5). These descriptives refer to the five latent constructs and all of the direct measures they cover. Their presentation is justified from the perspective of exploring the levels of the considered variables characterising European VGD as well as their intra-ecosystem and cross-industry cooperation.

First, the description of the investigated phenomena constitutes a new diagnostic cognitive value, as they have not previously been the subject of either scientific or industry recognition. An additional argument in this context is the specificity of the explored phenomena themselves, whose recognition may be valuable for practitioners, including both representatives of the VGI (e.g., the level of innovativeness across the previously identified dimensions) and policy decision-makers (e.g., the level of utilisation of different types of co-creation relationships and co-innovation relationships).

Second, the description of the studied phenomena sheds additional light on the profile of VGD, which based on of existing industry reports is rather known from the perspective of macro- and micro-indicators (revenues, employment size, developed games, number of copies sold, etc.) than from the perspective of key success factors of the developers themselves, such as innovativeness or innovation co-creation processes.

Third, as suggested by the desk research results (Section 3) and demonstrated by the quantitative research results (both IDIs – Section 5 and DTthons – Section 6), the level of cross-industry cooperation is not high, and our knowledge about collaboration within the ecosystem functioning around the video game industry is quite deficient which in light of the entire relational approach (i.e., considering the source of sustainable competitive advantage

²⁰ It should be highlighted, as outlined in the methodological description, that the results reflect participants' statements and are therefore of a declarative and subjective nature.





in strategic cooperation and coopetition) and open innovation concept (i.e. considering the source of market success in jointly developed innovations) is quite surprising and may (if such is the actual state) indicate that the possibilities and developmental potential of VGI is not being utilised.

Considering the means, it should be noted that the adopted 7-point Likert scale causes the value of 4 to mean a neutral assessment. Thus, this means that regarding exploitation of co-creation and co-innovation relationships, values below may be seen as low or no cooperation, and above the existence of cooperation, while regarding organisational innovativeness, values below four may be seen as deficit or no innovativeness, and above exemplifications of innovativeness.

Co-creation within EVGIE

Descriptive statistics for Co-creation relationships within the EVGIE are depicted in Table 16. The average assessment of it in our sample equals 3.93; CR with Institutional Microenvironment is assessed lower (mean = 3.22) than with Game Users (mean = 4.50). The tendency is confirmed by the mode (3 vs 5 in both dimensions of CR within VGIE).



**Table 16. Descriptive statistics for Co-creation relationships EVGIE**

Item	Mean	Median	Mode	Mode frequency	Lower quartile	Upper quartile	Standard deviation	Skewness	Kurtosis	Construct statistics
CR Universities	3.15	3	2	26%	2	5	1.71	0.44	-0.94	CR Institutional Microenvironment mean assessment = 3.22 st.dev. = 1.69
CR Research firms	3.25	3	2	24%	2	5	1.69	0.28	-1.10	
CR Public institutions	3.10	3	2	27%	2	5	1.62	0.49	-0.77	
CR Accelerators	3.38	3	2	26%	2	5	1.74	0.29	-1.12	
CR Gamers	5.14	5	5	37%	5	6	1.35	-0.87	0.74	CR Game Users mean assessment = 4.50 st.dev. = 1.50
CR Testers	4.56	5	5	36%	3	6	1.53	-0.63	-0.42	
CR Modders	4.18	5	5	36%	3	5	1.58	-0.33	-0.77	
CR Influencers	4.35	5	5	33%	3	5	1.53	-0.43	-0.58	
CR Reviewers	4.25	5	5	32%	3	5	1.54	-0.36	-0.63	



Additionally, the skewness is quite different in these two dimensions: while most responders rated CR Institutional Microenvironment as high, the CR Game Users were rarely rated low. The higher rating was given to CR with Game Users (5.14).

In general, the results show that within EVGIE, VGD:

- **exploit more co-creation relationships with game users than with representatives from the institutional microenvironment** – which empirically shows greater willingness of game studios to engage users in decision-making processes (Figure 14);
- exploit co-creation relationships mainly with **gamers** when it comes to the considered types of game users’
- exploit co-creation relationships mainly with **accelerators** when considering actors from the institutional microenvironment.

The results also show that **the scope of exploitation of co-creation relationships with organisations from the institutional microenvironment is generally relatively low**, as descriptives are below the mid-level of the adopted scale (i.e., below 4).

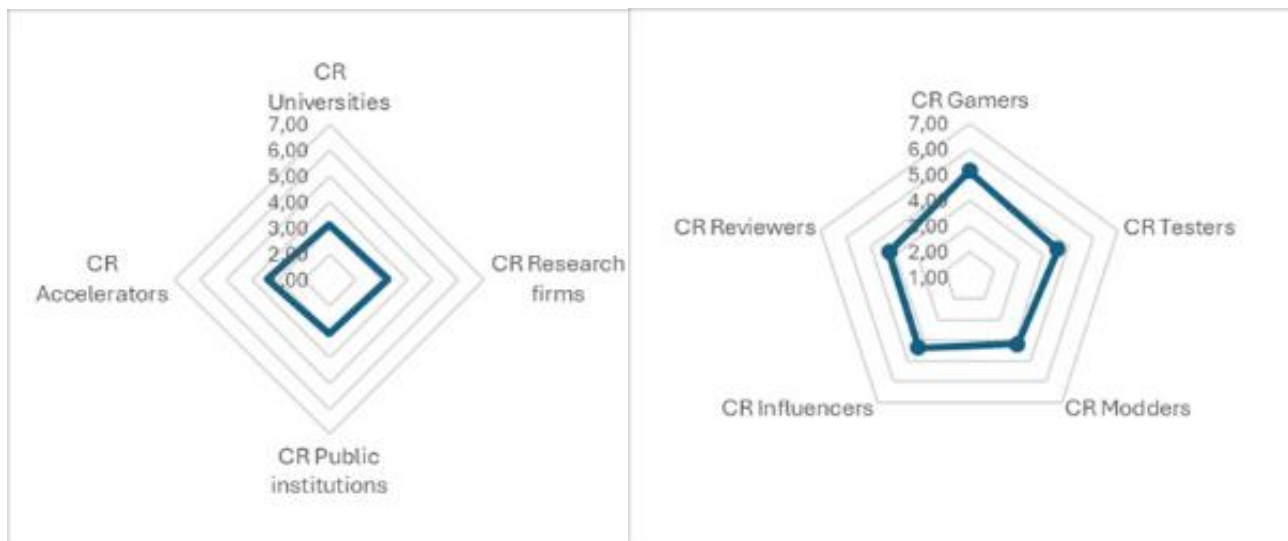


Figure 14. Mean assessment of Co-creation relationships within EVGIE

Co-creation with CCI

The most frequent rating given by responders to Co-creation relationships with CCI (other than VGI) varied between 1 and 2 (as displayed in Table 17).

**Table 17. Descriptive statistics for Co-creation relationships with CCI (other than VGI)**

Item	Mean	Median	Mode	Mode frequency	Lower quartile	Upper quartile	Standard deviation	Skewness	Kurtosis	Construct statistics
CR Archives	2.51	2	1	32%	1	3	1.52	0.89	-0.16	CR Culture Preservation mean assessment = 2.60 st.dev. = 1.54
CR Libraries	2.48	2	1	31%	1	3	1.49	0.94	0.02	
CR Museums	2.80	2	2	27%	1	4	1.62	0.68	-0.51	
CR Audiovisual	3.47	3	2	23%	2	5	1.78	0.21	-1.13	CR Culture Expansion mean assessment = 3.21 st.dev. = 1.73
CR Design	3.12	3	2	27%	2	5	1.65	0.43	-0.88	
CR Music	3.55	3	3	21%	2	5	1.77	0.17	-1.07	
CR Literature	2.97	2	2	26%	1	4	1.75	0.59	-0.76	
CR Publishing	2.94	3	2	26%	2	4	1.71	0.63	-0.64	





Co-creation relationships with industries focused on culture preservation were assigned 2.6, while Co-creation relationships with industries focused on culture expansion were slightly higher, i.e., 3.21. The distribution within both dimensions of co-creation relationships is symmetric and platykurtic, indicating that around 25% of the sample responders give a higher assessment.

The obtained results reveal a low **or even marginal scope of co-creation between VGD and actors representing other CCI**, as all descriptive statistics fall below the mid-level of the adopted scale. When comparing the two dimensions of co-creation with those of other representatives from CCI, one may notice the following issues:

- The scope of co-creation relationships utilised by VGD is slightly **higher in the case of cooperation with actors representing industries focused on culture expansion than with actors representing industries focused on culture preservation** (Figure 15). On one hand, this may result from the relatively high popularity and awareness regarding the possibilities of using games as a medium for expanding specific universes (referring to IP licensing from the video games industry to CCI, but also vice versa). On the other hand, this may also stem from the video games industry's low awareness of the importance of culture preservation (as revealed by the conducted IDIs and DTthons).
- Regarding industries focused on culture preservation, the highest (though still low) level of joint value creation is associated with cooperation with **museums**, which can be linked to the quite visible growing trend of using games in museums.
- Regarding industries focused on culture expansion, the highest (though still low) level of joint value creation is associated with cooperation with the **audiovisual industry**, which can be connected to, among other things, the possibilities of cross-utilising specific technological solutions (e.g., related to the use of the Unreal engine).



Figure 15. Mean assessment of Co-creation relationships with CCI (other than VGI)

Co-innovation within EVGIE

Descriptive statistics for Co-innovation relationships within EVGIE, depicted in Table 18, reveal a moderate average rating of this CI relationship (mean = 3.84); for CI with institutional microenvironment, the mean equals 3.16, and for CI with game users, 4.51. The most frequent assessment of the CI with casual players was 6 (25% of responders voted this way), while CI with gamers, testers, and influencers were given 5 (more than 30% rated this type of CI in such a way). Similarly to CR with EVGIE, the distributions of the answers differ in both dimensions. Assessment of the CI with institutional microenvironment is positively skewed, while the CI with game users is negatively skewed. The most frequent evaluation of the CI with institutional microenvironment equals 1, and only a small group gives an evaluation higher than 5. The contrary is with CI with game users, where a small group of responders rated it below 4.

The results concerning utilising co-innovation relationships within EVGIE are characterised by very similar specificity compared to the scope of utilising Co-creation relationships within EVGIE, namely a relatively small scope of utilisation. In a more detailed perspective, it is worth noting several issues:



- **VGD utilise co-innovation relationships with game users more than with the institutional environment** (Figure 16). Similar to co-creation processes, they may not see the institutional environment as a partner for joint innovation creation.
- In the case of co-innovation relationships with the institutional microenvironment, **public institutions received the lowest score**, which may suggest that the offered support is not necessarily utilised.



**Table 18. Descriptive statistics for Co-innovation relationships within EVGIE**

Item	Mean	Median	Mode	Mode frequency	Lower quartile	Upper quartile	Standard deviation	Skewness	Kurtosis	Construct statistics
CI Research firms	3.26	3	1	21%	2	5	1.75	0.23	-1.20	CI Institutional Microenvironment mean assessment = 3.16 st.dev. = 1.75
CI Public institutions	3.05	3	1	25%	1	5	1.72	0.40	-1.00	
CI Accelerators	3.25	3	1	24%	2	5	1.81	0.24	-1.20	
CI Lobbying entities	3.10	3	1	24%	2	4	1.72	0.39	-0.91	
CI Casual players	4.48	5	6	25%	3	6	1.60	-0.41	-0.71	CI Game Users mean assessment = 4.51 st.dev. = 1.56
CI Gamers	4.93	5	5	38%	4	6	1.46	-0.79	0.35	
CI Testers	4.52	5	5	34%	3	6	1.57	-0.53	-0.49	
CI Influencers	4.12	4	5	24%	3	5	1.63	-0.28	-0.87	



- In the case of co-innovation relationships with game users, **gamers achieved the highest score**, which indicates practical utilisation of video game communities not only for creating value unrelated to innovations, but also for joint innovation creation **in line with the concept of user-driven innovations**.
- The generally lower average level for co-innovation relationships than for co-creation relationships within EVGIE may suggest that **joint value creation within EVGIE concerns rather broadly perceived value than value resulting from co-innovations**. In other words, EVGIE is utilised to a slightly greater extent as a source of creating value other than that directly related to innovations, e.g., organisational, logistical, marketing improvements of minor degree or scope (i.e., not having the status of radical or incremental innovation).

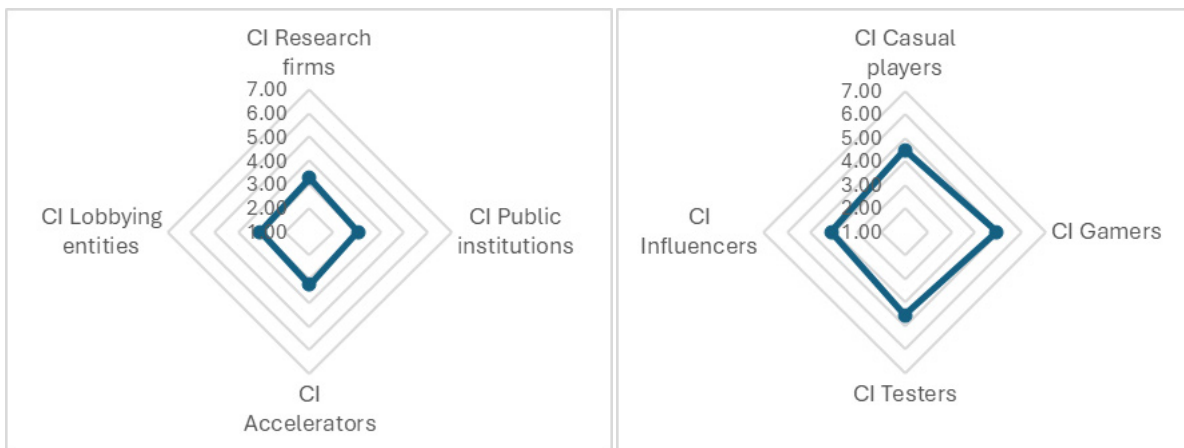


Figure 16. Mean assessment of Co-innovation relationships within EVGIE

Co-innovation with CCI

Based on the descriptive statistics for Co-innovation relationships with CCI (other than VGI) - Table 19, we can conclude that the typical rating for this type of CI is 2. Both dimensions are rated similarly, i.e., CI with industries focused on culture preservation, 2.84, and CI with industries focused on culture expansion, 3.24. The shape of the distribution for all measures of CI with CCI is moderately skewed to the right and platykurtic compared to the normal distribution. The upper quartile is no higher than 5 (CI Audiovisual), but typically, it is 4, which means that a minority of responders rated this type of relationship as high.

**Table 19. Descriptive statistics for Co-innovation relationships with CCI (other than VGI)**

Item	Mean	Median	Mode	Mode frequency	Lower quartile	Upper quartile	Standard deviation	Skewness	Kurtosis	Construct statistics
CI Archives	2.63	2	2	36%	2	3	1.44	0.96	0.34	CI Culture Preservation mean assessment = 2.84 st.dev. = 1.53
CI Libraries	2.78	2	2	35%	2	4	1.48	0.79	-0.15	
CI Museums	2.98	3	2	31%	2	4	1.60	0.67	-0.46	
CI Crafts	2.97	3	2	32%	2	4	1.61	0.70	-0.38	
CI Audiovisual	3.49	3	2	26%	2	5	1.72	0.32	-1.01	CI Culture Expansion mean assessment = 3.24 st.dev. = 1.67
CI Literature	3.11	3	2	30%	2	4	1.62	0.60	-0.55	
CI Publishing	3.10	3	2	29%	2	4	1.62	0.60	-0.52	
CI Visual arts	3.25	3	2	24%	2	5	1.71	0.41	-0.87	



The obtained results confirm the results received for co-creation relationships with CCI, indicating a **relatively negligible scope of cooperation utilisation with other CCI, also in relation to co-innovation processes**. Similarly to value co-creation, in the case of co-innovation relationships, cooperation is slightly higher when collaborating with industries focused on culture expansion than with industries focused on culture preservation, as shown in Table 19 and Figure 17.

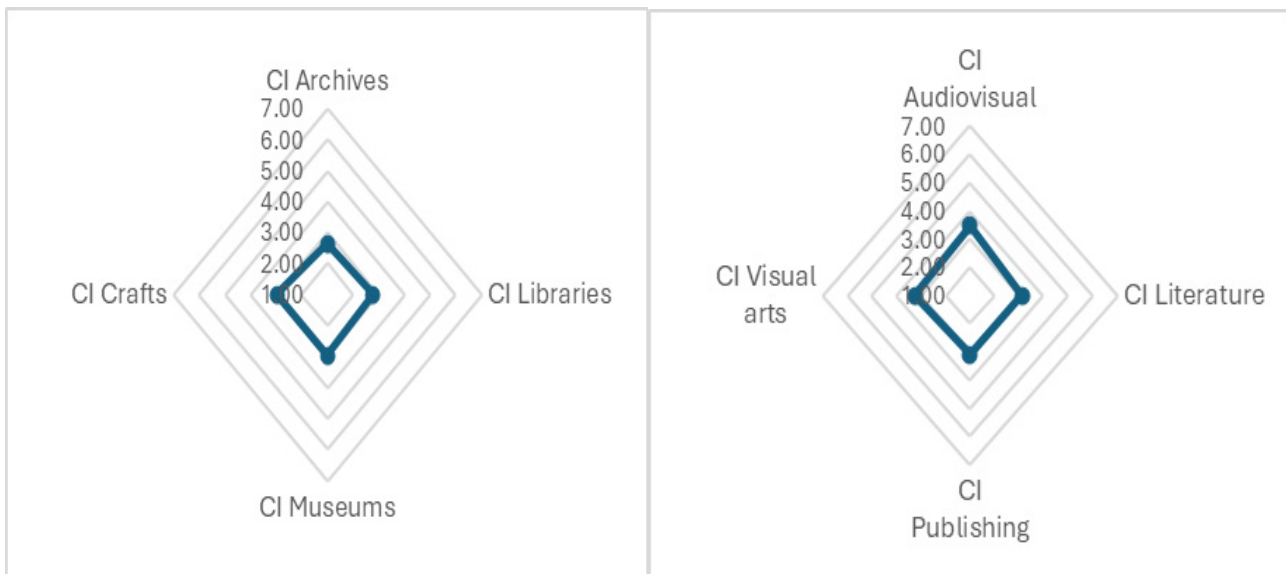


Figure 17. Mean assessment of Co-innovation relationships with CCI (other than VGI)

In a more detailed perspective, similar results were also obtained as in the case of co-creation relationships.

- In the case of co-innovation relationships with industries focused on culture preservation, **museums are characterised by the highest (but still low) average, which means that,** also in the case of joint innovation development, museums are most often chosen for cooperation.
- In the case of co-innovation relationships with industries focused on culture expansion, **the audiovisual industry is characterised by the highest (but still low) average.**
- It is also worth noting that the averages for **both constructs representing industries focused on culture preservation and industries focused on culture expansion are at a slightly higher level in the case of co-innovation relationships than in the case of co-creation relationships.** This may suggest that CCI entities are used more for joint



innovation creation than for joint creation of other (non-innovation-related) value. At a higher level of analysis, the obtained results may suggest that CCI industry entities may be perceived by VGD more as a 'recipient' or 'supplier' of value transfer in innovation management, rather than as a partner in value co-creation.

Organisational innovativeness

Descriptive statistics for organisational innovativeness of VGD are presented in Table 20. The most frequent evaluation is 5 for all measures of Innovativeness, and around 35% of the surveyed VGD made such an evaluation. The highest assessment in our sample received Behavioural innovativeness (mean = 5.49, and the only one above 5), and it was rarely rated low (lower quartile equals 5 for all items). 50% of responders rated Product Innovativeness as between 3 and 5, and on average, 4.16. Responders gave an approximately one-point higher rating for Process innovativeness than Product innovativeness.

In general terms, the obtained results can be considered somewhat surprising. The video games industry is perceived as highly innovation-driven (Landoni et al., 2020; Ozalp, 2024), and consequently, one could expect that the key actors in the industry - game developers - would exhibit high levels of innovativeness. However, the results presented in Table 20 may suggest a different picture, where **European video game developers are characterised by rather average innovativeness**. At this point, it is worth noting several factors - at least from the perspective of the informants, the industry's characteristics, and the chosen operationalisation - that may have influenced the observed results.

First, a general explanation for the observed level of innovativeness could be either a high degree of self-criticism among VGD and their representatives regarding a factor crucial to their competitiveness, or, conversely, a lack of awareness of the different manifestations of innovativeness (Figure 18). Moreover, negative industry-wide trends (Bradshaw, 2024; Kościewicz et al., 2025; Lee et al., 2024), such as declining financial performance or workforce reductions, may negatively affect creativity and the freedom to innovate at the individual level. Second, an essential interpretative aspect may be the very nature of the industry, including the challenging development conditions in the VGI observed since the COVID pandemic (Bradshaw, 2024; Kościewicz et al., 2025; Parvini, 2023), which could have affected the



scope and scale of pro-innovative activities in recent years. In particular, recently, small companies have often struggled to survive and may need to cut innovation-related expenses, while large companies tend to limit operational risk and reduce R&D spending. Furthermore, at the industry level, there appears to have been a shift in emphasis from radical, highly visible innovations (e.g., VR, AR, cloud gaming) toward incremental, more technical innovations that are more observable at the industry level than by the general public. This shift, combined with the current absence of major technological breakthroughs, may influence perceptions of innovativeness among game developers themselves, which does not necessarily imply that VGD are not innovative.

Third, it might also be that the level of innovativeness is indeed not high, at least not in the dimensions covered by the study, meaning that the adopted operationalisation could have affected the observed results. For example, it would be interesting to examine the technological innovativeness of VGD specifically.



**Table 20. Descriptive statistics for Organisational innovativeness of VGD**

Item	Mean	Median	Mode	Mode frequency	Lower quartile	Upper quartile	Standard deviation	Skewness	Kurtosis	Construct statistics
B Innovative openness	5.46	5	5	38%	5	6	1.13	-0.80	1.52	Behavioural mean assessment = 5.49 st.dev. = 1.14
B Innovative practices	5.48	6	5	37%	5	6	1.13	-0.89	1.64	
B Innovative thinking	5.52	6	5	32%	5	6	1.16	-0.78	0.85	
PR Innovation leader	4.19	4	5	32%	3	5	1.22	-0.12	-0.18	Product mean assessment = 4.16 st.dev. = 1.23
PR Innovation pioneer	3.94	4	5	29%	3	5	1.26	0.02	-0.53	
PR Innovation identity	4.36	5	5	45%	4	5	1.19	-0.50	0.21	
PS Innovative management	4.51	5	5	38%	4	5	1.23	-0.23	-0.16	Process mean assessment = 4.50 st.dev. = 1.29
PS Innovative methods	4.79	5	5	37%	4	6	1.29	-0.60	0.00	
PS Innovative production	4.21	4	5	30%	3	5	1.34	-0.09	-0.72	





Figure 18. Mean assessment of VGD Organisational innovativeness

In a more detailed perspective:

- **Behavioural innovativeness** (related to human resources in game studios) **is at the highest level in developers' self-assessment**. On the one hand, this indicates relatively well-developed competencies regarding creativity and individual innovativeness. On the other hand, it confirms the assumption about the importance of creativity in creative industries. It also confirms the research results on Polish VGD in which innovativeness concerning people also proved to be the highest rated (Klimas, 2019).
- **Product innovativeness** (i.e., directly related to produced games) **is rated lowest by developers** across all three dimensions. This may mean that games are not necessarily as innovative as commonly believed, at least from the perspective of implementing completely new or significantly improved solutions. It is also worth noting the specificity of the time when the research was conducted, which is characterised by high market pressure, declining revenues, employment drops, and uncertainty regarding the direction of AI utilisation in the VGI. External conditions, generally unfavourable to product innovations, could have influenced the obtained self-assessment results.

4.3.2. Co-creation and co-innovation networks

The second group of results concerns cluster analysis employed for all direct measures used during the data collection process (see the initial measurements represented by the questions in the survey questionnaire included in Appendix A).



As indicated in the part describing the methodological design process, testing the main hypothesis required not only adopting a specific measurement approach but also its validation. As a result, certain initial measurements for co-creation and co-innovation relationships were excluded from further analyses, including descriptives, SEM, and regression. It should be noted that the exclusion of some directly measured indicators (items) resulted mainly from the fact that scale validation and verification heavily rely on correlations between and among direct observations. It means that the final measurement scale includes only measurable indicators representing some correlation-based patterns. In other words, it does not mean that the excluded measurable indicators do not matter, are not observed, or do not characterise the research sample. Therefore, given the significance of the phenomena under consideration, but also taking into account the originality of the research topic, the exploration of the scope of co-creation and co-innovation utilised by VGD was deepened through cluster analysis encompassing all possible cooperation partners (methodologically speaking, all initial measurements), i.e., a total of 23 types of EVGIE actors and 15 different industries classified as CCI (excluding VGI).

When employing cluster analysis to indicate the number of extracted clusters, we analysed the distance between clusters so that, at the output, we could indicate clusters that differ in terms of the degree of exploitation of either co-creation or co-innovation relationships. We supported the visual inspection of the dendrogram with the analysis of the shape of the distribution of the exploitation of both types of considered relationships, apparent in the particular network, either within EVGIE or with CCI. Relying on the typical observed degree of usage of particular types of relationships with actors from the network, we set a cutoff point on the dendrogram corresponding to:

- **Relatively high degree** of exploitation of co-creation or co-innovation relationships;
- **Relatively moderately high degree** of exploitation of co-creation or co-innovation relationships;
- **Relatively moderately low degree** of exploitation of co-creation or co-innovation relationships;
- **Relatively low degree** of exploitation of co-creation or co-innovation relationships.

At this point, it is essential to emphasise that **we are referring to relative levels of relationship exploitation**, which does not necessarily mean that the actual cooperation between entities is high or low. The cluster analysis does not directly account for descriptive statistics such as





means or medians. However, as indicated in sections 4.3.1 and 4.3.3, **the overall levels of intra-ecosystem and cross-industry cooperation remain low**. This does not mean, though, that within this generally low level, cooperation of VGD with certain external actors is not more or less utilised for value co-creation or co-innovation.

Co-creation networks of VGD within EVGIE

The first group of relationships analysed through cluster analysis concerned co-creation relationships within EVGIE, meaning intra-ecosystem cooperation used by video game developers. As shown in the dendrogram (Figure 19) and detailed in Table 21, four relative levels of Co-creation relationship use within EVGIE can be distinguished, indicating four distinct types of cooperation.

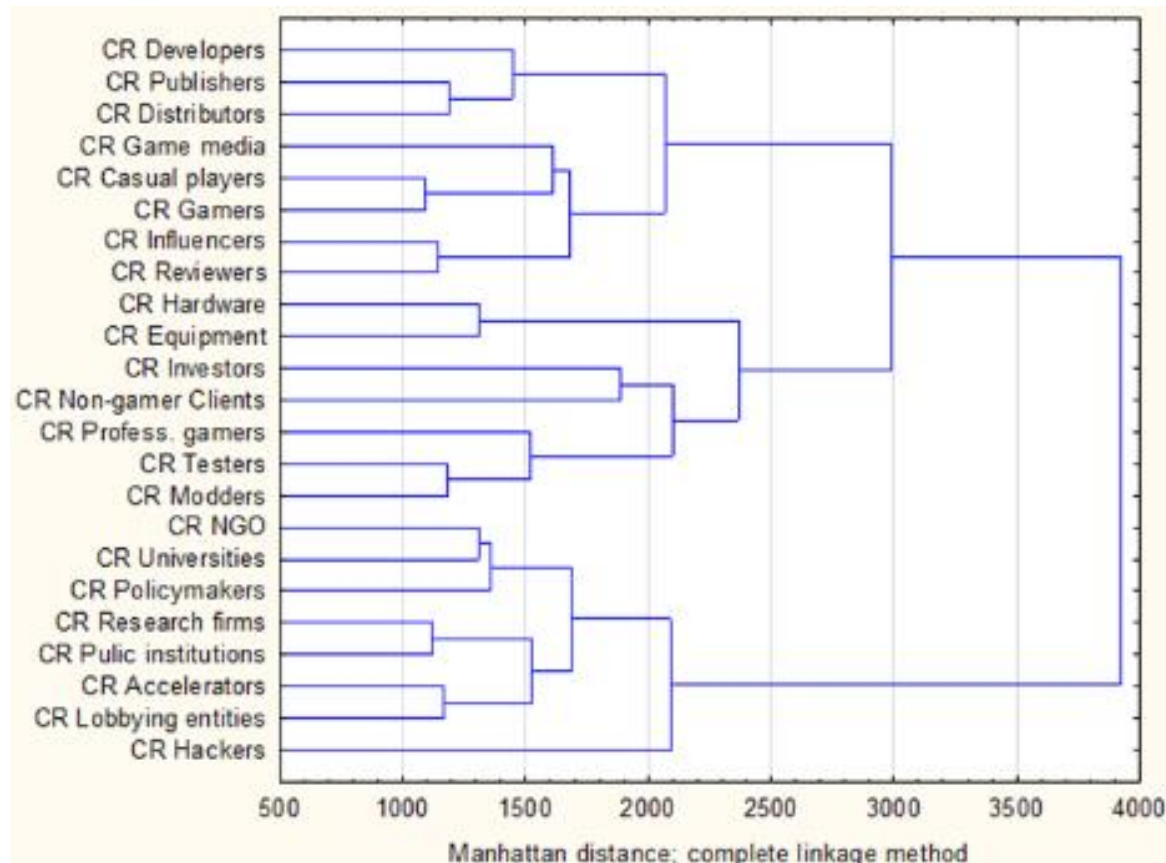


Figure 19. Dendrogram of exploitation of Co-creation relationships within EVGIE

**Table 21. Intra-ecosystem co-creation representing different degrees of exploitation of co-creation relationships within EVGIE**

Co-creation relationships within EVGIE	Degree of exploitation	Size dependency
other game developers	High	Yes
game publishers	High	Yes
game distributors	High	No
gaming media	High	No
casual players and/or their communities	High	Yes
gamers & hardcore gamers and/or their communities	High	Yes
influencers and/or their communities	High	Yes
independent reviewers and/or their communities	High	Yes
producers of equipment (hardware) necessary for the use of games (including computers, consoles, mobile devices, etc.)	Moderately high	No
manufacturers of equipment optionally used for games (including controllers, pads, joysticks, headphones, microphones, etc.)	Moderately high	No
investors, including business angles	Moderately high	No
Professional e-sport gamers and/or their communities	Moderately high	Yes
testers and/or their communities	Moderately high	No
modders and/or their communities	Moderately high	Yes
clients not being gamers (e.g. parents)	Moderately high	No
NGOs (including foundations, associations)	Moderately low	Yes
universities	Moderately low	Yes
government and policymakers (at local, national, European, global level)	Moderately low	Yes
research institutions and consulting companies	Moderately low	Yes
public institutions	Moderately low	Yes
incubators and accelerators	Moderately low	Yes
lobbying organizations	Moderately low	Yes
hackers and/or their communities	Low	Yes

The first cluster represents **the most intensive cooperation focused on co-creating value other than innovation-related value. This type of cooperation involves the core of the game industry (developers, publishers, distributors) and key users who are also game consumers (players, influencers, independent reviewers)**. The identified structure of co-creation relationships with the relatively highest degree of exploitation is unsurprising. On one hand, it includes entities directly involved in the game development process, and on the other, users whose opinions and ideas are actively utilised by VGD.



The second cluster represents moderate intra-ecosystem cooperation in value co-creation. It includes what could be described as the second circle of VGI actors and the second circle of users, who are not necessarily game consumers.

The third cluster represents weak intra-ecosystem cooperation in value co-creation and covers a broad group of institutional EVGIE actors. The final type of cooperation – marginal – is characterised solely by cooperation with hackers, who are generally not engaged by VGD in value co-creation efforts.

Co-creation networks of VGD with CCI

The second stage of the analysis focused on the degree of use of Co-creation relationships with CCI, representing cross-industry cooperation aimed at joint value creation. A visual inspection of the dendrogram (Figure 20), as well as the detailed description in Table 22, reveals an overall low level of use of such relationships.

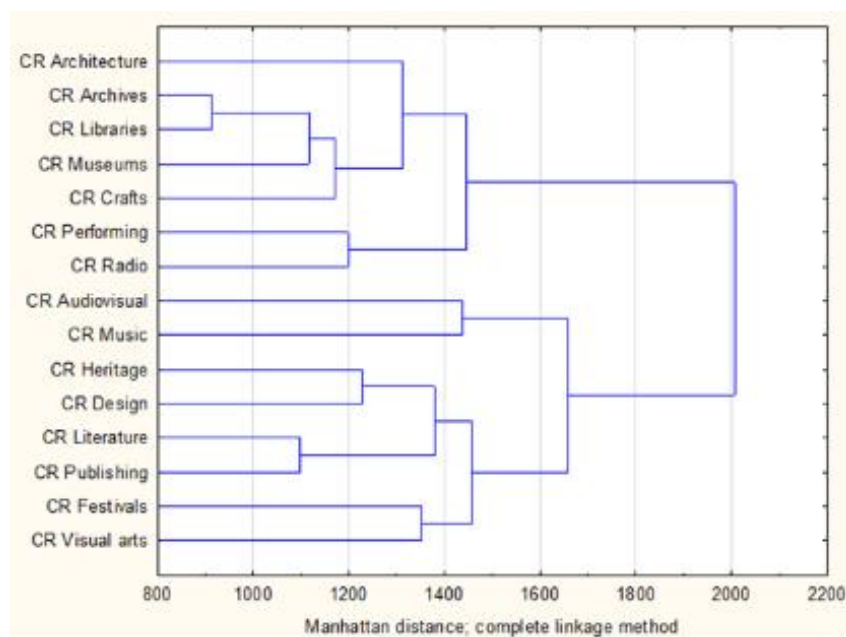


Figure 20. Dendrogram of exploitation of Co-creation relationships with CCI (other than VGI)



In the case of cross-industry co-creation, **VGD generally demonstrate a low level of engagement in Co-creation relationships with CCI**, which aligns with the descriptive statistics indicating a significantly lower level of cross-industry cooperation than intra-ecosystem cooperation.

CCI entities were grouped into two clusters: first, a cluster representing relatively moderate cooperation, which includes typical actors focused on culture creation and expansion; and second, a cluster characterised by relatively marginal cooperation, consisting mainly (though not exclusively) of entities oriented toward culture preservation.

Table 22. Cross-industry co-creation representing different degrees of exploitation of Co-creation relationships with CCI

Co-creation relationships in CCI	Degree of exploitation	Size dependency
audiovisual (including film, television and multimedia)	Moderately low	Yes
intangible and tangible cultural heritage	Moderately low	Yes
design (including fashion design)	Moderately low	Yes
festivals	Moderately low	No
music	Moderately low	Yes
literature	Moderately low	Yes
books and publishing	Moderately low	Yes
visual arts	Moderately low	Yes
architecture	Low	Yes
archives	Low	Yes
libraries	Low	Yes
museums	Low	Yes
artistic crafts	Low	Yes
performing arts (including theatre and dance)	Low	Yes
radio	Low	Yes

Co-innovation networks of VGD within EVGIE

The third type of relationships analysed refers to Co-innovation relationships within EVGIE, representing intra-industry cooperation in innovation development. In this case, four relative levels of applying a relational - and essentially open innovation - approach can be distinguished – Figure 21 and Table 23.

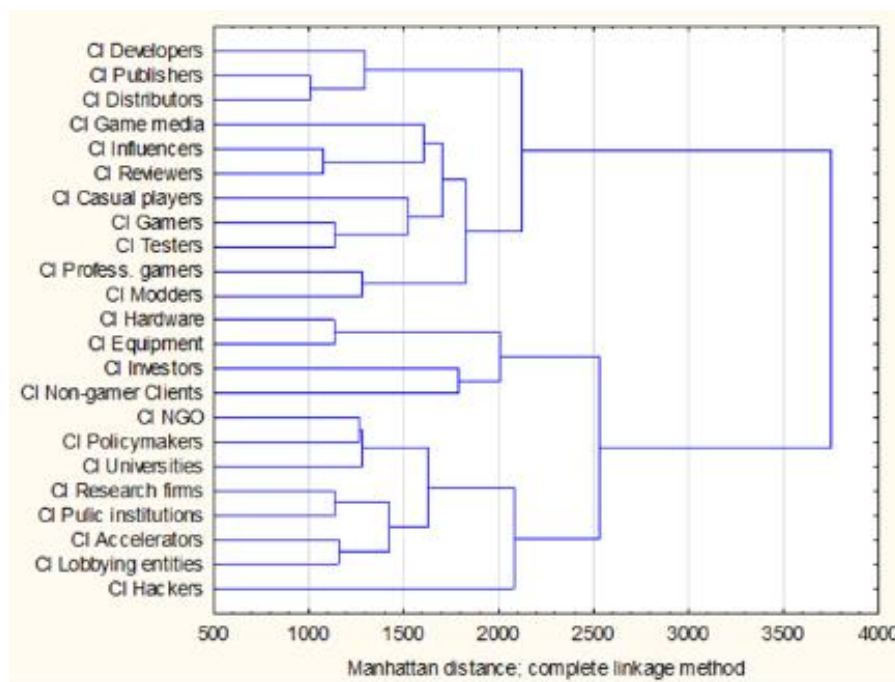


Figure 21. Dendrogram of exploitation of Co-innovation relationships within EVGIE

The first and smallest cluster represents relatively intensive and regular intra-ecosystem cooperation in innovation. It includes the core of the VGI - namely, other game developers (referring in a strict sense to coopetition), game publishers, and game distributors. The second cluster relates to relatively moderate and frequent intra-ecosystem cooperation and includes eight EVGIE actors, mainly game users. The third cluster (four actors) represents weak and sporadic intra-ecosystem cooperation, primarily with hardware and capital providers. Finally, the fourth cluster represents minimal and rare intra-ecosystem cooperation, primarily with business environment entities.

**Table 23. Intra-ecosystem co-innovation representing different degrees of exploitation of Co-innovation relationships within EVGIE**

Co-innovation relationships in EVGIE	Degree of exploitation	Size dependency
other game developers	High	Yes
publishers	High	Yes
distributors	High	Yes
gaming media	Moderately high	No
casual players and/or their communities	Moderately high	Yes
gamers & hardcore gamers and/or their communities	Moderately high	Yes
professional e-sport gamers and/or their communities	Moderately high	Yes
testers and/or their communities	Moderately high	No
modders and/or their communities	Moderately high	Yes
influencers and/or their communities	Moderately high	Yes
independent reviewers and/or their communities	Moderately high	Yes
producers of equipment (hardware) necessary for the use of games (including computers, consoles, mobile devices, etc.)	Moderately low	No
manufacturers of equipment optionally used for games (including controllers, pads, joysticks, headphones, microphones, etc.)	Moderately low	No
investors, including business angles	Moderately low	No
clients not being gamers (e.g. parents)	Moderately low	No
NGOs (including foundations, associations)	Low	Yes
universities	Low	Yes
government and policymakers (at local, national, European, global level)	Low	Yes
research institutions and consulting companies	Low	Yes
public institutions	Low	Yes
incubators and accelerators	Low	Yes
lobbying organisations	Low	Yes
hackers and/or their communities	Low	Yes

The identified structure of intra-ecosystem co-innovation phenomena suggests that when it comes to cooperation in innovation, **VGD primarily focus on the industry core (developers, distributors, and publishers) and game users**. From the perspective of stimulating co-innovation processes, it is worth noting the low level of cooperation with actors such as universities or research institutions, entities that could drive radical innovation through knowledge transfer and applied research.



It is also valuable to highlight the differences in the degree of co-creation and co-innovation relationship exploitation within EVGIE across different types of actors. Overall, it is evident that innovation-oriented cooperation is weaker and less developed compared to co-creation cooperation, as many fewer actors are characterised by a high and moderately high degree of relationships' use.

Co-innovation networks of VGD with CCI

The final area analysed concerned Co-innovation relationships with CCI, thus representing the cross-industry cooperation of VGD in the field of innovation. The cluster analysis results showed **slightly more variation in the degree of relationship exploitation with CCI in the case of co-innovation compared to co-creation**, as illustrated in Figure 22 and detailed in Table 24.

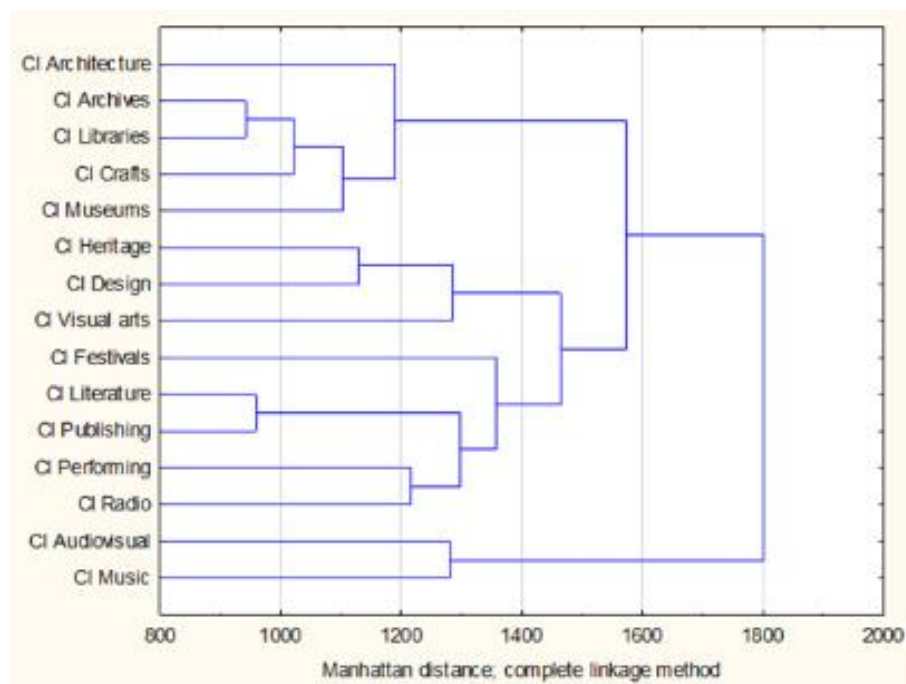


Figure 22. Dendrogram of exploitation of Co-innovation relationships with CCI



Three distinct clusters were identified in the cluster analysis of Co-innovation relationships with CCI. The first **cluster, comprising actors from the audiovisual and music industries, is characterised by a relatively moderate degree of exploitation of co-innovation relationships**. The second cluster, marked by a relatively low degree of co-innovation engagement, consists mainly of entities focused on cultural creation and development. Finally, the third cluster, primarily composed of industries oriented toward culture preservation, is also characterised by low cross-industry cooperation in innovation management.

Table 24. Cross-industry co-innovation representing different degrees of exploitation of Co-innovation relationships with CCI

Co-innovation relationships in CCI	Degree of exploitation	Size dependency
audiovisual (including film, television and multimedia)	Moderately high	Yes
music	Moderately high	Yes
intangible and tangible cultural heritage	Moderately low	Yes
design (including fashion design)	Moderately low	No
festivals	Moderately low	No
literature	Moderately low	Yes
performing arts (including theatre and dance)	Moderately low	Yes
books and publishing	Moderately low	Yes
radio	Moderately low	Yes
visual arts	Moderately low	Yes
architecture	Low	Yes
archives	Low	Yes
libraries	Low	Yes
museums	Low	Yes
artistic crafts	Low	Yes

Overall, the cluster structures for co-innovation and co-creation relationships with CCI are broadly similar, with the first cluster standing out positively in the context of co-innovation. The result obtained for this cluster aligns with prior desk research (Section 3.3.3 and more specifically Kościewicz et al., 2025), which highlights game developers' cooperation with the



audiovisual sector (e.g., use of animation, technology transfer related to the Unreal Engine) and the music industry (e.g., professionalisation of soundtracks, brand expansion through dedicated soundtrack releases).

Summing up, the cluster analysis revealed **varying levels of co-creation and co-innovation relationship use across intra-ecosystem cooperation (generally showing higher engagement in both types of relationships) and cross-industry cooperation (generally showing lower engagement)**. A detailed analysis of the dendrograms leads to a broader conclusion: VGD tend to be relatively insular regarding value creation and innovation. The circle of actors involved in relatively high levels of cooperation is narrow and limited primarily to the core of the video games industry, occasionally extending to game users. Given the assumptions of the relational approach, including the aligned concept of open innovation, this **internal focus and reliance on closed innovation may act as a barrier to the fuller and faster development of VGD**.

The cluster analysis also indicates a **slightly different approach VGD take when targeting specific actors in co-creation versus co-innovation**. Specifically, in the case of intra-ecosystem cooperation, VGD tend to engage more in co-creation relationships than in co-innovation ones. Conversely, in the context of cross-industry cooperation, VGD use co-innovation relationships more than co-creation ones.

4.3.3. Phases of co-innovation

This part of quantitative data analysis aimed to explore in which phases of the innovation development cycle (covering: **co-discovery, co-deployment, co-development, co-delivery, and co-dissemination** as in the model of co-innovation by Klimas and Czakon (2022)), cooperation is used by VGD within EVGIE and with CCI. It was also assessed in which phases the co-innovation relationships are weaker or absent. The assessment was based on a seven-point Likert scale, in which the value 4 meant no or neutral opinion. Therefore, the values above 4 indicate the presence of cooperation: the higher the value, the more decisive the opinion about the existence of cooperation, and below 4, the disappearance of cooperation.



*Intra-ecosystem and cross-industry cooperation in innovation development*²¹

In general, it should be noted that the distribution of collected data indicates that respondents can confirm whether a given phase is important from the game industry perspective in at least several phases (Table 25). This is evidenced by two parameters of the distributions: skewness and kurtosis. Both measures allow for a better understanding of the data structure and the nature of the answers provided, going beyond basic information such as the mean and median. Skewness informs about the asymmetry of the distribution – that is, whether the answers are shifted towards lower (positive skewness) or higher (negative skewness) ratings. In the study, all variables have negative skewness values, meaning that positive answers dominate – i.e., respondents more often indicated that cooperation occurs. The more negative the value, the greater the concentration of answers on the side of the assessments ‘rather yes’, ‘yes’, or ‘definitely yes’. Therefore, preliminary analysis reveals that the **cooperation in innovation development is vital in the game industry. However, it must be admitted that the intensity of cooperation is certainly not the same in each phase.**

Table 25. Descriptive statistics for co-innovation phases within EVGIE and with CCI

Phases		Mean	Median	Std. dev	Skewness	Kurtosis
EVGIE	1_08_01_discovery	4.48	5.00	1.37	-0.65	0.24
	2_08_02_development	4.52	5.00	1.35	-0.58	0.04
	3_08_03_deployment	4.56	5.00	1.29	-0.53	0.11
	4_08_04_delivery	4.48	5.00	1.32	-0.52	0.11
	5_08_05_dissemination	4.39	5.00	1.38	-0.40	-0.11
CCI	1_09_01_discovery	3.98	4.00	1.52	-0.41	-0.66
	2_09_02_development	3.91	4.00	1.50	-0.31	-0.74
	3_09_03_deployment	3.94	4.00	1.46	-0.35	-0.68
	4_09_04_delivery	3.82	4.00	1.53	-0.20	-0.89
	5_09_05_dissemination	3.89	4.00	1.57	-0.20	-0.81

21 Initial findings regarding the extent to which game developers utilize co-innovation relationships within EVGIE were presented in the form of a research poster titled: ‘Co-innovations of European Video Game Developers. At Which Stages and With Whom Are Innovations Cocreated Within the European Video Game Ecosystem?’ during the GamiFin Conference 2025 in Finland (Klimas et al., 2025b).



The most pronounced asymmetry towards positive assessments occurs in the case of variable 1_08_01_discovery (skewness = -0.65). Many informants strongly notice cooperation in the phase of innovation discovery within EVGIE. A similar trend occurs in the remaining stages of intra-ecosystem cooperation (ranging from -0.65 to -0.40). This confirms that **intra-ecosystem cooperation is an important element of innovation development processes**. For comparison, variables describing cooperation with CCI also show negative skewness, but much weaker – e.g. 4_09_04_delivery has a skewness of -0.20 . This result suggests that the distribution of answers is more symmetrical in this case, and therefore, the respondents' opinions are more dispersed and evenly distributed. **Some VGD acknowledge cooperation with CCI, while others do not**. This may indicate a significant diversification of experiences or a lack of a uniform level of awareness.

Kurtosis, in turn, allows us to assess the shape (concentration) of the distribution: positive kurtosis indicates a more 'spiky' distribution (greater concentration of responses around the mean), while negative kurtosis suggests a more 'flatter' distribution (greater dispersion of responses and more diverse opinions of respondents). In the case of our study, the kurtosis values are small – they oscillate around zero, which means that most distributions are close to a normal distribution. This result indicates that there is no apparent concentration of responses, dispersion, or polarisation. This points to the stability of the transition process from one phase to another: VGD most likely gradually phase out or open subsequent stages of co-innovation. The highest positive kurtosis was recorded for variable 1_08_01_discovery (0.24), suggesting that respondents relatively equally assess this stage of cooperation within EVGIE as occurring and the most important. On the other hand, the lowest (negative) values occur for variables related to cooperation with CCI - e.g., 2_09_02_development (kurtosis = -0.74) or 4_09_04_delivery (-0.89). This may mean that the responses were more dispersed in these cases, and the respondents' opinions were less consistent, which also strengthens the observation of heterogeneous experiences in cooperation with CCI. In summary, both the analysis of skewness and kurtosis confirm that **intra-industry cooperation (within EVGIE) is well-established and relatively uniform, while cross-industry cooperation (with CCI) is rather weak and very diverse in terms of perception by surveyed VGD**. These data provide solid premises for further qualitative analyses to identify barriers and opportunities to improve cooperation with external institutions.



Considering the intensity of cooperation in the innovation process in its phases, the data clearly show that **intra-ecosystem cooperation occurs more often and is stronger than cross-industry cooperation**. This is evidenced by the median values for EVGIE (5) and CCI (4). Moreover, the average values for all stages of cooperation within EVGIE clearly exceed the neutral value of 4.

The highest level of intra-ecosystem cooperation was identified in the deployment phase (average = 4.56), indicating a strong need for communication and coordination with partners to effectively present the product to players, media, or publishers. Slightly lower values were also obtained in the development phase (4.52) and at the discovery stage (4.48), which confirms that cooperation in creating content and ideas is a rooted element of the operations of VGD. Intra-ecosystem cooperation in the dissemination phase is essential, although slightly less than in the others.

In turn, **cross-industry cooperation was assessed as not being exploited**. In all five phases, the average values oscillate around the neutral value (4.00), and in no case do they exceed it. The lowest result concerns the delivery phase (average = 3.82), which may indicate a lack of relevance of partners from CCI in the sales, promotion, or commercialisation processes of games. The creation phase (3.98) and deployment phase (3.94) were assessed slightly higher (almost neutral), but even in these cases, the answers do not allow us to consider common exploitation of cross-industry cooperation. It is also characteristic that in all phases of cross-industry cooperation, medians equal to 4.00 dominated, which may suggest great uncertainty of the respondents regarding the nature of these relations. It should be emphasised that this does not mean a total lack of cross-industry cooperation. It exists for at least 50% of surveyed VGD, as indicated by the median value of 4. However, the distribution of cooperating and non-cooperating with CCI is most often balanced. Empirical data confirm that **cooperation in innovation processes is based primarily on co-innovation relationships within EVGIE. In turn, cooperation with CCI remains weak and dispersed, although its potential could be significant**.



Intra-ecosystem and cross-industry cooperation in innovation development – perspective of the core market segment

In the next step, we analysed the exploitation of co-innovation relationships by VGD within EVGIE and CCI in the context of the core market segment they targeted. An overview of the innovation development phases by key market segment in which VGD operate also provides interesting results (Table 26).

Table 26. Assessment of co-innovation phases by the video games market segment

PHASES		Core segment (MEAN)				
		PC	Mobile	Console	AR/VR/MR	Browser
EVGIE	1_08_01_discovery	4.5	4.5	4.2	4.0	4.8
	2_08_02_development	4.6	4.6	4.2	4.4	4.4
	3_08_03_deployment	4.6	4.6	4.3	4.4	4.9
	4_08_04_delivery	4.5	4.5	4.3	4.4	4.9
	5_08_05_dissemination	4.4	4.5	4.1	4.3	4.9
CCI	1_09_01_discovery	4.0	4.1	3.9	3.4	4.1
	2_09_02_development	4.0	3.9	3.9	3.5	4.2
	3_09_03_deployment	4.0	4.0	4.0	3.4	3.8
	4_09_04_delivery	3.8	3.8	3.9	3.2	3.8
	5_09_05_dissemination	3.9	4.0	4.0	3.5	4.1

In the case of intra-ecosystem cooperation, the average ratings for all phases in most market segments oscillate around 4.5 or higher (Figure 23). Respondents overwhelmingly declare the occurrence of intra-ecosystem cooperation. **The highest intra-ecosystem cooperation** ratings in all five phases of innovation development (from the discovery phase to the dissemination phase) are observed in the case of VGD targeting the **browser games segment**. The evaluation of intra-ecosystem cooperation in the deployment (4.9), delivery (4.9), and dissemination (4.9) is particularly high in their case, which may indicate a **quite distinguishing focus on open innovation strategies of VGD concentrated on browser games**.

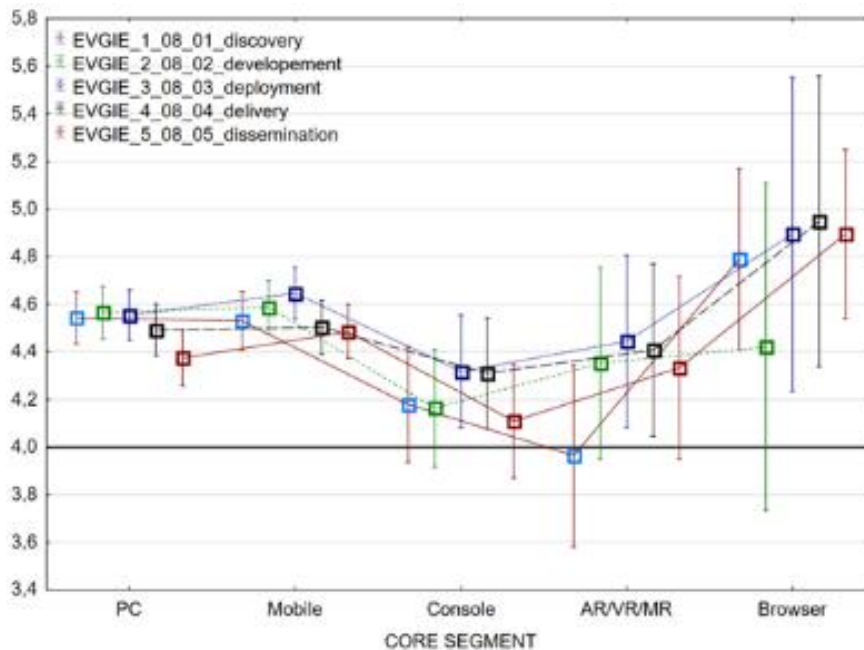


Figure 23. The importance of the co-innovation phases in terms of key market segments – perspective of intra-ecosystem cooperation

High and stable intra-ecosystem cooperation values were also recorded in the case of VGD focused on the PC and Mobile segments. Slightly lower – but still positive – intra-ecosystem cooperation ratings are found for VGD targeting mainly the console segment, where each phase is rated on average at a level of 4.1–4.3. Even lower values are observed in the AR/VR/MR segment (from 4.0 in the creation phase to 4.4 in the development and presentation phase).

The analysis of **cross-industry cooperation reveals greater diversity and significantly lower assessment levels than intra-industry cooperation** (Figure 24) **across all of the considered key market segments.**

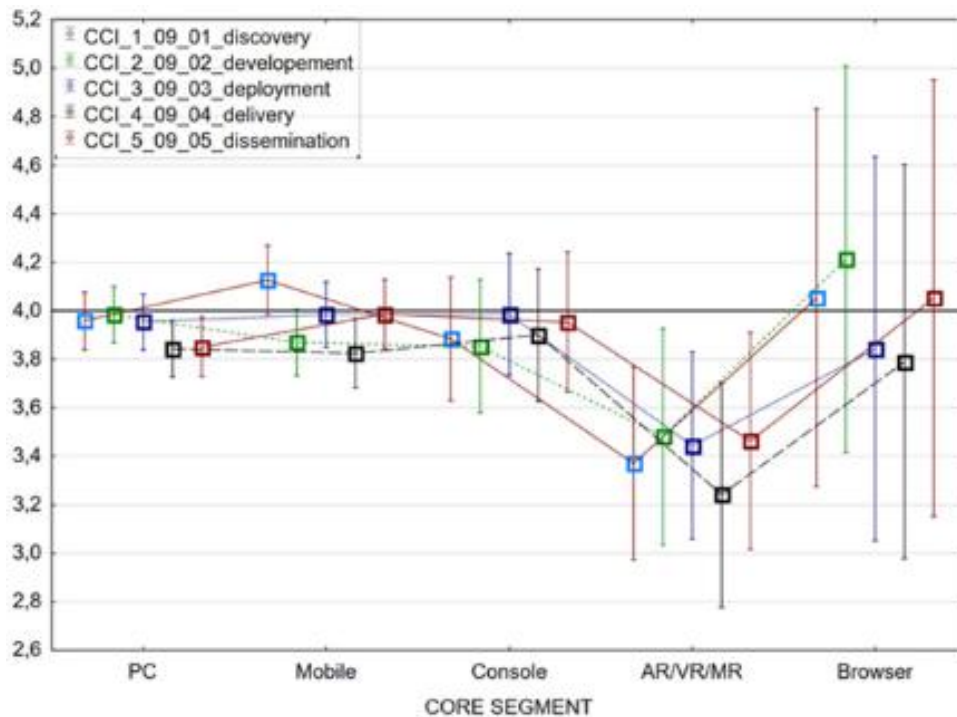


Figure 24. The importance of the co-innovation phases in terms of key market segments – perspective of cross-industry cooperation

The general trend indicates relatively weak and inconsistent cooperation with CCI. As in the case of intra-ecosystem cooperation, **the highest values are found in the case of VGD focused on the browser segment** (averages from 3.8 to 4.2), which may (once again) indicate **greater openness also for cross-industry cooperation in the field of innovations**. The firms targeting mainly PC, Mobile, and Console segments assess cross-industry cooperation at a similar level, usually between 3.8 and 4.1. The AR/VR/MR segment presents interesting results, which obtained the lowest average scores in all phases, from 3.2 to 3.5. On the one hand, it may suggest that VR companies operate more independently or are too niche to attract external institutional partners. On the other hand, there may be communication barriers or a lack of tailored forms of support for this type of activity. The analysis results **confirm that intra-ecosystem cooperation is stronger and more widespread than cross-industry cooperation**, regardless of the core market segment targeted by VGD. Notably, VGD focused on browser games show the highest level of intra-ecosystem and cross-industry cooperation. In contrast, those focused on the AR/VR/MR segment show the lowest levels.



Intra-ecosystem and cross-industry cooperation in innovation development – perspective of firm size

Given the relevance of firm size in the context of the video game industry and business activity under this industry, in the next step, we analysed the exploitation of co-innovation relationships within EGVIE and with CCI, considering also the size of game studios. The analysis of average ratings for cooperation in innovation development depending on the number of employees supports a clear differentiation in the perception of exploitation of co-innovation relationships within EGVIE and with CCI settings (Table 27).

Table 27. Phases of cooperation divided by company size.

PHASES		Size of enterprise				
		Self-employment	1-9	10-49	50-249	259+
EGVIE	1_08_01_discovery	4.2	4.4	4.6	4.4	4.9
	2_08_02_development	4.5	4.5	4.6	4.2	3.9
	3_08_03_deployment	4.5	4.5	4.6	4.1	5.1
	4_08_04_delivery	4.4	4.5	4.5	4.2	4.7
	5_08_05_dissemination	4.4	4.3	4.5	4.1	4.4
CCI	1_09_01_discovery	4.0	3.9	4.1	3.8	4.2
	2_09_02_development	3.7	3.8	4.0	3.8	4.6
	3_09_03_deployment	4.0	3.9	4.0	3.8	4.2
	4_09_04_delivery	4.1	3.8	3.8	3.6	4.1
	5_09_05_dissemination	4.0	3.8	4.0	3.8	4.1

In the case of intra-ecosystem cooperation, the largest companies (over 250 employees) are characterised by the highest levels of cooperation and an exceptionally high cooperation in the deployment phase (5.1), which may result from the professionalisation of the communication process and access to specialised promotional and media resources (Figure 25). The result obtained for the deployment phase is significantly higher than in all previous analyses, where the overall average for this phase was 4.56 – this shows **some specificity of large VGD**. In the case of a large studios, the development phase is quite exceptional, in which the mean rating is only 3.9, indicating lower exploitation of intra-ecosystem cooperation in this phase. Nonetheless, such firms often have complete production facilities: their own teams of programmers, designers, artists, testers, etc., but also publishing and distribution capabilities.

In such a case, internal implementation of the innovative project may be sufficient. Moreover, in very large companies, the development process is often dispersed between many departments or even locations and highly protected. Thus, cooperation with external partners may be burdened with the risk of inefficiency or friction between particular working teams. Finally, large companies often implement more ambitious projects (e.g., AAA games) requiring high-quality standards. If it does not meet these standards, cooperation with external partners can be assessed as critically needed.

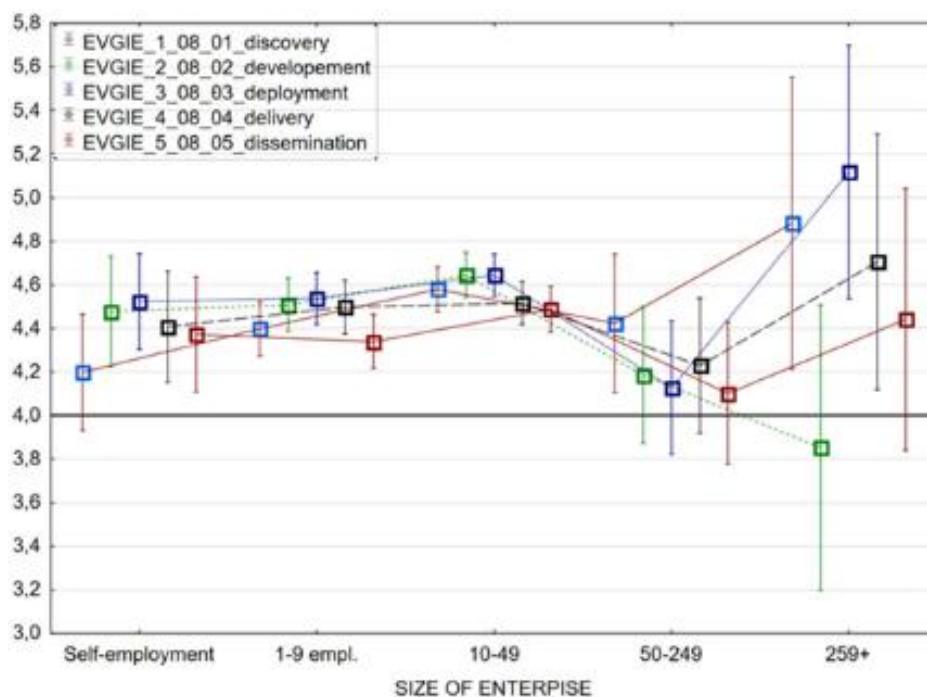


Figure 25. The importance of the co-innovation phases in terms of firm size – perspective of intra-ecosystem cooperation

In the context of intra-ecosystem cooperation in innovation, another interesting observation is that the average values of the cooperation assessment in the discovery phase increase with the size of the company: from 4.2 for the self-employed to 4.9 for the largest companies. This suggests that **the larger the VGD, the more it is open to conceptual cooperation and sharing information and knowledge**. On the other hand, in the development phase,



companies employing up to 49 people indicate higher intra-ecosystem cooperation (4.5–4.6) than the largest entities (3.9). This may suggest that flexibility and direct communication in smaller teams favour effective technical cooperation, while in large structures, the processes may be more formalised and dispersed.

Considering cross-industry cooperation in correspondence with firm size (Figure 26), although the general observation indicating lower levels of cross-industry cooperation when compared to intra-ecosystem cooperation is supported, it becomes evident that **large studios are quite specific**. Firstly, large studios not only show the highest levels of cross-industry cooperation when compared to the rest of VGD, but also usually their levels exceed the mean value of 4. Secondly, compared to intra-ecosystem cooperation, there is a noticeable positive difference in the development phase (4.6), which may suggest **that larger VGD are more willing to co-innovate outside EVGIE than inside EVGIE**.

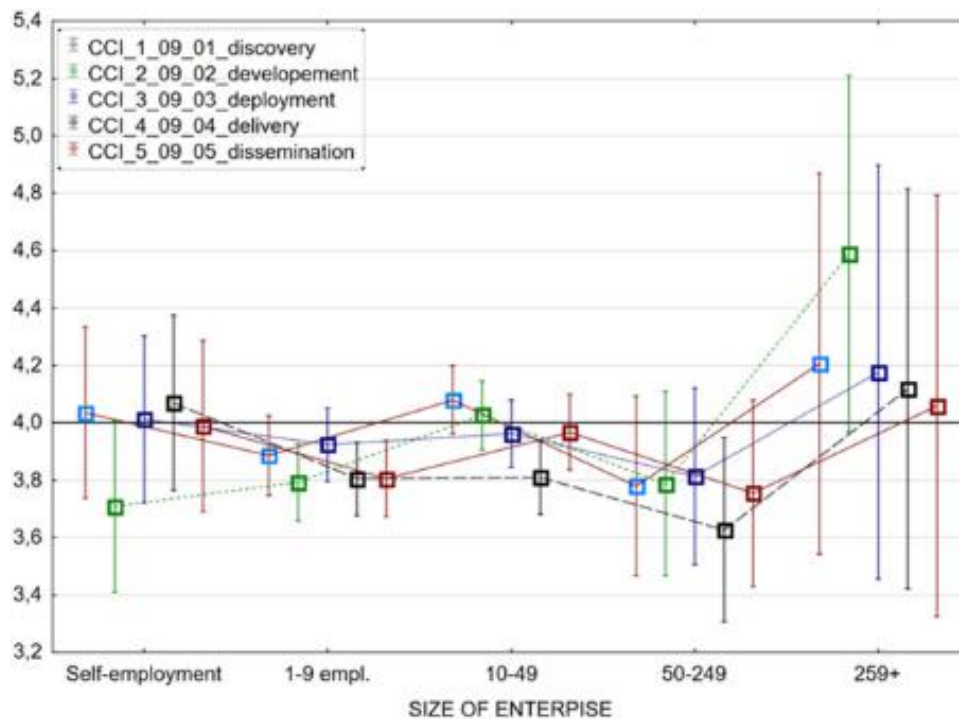


Figure 26. The importance of the co-innovation phases in terms of firm size – perspective of cross-industry cooperation



Additionally, as shown in Figure 26, regardless of the firm size, the scores for cross-industry cooperation in the dissemination phase remain at a relatively stable level (4.0–4.5), which may indicate that the process of iteration and product improvement is more universal in the industry and does not depend so strongly on the scale of the enterprise.

In summary, the analysis of the average levels of co-innovation relationship use across the five phases of the co-innovation process (Klimas & Czakon, 2022) shows that **VGD tend to engage slightly more in intra-ecosystem collaboration than in cross-industry collaboration across all phases of innovation development**. When considering the core market segment, developers focused on browser games appear particularly open to intra-ecosystem and cross-industry cooperation. As for company size, and unsurprisingly, **large game studios are the most open to cooperation**, both within EVGIE (except in the development phase) and with CCI.

4.3.4. Impact of co-innovation relationships on organisational innovativeness of game developers

The third group of results tests the assumed positive impact of co-innovation relationships on VGD innovativeness. In accordance with the adopted methodological assumptions, testing was carried out through two complementary approaches. First, the general research model (Figure 12) examined the main hypothesis focused on the positive impact of co-innovation relationships on organisational innovativeness and assumed that variables are directly unmeasurable. It was then subjected to testing using structural equation modelling. Second, detailed models (Figure 13) considering the impacts of four types of co-innovation relationships on particular dimensions of organisational innovativeness and assuming concentration on the identified theoretical constructs, but measured directly, were subjected to testing using linear regression.

Structural equation modelling

As we know from prior quantitative analysis (see Sections 4.2.4 and 4.2.6), our sample data depart from a multivariate normal distribution. We, therefore, applied the asymptotically distribution-free (ADF) estimator of Browne (1984) for structural coefficients estimations, which gives reliable results in a very large sample. We applied a stepwise procedure for final SEM model estimation, organised in the following steps:



1. First-order measurement model specification → model estimation with ADF → assessment of the first-order measurement model validity
2. Second-order measurement model specification → model estimation with ADF → assessment of the second-order measurement model validity
3. Composite SEM model specification → model estimation with ADF → assessment of the composite model validity
4. Third-order measurement model specification → model estimation with ADF → assessment of the third-order measurement model validity
5. Composite SEM model specification (nested model) → model estimation with ADF → assessment of the composite model validity

The results of the analysis defined in steps 1 to 4 are displayed in Appendix B2, Figures 1 - 4. Below, we present the estimations and goodness of fit measures only for the final composite SEM model. Empirical and theoretical correlation matrix and errors are depicted in Appendix B2, Tables 1 – 3.

Our final structural model corresponding to our conceptual and research models (Figures 11 and 12) is presented in Figure 27; estimated parameters are depicted in Table 28.

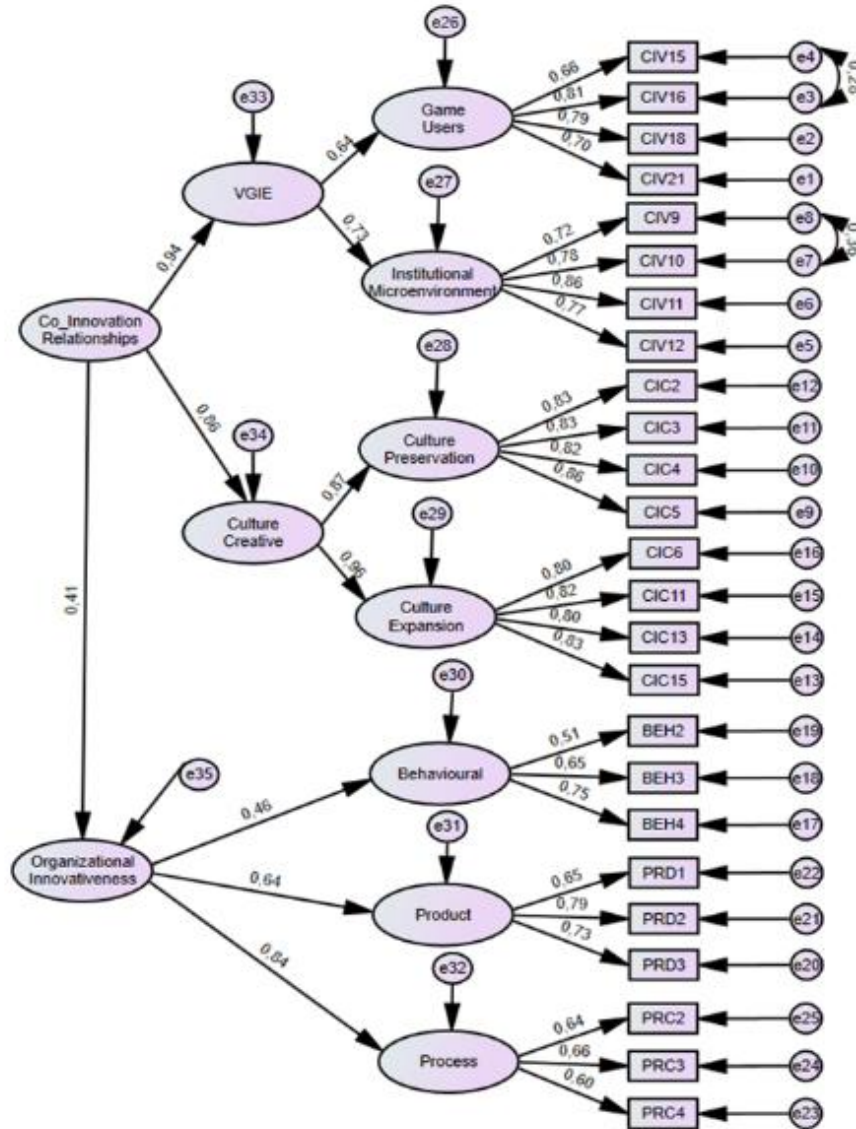


Figure 27. Structural model for the impact of Co-innovation relationships (within EVGIE and with CCI) on Organisational innovativeness of VGD

Note: Ellipses represent latent variables measured in the study. Rectangles correspond to measurement indicators (survey questions). Circles indicate residual components (measurement errors). Arrows between ellipses represent the strength of associations. Arrows from ellipses to rectangles show factor loadings, indicating how much a given measurement indicator (survey question) is associated with the corresponding latent variable. The arrow connecting circles reflects the residual variance for a given indicator.





Table 28. ADF structural coefficients estimates and standardised estimates (i.e., correlation coefficients)

Latent factor/Item	Path on the SEM diagram	Latent factor	Estimate	S.E.	C.R.	Standard. estimate
Co-Innovation relationship within EVGIE	←	Co-innovation relationships	0.648	0.040	16.210	0.940
Co-Innovation relationship with CCI	←	Co-innovation relationships	1.000	n.a.	n.a.	0.857
Organisational innovativeness	←	Co-innovation relationships	0.084	0.012	7.252	0.409
CI game users	←	Co-Innovation relationship within EVGIE	1.000	n.a.	n.a.	0.636
CI institutional microenvironment	←	Co-Innovation relationship within EVGIE	1.341	0.084	15.908	0.734
CI culture preservation	←	Co-Innovation relationship with CCI	1.000	n.a.	n.a.	0.866
CI culture expansion	←	Co-Innovation relationship with CCI	1.107	0.036	30.532	0.957
Behavioural innovativeness	←	Organisational innovativeness	1.000	n.a.	n.a.	0.457
Product innovativeness	←	Organisational innovativeness	2.281	0.314	7.262	0.640
Process innovativeness	←	Organisational innovativeness	2.863	0.372	7.687	0.838
CIV21	←	CI game users	1.000	n.a.	n.a.	0.697
CIV18	←	CI game users	1.047	0.037	28.361	0.789
CIV16	←	CI game users	1.009	0.040	25.087	0.812
CIV15	←	CI game users	0.912	0.041	22.018	0.662
CIV12	←	CI institutional microenvironment	1.000	n.a.	n.a.	0.771
CIV11	←	CI institutional microenvironment	1.213	0.035	34.727	0.863
CIV10	←	CI institutional microenvironment	1.016	0.032	31.377	0.780
CIV9	←	CI institutional microenvironment	0.978	0.034	28.688	0.720
CIC5	←	CI culture preservation	1.000	n.a.	n.a.	0.860
CIC4	←	CI culture preservation	0.904	0.023	39.158	0.818
CIC3	←	CI culture preservation	0.824	0.021	38.456	0.828
CIC2	←	CI culture preservation	0.823	0.022	38.008	0.832
CIC15	←	CI culture expansion	1.000	n.a.	n.a.	0.826
CIC13	←	CI culture expansion	0.910	0.025	36.735	0.801
CIC11	←	CI culture expansion	0.928	0.024	37.962	0.816
CIC6	←	CI culture expansion	0.958	0.026	37.118	0.804
BEH4	←	Behavioural innovativeness	1.545	0.132	11.747	0.752
BEH3	←	Behavioural innovativeness	1.314	0.125	10.546	0.648
BEH2	←	Behavioural innovativeness	1.000	n.a.	n.a.	0.508
PRD3	←	Product innovativeness	1.079	0.062	17.480	0.733
PRD2	←	Product innovativeness	1.248	0.068	18.393	0.794
PRD1	←	Product innovativeness	1.000	n.a.	n.a.	0.648
PRC4	←	Process innovativeness	1.087	0.064	16.993	0.601
PRC3	←	Process innovativeness	1.066	0.067	15.976	0.657
PRC2	←	Process innovativeness	1.000	n.a.	n.a.	0.644

Note: all parameters are statistically significant at a significance level less than 0.01.



The estimated covariance matrix fits quite well with the empirical one. CMIN/df equals $4.118 < 5$; Nonnormed Fit Index (NNFI) equals $0.777 < 0.95$; Comparative Fit Index (CFI) equals $0.804 < 0.95$; Standardised Root Mean Square Residual (SRMR) is $0.090 < 0.1$; Root Mean Square Error of Approximation (RMSEA) is $0.050 < 0.1$. Although the NNFI and CFI are lower than the recommended values, we conclude that the model fits the data acceptably well for the following reasons. First, as proved by Sun (2005), goodness-of-fit indices are sensitive to different estimation methods. Indeed, all our measurement models estimated with ADF had lower goodness of fit indices than the ML estimation method. Second, on average, the estimated correlation coefficient differs from the empirical one by 0.09, which seems reasonably low. RAMSEA magnitude confirms this conclusion. Third, we can identify the main source of error, which mainly originates from the VGD Organisational innovativeness measurement model (NNFI = 0.886, CFI = 0.925). The detailed analysis of standardised residuals of the covariance matrix reveals that items loading on Process, Product, and Behavioural common factors produce the main input for errors and thus negatively influence the NNF and CFI metrics (see Table 3, Appendix B2). As the scale was previously validated in different contexts and is well known in the literature, we took a confirmatory approach only, and we did not interfere with the measurement scale structure (e.g., by changing the structure to get better goodness of fit measures).

Referring to the standardised estimates of our final model, we can conclude that at the level of significance equal to 0.01, **we find evidence in our sample to confirm the research hypothesis, so co-innovation relationships (both within EVGIE with CCI) positively impact organisational innovativeness of VGD in all dimensions: behavioural, product, and process.**

Regarding the received model, it's worth focusing on the standardised beta coefficients (values above the directional arrows in Figure 27), which indicate the strength of the relationships between the examined variables. From this perspective, the tested research model not only supports the main hypothesis regarding the positive impact of co-innovation relationships on the organisational innovativeness of VGD, but also points to:

- A moderate strength of the stimulating impact of co-innovation relationships on organisational innovativeness (relationship strength between 0.3 and 0.5).



- Interpretation: **exploitation of co-innovation relationships increases the organisational innovativeness of VGD**, but the strength of the relationship also suggests that there are other factors contributing to organisational innovativeness beyond the co-innovation relationships considered here.
- A stronger (interpreted as very strong > 0.7) relationship between co-innovation relationships and ties within EVGIE compared to CCI.
 - Interpretation: in the context of how co-innovation relationships link to innovativeness, **ties within EVGIE appear to carry slightly more importance than those with CCI**.
- A stronger (interpreted as very strong > 0.7) relationship between co-innovation relationships within EVGIE and the institutional microenvironment compared to game users.
 - Interpretation: in the case of co-innovation relationships within EVGIE, **connections with the institutional microenvironment matter slightly more than with game users** in the broader context of game developers' innovativeness.
- A stronger (interpreted as very strong > 0.7) relationship between co-innovation relationships with CCI and industries focused on culture expansion compared to industries not focused on culture preservation.
 - Interpretation: when it comes to co-innovation relationships with CCI, **ties with industries focused on culture expansion have slightly more weight than with those focused on culture preservation** in the broader innovativeness context of VGD.
- The strongest (interpreted as very strong > 0.7) relationship is between organisational and process innovativeness.
 - Interpretation: **organisational innovativeness is mainly reflected in process innovativeness**.

Detailed regression models

The first step in the regression analysis was a review of the descriptive statistics for each construct covered by the developed model. It means that 7 variables developed as a result of preliminary analyses (shown in Section 4.2.4) were considered – Table 29.

**Table 29. Basic statistics for measurement variables of regression models**

Variables*	Mean	Median	Standard deviation	Variation coef.	Skewness	Kurtosis
Co-innovation relationships with the institutional microenvironment (CI_IM)	3.16	3.00	1.43	45.42	0.23	-0.94
Co-innovation relationships with game users (CI_GU)	4.51	4.75	1.22	27.11	-0.65	0.27
Co-innovation relationships with Industries focused on culture preservation (CI_CP)	2.84	2.50	1.24	43.97	0.52	-0.46
focused on culture expansion CI_EU	3.23	3.00	1.35	41.91	0.34	-0.72
Behavioural innovativeness (BEH)	5.48	5.66	0.93	17.00	-0.72	1.09
Product innovativeness (PRD)	4.16	4.33	0.94	22.77	-0.12	0.10
Process innovativeness (PRC)	4.50	4.66	0.97	21.70	-0.17	-0.04

* composite EFA measures

These data do not raise any major concerns about the linear regression model adoption. The means, deviations, and distributions indicate that it is possible to assume that the analysis can be based on classic regression models. The lack of significant skewness and moderate kurtosis values suggests that these variables have distributions close to normal. Therefore, it can be cautiously assumed that using these variables in classical linear regression is possible.

Next, to exclude possible multicollinearity of variables, expressed by a very strong correlation of variables, the analysis of correlations for variables was employed (Table 30).

Table 30. Table of Pearson(left) and Spearman (right) correlation coefficients

		CI_IM	CI_GU	CI_CP	CI_EU	BEH	PRD	PRC	
CI_IM	PEARSON	1.00	0.33	0.43	0.47	-0.01	0.13	0.05	SPEARMAN
CI_GU		0.33	1.00	0.24	0.35	0.16	0.09	0.09	
CI_CP		0.43	0.25	1.00	0.70	-0.10	0.14	0.02	
CI_EU		0.46	0.38	0.70	1.00	-0.05	0.11	0.07	
BEH		-0.03	0.13	-0.13	-0.08	1.00	0.10	0.28	
PRD		0.14	0.07	0.16	0.12	0.08	1.00	0.32	
PRC		0.07	0.06	0.04	0.06	0.31	0.30	1.00	



The results in Table 11 show that some variables (both dependent and independent) are significantly correlated, but we cannot speak of unfavourable collinearity of variables. Therefore, the next step is to build three separate linear models: the first with BEH as the dependent variable, the second with PRD, and the third with PRC. For each of these models, it is advisable to examine the coefficient of determination (R^2), which will show to what extent the selected independent variables explain the variability of the dependent variable. The statistical significance of individual predictors and regression coefficients was also analysed to determine which factors have a real impact on the explained variable.

The analysis examined how different co-innovation relationships affect innovativeness's three dimensions: behavioural, product, and process. Three regression models were estimated to verify potential relationships. The summary of the modes is presented in Table 31, which is followed by a detailed description and interpretation of the three considered models.

Table 31. Linear regression models of the relationship between developers' innovativeness dimensions and different types of co-innovation relationships

Models	Dependent variable	Independent variables			
		CI_IM	CI_GU	CI_CP	CI_EU
MODEL 1	Behavioural innovativeness	-	0.130	-0.129	-
MODEL 2	Product innovativeness	0.061	-	0.089	-
MODEL 3	Process innovativeness	-	-	-	-

Note: Only statistically significant parameters of the models are given.

- *Model 1: The impact of four types of co-innovation relationships on behavioural innovativeness*

In this model, the dependent variable is behavioural innovativeness, i.e., the tendency to undertake new activities and experiment. The variables examined are different types of co-innovation relationships within both EVGIE and CCI. The results show that CI_GU (Co-innovation relationships with game users) significantly impacts behavioural innovativeness. The more intense the cooperation relationships with game users are, the higher the behavioural innovativeness (coefficient 0.130). In turn, CI_CP (Co-innovation relationships focused on



culture preservation) has a negative impact - the stronger this relationship, the more the behavioural innovativeness decreases (coefficient -0.129). CI_IM (Co-innovation relationships within institutional microenvironment) and CI_EU (Co-innovation relationships focused on expanding universe) have no significant impact on behavioural innovation.

- *Model 2: The impact of four types of co-innovation relationships on product innovativeness*

The second model concerns product innovation, i.e., introducing new products or improvements. In this case, four co-innovation relationships are also analysed. The results of the study show that CI_IM (Co-innovation relationships within institutional microenvironment) has a significantly positive impact on product innovation. The stronger these relationships, the higher the product innovation (coefficient 0.061). Similarly, CI_CP (Co-innovation relationships focused on culture preservation). Relationships focused on culture preservation have a positive impact on product innovation - the higher the ratings in this category, the higher the product innovation (coefficient -0.089). The remaining two variables, CI_GU and CI_EU, have no significant impact on product innovation. The model estimation procedure excluded them from the analysis.

- *Model 3: The impact of four types of co-innovation relationships on process innovativeness*

Model 3: PRC (Process Innovativeness) describes the impact of cooperation on process innovation, i.e., introducing new methods or improvements in processes. In this case, none of the variables studied (CI_IM, CI_GU, CI_CP, CI_EU) had an impact on process innovation. This means that following regression analysis, **none of the considered co-innovation relationships, neither within EVGIE nor with CCI, impact process innovativeness.** The obtained result led to the exclusion of Model 3 from further analyses.

For models explaining the impacts of co-innovation relationships on behavioural (model 1) and product (model 2) innovativeness, the key quality parameters were checked. The results of analysing the models' fit are presented in Table 32.

**Table 32. Regression model fit parameters (only statistically significant)**

Model parameter	MODEL 1	MODEL 2
R	0.21	0.18
R ²	0.04	0.03
adjusted R ²	0.04	0.03
F(2,1267)	29.29	20.72
p	0.00	0.00
Standard deviation	0.91	0.93

Note: only statistically significant results are presented.

Considering the obtained results, for Model 1, the R value is 0.21, which means that the model explains 21% of the variability in behavioural innovation. This is a relatively low result, a significant part of BEH depends on other components not included in the study. Although it is not a high value, it indicates that the variables in the model have some impact on the result. However, the R² coefficient of only 0.04 means that the model explains only 4% of the variability of the dependent variable. The adjusted R² is also 0.04, which means that after considering the number of variables, the model does not explain behavioural innovation to a large extent. However, it indicates some important factors that help shape behavioural innovation. The F-test for this model obtained a result of 29.29, which indicates the statistical significance of the model - the model's variables impact behavioural innovation. The p-value = 0.00 confirms that the model's results are statistically significant.

For Model 2, the R value is 0.18, which means that the model explains only 18% of the variability in product innovation. As in Model 1, this is a relatively low result, which suggests that the variables included in the model do not explain a large part of the variability in product innovation. The R² value of 0.03 means that the model explains only 3% of the variability in product innovation. The adjusted R² is also low at 0.03. The F-test yielded a result of 20.72, indicating the statistical significance of the model. The p-value of 0.00 also indicates that the model's results are statistically significant.



Summing up, **models 1 and 2 (for behavioural and product innovativeness) show statistically significant results**, but their ability to explain the variability of the dependent variables remains relatively low, with R^2 values of 0.04 and 0.03, respectively. Nevertheless, both models show statistical significance, suggesting that the variables included in the models impact organisational innovativeness in the aspects studied. In light of the regression analysis results, it can also be stated that in the case of our research sample:

- **Behavioural innovativeness** remains under the stimulating influence of co-innovation relationships with game users and the dissimulating influence of co-innovation relationships with industries focusing on culture preservation;
- **Product innovativeness** remains under the stimulating influence of co-innovation relationships with the institutional microenvironment and co-innovation relationships with industries focused on culture preservation;
- **Process innovativeness** is not stimulated by co-innovation relationships maintained either within EVGIE or with CCI;
- **Co-innovation relationships with industries focused on culture expansion** do not significantly affect any of the three dimensions of innovativeness.

4.4. Conclusions

The conducted quantitative study contributes in two distinct ways, simultaneously fulfilling all initial assumptions and objectives outlined in Sections 2.1 and 3.1. It is worth noting that, to the best of our knowledge, **the study represents the largest quantitative research on European game developers** conducted according to scientific rigour. This factor significantly impacts the reliability and validity of the results and conclusions drawn.

Firstly, the quantitative research **expands knowledge regarding the functioning of European VGD**, primarily in the context of their use of a relational approach in the form of intra-ecosystem collaboration (within EVGIE) and cross-industry collaboration (with CCI), as well as the level of innovativeness achieved. The results obtained are pioneering in nature and reveal **the level, degree, and stages of innovation processes related to using co-creation and co-innovation relationships by VGD** (including the main partners in these relationships). They also identify the specific **organisational innovativeness structure characteristic of VGD** (three-dimensional approach), along with the level of innovativeness across individual dimensions, i.e., behavioural, product, and process.



Secondly, the conducted quantitative study suggests, via the presented results, but also directly provides relatively objective (as based on quantitative data) **strategic recommendations**, not only for the game developers themselves but also for policymakers (Section 8.2). The quantitative results may enable the implementation of actions **that could effectively lead to an increase in cooperation within EVGIE and with CCI, followed by the rise in the innovativeness of VGD**, and, in a broader perspective, by the growth of the game industry and the wider CCI sector - in the context of macro-level indicators such as competitiveness, turnover, and employment levels.

The key original and novel findings from the quantitative research are synthetically summarised and described below.

- **Identification of 23 types of EVGIE actors** – the list can serve VGD in identifying potential partners for cooperation, and even in raising awareness among potential collaborators.
- **Diagnosis of VGD from the maturity, size, core market segment, and core business perspective.**
- **Development and methodological validation of measurement scales for co-creation and co-innovation relationships**, tailored for measuring within the European context and used by VGD embedded in two environmental contexts: EVGIE and CCI, as well as a scale for measuring game developers' organisational innovativeness. It is important to emphasise that all scales were methodologically validated and are both reliable and valid.

The following scales have been developed:

- Co-creation relationships within EVGIE covering two dimensions: with the institutional microenvironment and with game users;
- Co-creation relationships with CCI covering two dimensions: with industries focused on culture preservation and with industries focused on culture expansion;
- Co-innovation relationships within EVGIE covering two dimensions: with the institutional microenvironment and with game users;
- Co-innovation relationships with CCI covering two dimensions: with industries focused on culture preservation and with industries focused on culture expansion;
- Organisational innovativeness covering behavioural, product, and process innovativeness.



- **Confirmation of earlier research findings on innovativeness of VGD (Klimas, 2019), indicating a three-dimensional structure.** Confirmation of this structure suggests that, in the case of VGD, innovativeness manifests itself (and thus should be measured) across behavioural (related to people working in the studio), product (related to released games), and process (related not only to game development but to the broader organisation) dimensions.
- **Quantitative measurement of the level of co-creation and co-innovation relationships of video game developers** (both overall and disaggregated into: with the institutional microenvironment, with game users, with industries focused on culture preservation, and with industries focused on culture expansion).
 - The overall **level of external cooperation is low**, and in the case of relationships with CCI, very low, which, given the popularity of relational and open approaches in the modern economy, indicates a potentially untapped relational and developmental potential.
 - Within EVGIE - in the area of co-creation relationships, **cooperation with the institutional microenvironment shows very low levels**; e.g., descriptive statistics indicate low levels of co-creation with universities (mean: 3.15; not included at all in the co-innovation context), and with public institutions (mean: 3.10).
 - With CCI - **VGD hardly use co-creation relationships with CCI**; however, slightly higher levels of collaboration are seen with industries focused on culture expansion than with those focused on culture preservation. This may result, on the one hand, from relatively high awareness of the potential to use games as a medium to expand specific universes (e.g., IP licensing both to and from CCI), and on the other hand, from the low awareness within the game industry of the importance of culture preservation (which was revealed during IDIs and DTthons). The low level of cooperation with CCI is also confirmed by desk research results (Section 3) and DTthons (Section 6).
 - Descriptive analysis results show **a slight tendency toward co-creation rather than co-innovation within EVGIE** - confirming Klimas (2019), who noted that the industry and its close ecosystem don't necessarily are seen as the sources of novelty and innovation here – rather the innovation pressure pushes VGD to seek outside the industry and ecosystem (e.g., in the entertainment sector, as noted by Klimas, 2019).



- Conversely, descriptive analysis results show **more co-innovation than co-creation with CCI** (yet the level is generally low) - which seems intuitive, as all CCI differ significantly in institutional, organisational, legal, and cultural terms, making joint creation or transfer of solutions in functional areas other than innovation management difficult or even impossible (e.g., logistics, marketing, finance, HR).
- Identification of actor clusters related to co-creation and co-innovation in the EVGIE and CCI environments, reflecting intra-ecosystem and cross-industry **cooperation networks from the perspective of the degree of exploitation of co-creation or co-innovation relationships** (importantly, cooperation levels were identified with all potential actors, regardless of the validated scales, i.e., using initial rather than final measures).
 - These findings reinforce descriptive statistics showing that cooperation with CCI is weaker and less dense than with EVGIE.
 - They also reinforce descriptive statistics indicating that intra-ecosystem cooperation is more related to co-creation than co-innovation.
 - Likewise, they confirm that cross-industry cooperation is more related to co-innovation than co-creation.
- **Diagnosis of the level of innovativeness among European VGD.**
 - In general, self-assessment of **innovativeness is relatively low**, surprisingly so for an industry under strong innovation pressure and generally perceived as highly innovative.
 - **The lowest level was diagnosed in product innovativeness** (suggesting a priority area for strengthening the industry in Europe), **while the highest level was found in behavioural innovativeness** (suggesting a potential differentiator for European VGD - behavioural innovativeness can be considered as one of the target European VGI strengths or competitiveness factors).
- **Identification of a statistically significant positive impact of co-innovation relationships** - both within EVGIE and with CCI - **on all dimensions of game developers' organisational innovativeness (behavioural, product, and process).**
 - The obtained result supports the hypothesis underlying the quantitative study and defined in Objective O3.2.
 - The impact of co-innovation relationships is generally moderate, suggesting the presence of other influencing factors beyond those examined.
 - Co-innovation relationships within EVGIE appear slightly more influential than those with CCI in terms of building organisational innovativeness.



- **Statistical identification of types of co-innovation relationships that significantly influence particular dimensions of game developers' innovativeness.**
 - Behavioural innovativeness is positively influenced by co-innovation with game users and negatively influenced by cooperation with industries focused on culture preservation.
 - Product innovativeness is positively influenced by co-innovation with both the institutional microenvironment and culture preservation industries.
 - Process innovativeness is not significantly impacted by any of the co-innovation relationships examined in this study.
- An additional insight from the quantitative analyses, worthy of further exploration in future research, is the observation that raw data collected for particular items behave differently across measurement variables depending on company size. This may suggest that both internally initiated strategic movements by VGD and externally stimulated by policymakers' **pro-innovation and pro-cooperation behaviours may require differentiated approaches and designs depending on game developer's size.**





5. QUALITATIVE IN-DEPTH INTERVIEWS

5.1 Aims

This stage of research contributes to identifying mechanisms of value transfer and value co-creation by EVGIE and CCI; exploration of impacts and roles of VGI for technology, society, economy, and culture; and identification of practice-driven strategic recommendations for VGD. It should also be noted that the main emphasis was placed on cooperation between VGD-CCI, as VGD is a key element of EVGIE (Klimas & Czakon, 2022).

Considering the primary goals of this study, and the knowledge acquired so far (including as part of the SLR conducted), it results that the state of knowledge in this area is not sufficiently recognised and requires further exploration and verification. Therefore, we adopted an exploratory and verification research approach because the explored area requires knowledge accumulation, field saturation, analysis, and conclusion (Saka et al., 2023; Nilsen et al., 2019).

To achieve the assumptions, we conducted semi-structured in-depth interviews (IDIs) separately with EVGIE and CCI representatives. During the research, in the case of one organisation (i.e., VGD), a request was submitted to conduct a group interview, motivated by the need to include not one but four informants with expertise related to the planned in-depth interview and ensure a more diversified perspective in the study. The size of the group (i.e., 4 informants) corresponded to the mini focus group (MFGI) methodology (where the number of participants ranges between 3 and 6 people) (Greenbaum, 2011; Manzano, 2023). So, the final research methods were IDIs and MFGI.

Using the in-depth interviews allowed us to (1) capture the individual perspectives of heterogeneous informants and (2) understand the underlying reasoning of suggestions and recommendations that emerged during the data collection process. Our informants used various examples to illustrate their arguments and focused strongly on the barriers to developing cooperation between CCI and EVGIE. This also allowed us to formulate recommendations to improve the quality and durability of co-creative relationships between various entities operating in the sectors studied (included in section 8).





5.2 Methodology

5.2.1. Research approach

Our qualitative research adopted a deductive approach beginning with the formulation of general research questions, followed by the design of the study (see research tool scenario in Appendix C), then data collection, data analysis, and finally drawing conclusions and inferences based on the analysis (Fife & Gossner, 2024). Furthermore, a deductive coding approach was used for data coding, involving the creation of codes before data analysis (Bingham, 2021), which reflected the research questions (thematic areas) embedded in the interview scenario.

When it comes to research design, it should be noted that this research step benefited from desk research conducted within WP3 (Kościewicz et al., 2025) and suggestions that emerged from the stakeholders' workshops organised under WP2 (Bagnall et al., 2024). Firstly, the thematic scope of the planned interviews was further specified. Secondly, it was decided to prepare slightly different versions of the interview guides in terms of thematic scope for EVGIE and the CCI representatives.

Considering data collection, to gather the relevant data, in-depth semi-structured interviews were conducted, which included both face-to-face (stationary) conversations and virtual interviews via the MS Teams platform.

Regarding data analysis, after the data collection process was completed, the recorded interviews (with participants' formal consent) were handed over to a specialised external company for transcription. Subsequently, designated research team members proceeded with an in-depth thematic analysis (Kraus et al., 2020), maintaining methodological rigour (Gioia et al., 2013).

Detailed information about the analytical procedure is provided in the following sections of the report.





5.2.2. Data collection

Due to the different industry perspectives presented by EVGIE and CCI, it was decided to prepare two separate interview scenarios and research questions, with slightly different themes' emphasis for both study groups (scenario guide is included as Appendix C). In the scenario, the thematic clusters consisted of 5 research questions for EVGIE and 4 research questions for CCI. For EVGIE, these were:

1. the role of EVGIE,
2. the institutional settings of EVGIE,
3. the specificity of cross-industry cooperation with CCI,
4. inclusivity, and
5. potential improvement paths.

For CCI, the questions were:

6. games in the context of culture,
7. cross-industry cooperation of VGD within CCI,
8. inclusivity, and
9. developmental opportunities for CCI.

Two members of the project team carried out semi-structured in-depth interviews. The **total number of interviews was 27**, of which 15 (including one micro-focus group comprising four participants) concerned EVGIE, while 12 pertained to CCI.

The EVGIE interviews took place between **July and August 2024**, with one exception: an interview conducted in April 2025 as one informant was recommended by the participants of the DTthon organised by the WUEB team in Warsaw (March 2025). In contrast, the process for CCI has been implemented from November to December 2024.

The total duration of the interviews with EVGIE amounted to 1,571 minutes and 31 seconds (26 hours, 18 minutes, and 31 seconds), while those with CCI lasted 1,069 minutes (18 hours and 21 minutes). As previously mentioned, raw data were formally handed over to an external





company, which transcribed the digitised recordings. One interview - EVGIE conducted in April 2025 - was transcribed by an internal researcher. The number of pages transcribed for EVGIE was equivalent to 447 A4 sheets, while for CCI it was 189 A4 sheets.

These prepared data were then imported into Atlas.ti (purchased through a formal procedure and dedicated solely to this task) and analysed by two experienced researchers. It is important to note that during the data analysis process, researchers observed **data saturation**, i.e., gathering new source material no longer generated new insights (Guest et al., 2006), which ensures that the investigated phenomenon was adequately examined without the risk of overlooking key findings (Ahmed, 2025).

Furthermore, our study adheres to methodological recommendations (Hennink et al., 2016; Morse, 2015a), which suggest achieving two types of saturation: code saturation and meaning saturation (Hennink et al., 2016). To this end, between 16 and 24 interviews are typically recommended, which was also the case for this research because the final number of semi-structured interviews was 27. (see Table 33).

Table 33. General characteristics of the study

Characteristics	EVGIE	CCI
Time frame of data collection	VI-IX 2024	XI-XII 2024
No. of Interviews	16 IDI + 1 MFGI	12 IDI
Total duration	26h 18 m 31 s	18h 21m
Average duration	98.5'	88.5'
Length of transcriptions	447 A4 sheets	189 A4 sheets
No. of codes	57	23
No. of themes	19	12
No. of aggregated dimensions	6	7

5.2.3. Data analysis

Our data analysis covered several stages. First, we coded and iteratively validated the results of the coding procedure, which allowed us to provide necessary modifications. Second, the raw material was interpretatively analysed.





At the beginning, we used the predominant codes derived from our scenario guide. We have decided to use a board in Mural in order to better capture the codes and their relations regarding two separate groups of informants. Generally, there were two main themes on which we focused our attention: (1) cooperation within and inside the industries, and (2) recommendations for various actors. The initial codes are depicted in the Mural board presented in Figure 28.

Subsequently, during the interpretative analysis of raw data, cross-checking involving a total of three researchers (two conducting the analysis and one additional researcher) was used to make any necessary adjustments to the initial coding. The coding process across the two respondent groups was as follows:

1. For EVGIE, we had 12 initial groups of codes

- After the data analysis, the groups '*games as culture*' and '*cultural role of games*' were merged. We have also removed the codes related to '*AI*' as it was captured within the technological role of games. Finally, after careful analysis, we have removed the code '*Institutional conditions - recommendations*' as it largely overlapped with the '*recommendations for policymakers*'.
- The final number of groups of codes: 9.

2. For CCI, we had 14 initial groups of codes

- After the data analysis, the groups '*participants*' and '*future partners*' were removed as they didn't bring any additional information. Our informants mentioned several types of partners or potential partners from the CCI, which confirms the assumptions regarding the cooperation between various actors in both industries. The only new issue that emerged was addressing the cooperation with universities, which was not assumed in our group of actors engaged in the cooperation practices. We have also removed the code '*scope*' as our informants mentioned several minor examples with blurry boundaries to be defined under that code.
- The final number of groups of codes: 11.



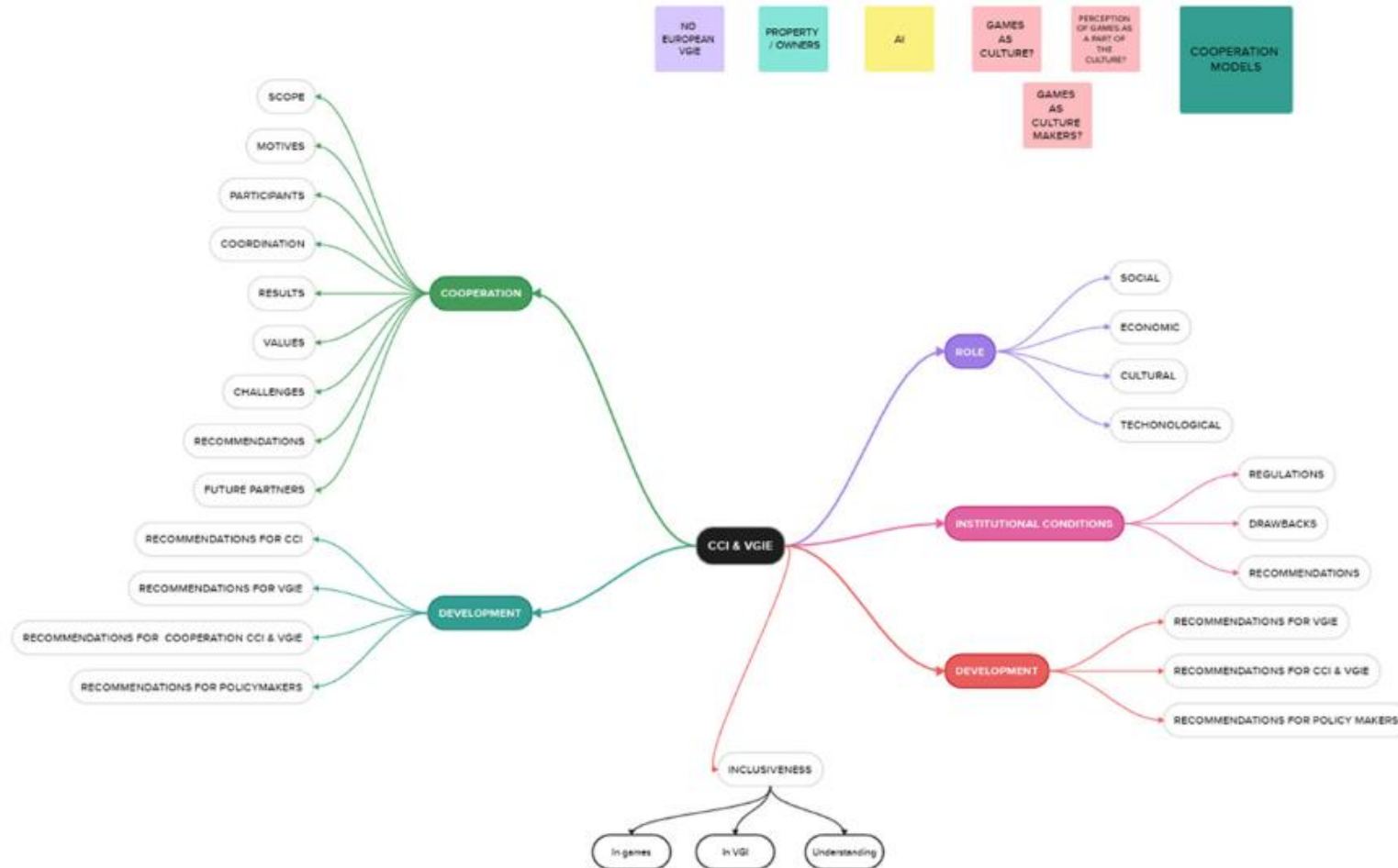


Figure 28. The initial codes used in data analysis



Next, during a thorough data analysis and substantive consultations with the research team, we realised that some of the codes have subcodes and may represent several issues regarding the same topic. Thus, we decided to rename the initial codes into the '*Aggregated dimensions*' and grouped the emerging patterns into '*themes*' and '*codes*' that could be classified within the themes. We labelled them respectively to reflect the citations provided by our informants.

As a result of the adopted procedure, we received a set of codes grouped into themes and then merged into aggregated dimensions. This procedure aligns with the Goioa et. al (2013) method, broadly used in qualitative data analysis. As we have focused on two main themes (cooperation and recommendations), we have analysed them separately. Thus, at the final stage of data analysis, we had:

1. **80 codes, 31 themes, and 13 aggregated dimensions to analyse the cooperation** (for CCI and EVGIE);
2. **39 codes, 12 themes, and 6 aggregated dimensions to analyse the recommendations** (for CCI, EVGIE, and policymakers).

All codes, themes, and aggregated dimensions that emerged from our data are presented in Tables 34 and 35.



**Table 34. Coding scheme underlying data analysis**

CCI		
Code	Theme	Aggregated dimension
mindset related	human-related constraints	COOPERATION - CHALLENGES
lack of skilled professionals		
financing	financial constraints	
game dev as a mixture of CCI	cultural complexity	COOPERATION - COORDINATION
changing the perception of classical music	evolving standpoint	COOPERATION - MOTIVES
blended perspectives		
enhancing the involvement of women	growing diversity	
technological advancement	industry-driven need for know-how	
networking	positive	
grassroots actions		
extended version		
imposing the discussion on various levels		
unexpected outcomes		
environmental pollution	negative	
heritage protection	broad/collective	COOPERATION - VALUES
educational form of games		
awards	narrow/individual	
exclusiveness	outcome	INCLUSIVENESS
over-inclusiveness		
media role	driver	
social (including economic) inclusiveness		
industry inclusiveness		
disability		





EVGIE		
Code	Theme	Aggregated dimension
impact of society's age structure	games perception	GAMES AS CULTURE
games as cultural heritage		
games as a part of culture		
games as a part of cultural entertainment		
games archiving	culture preservation	
games preservation		
culture-forming role of games	culture forming	
technological co-innovation		
games as adaptations and games` adaptations		
country's soft power	qualitative indicator	
global recognition		
GDP contribution	quantitative indicator	
jobs creation		
social interactions	psychological	SOCIAL ROLE
inverted balance		
identity building		
silver gaming		
cybersecurity	educational	
value and attitudes shaping		
games as a form of education		
emulation	hindering technology spread	
technological development speed	innovation enhancement	
technological co-innovation		
the use of AI in literature and games		
gaming communities	level	INCLUSIVENESS
women in VGI and women as gamers		
age diversity		
inclusiveness in games		
inclusiveness in VGI	outcome	
economic inequality		
need for balance		
inclusiveness dilemmas		
flexibility in game design (to expand target groups)	driver	
disabled and handicapped workers in VGI		
inclusiveness perspective		
mental process		
stereotypes		





taxes	financial	INSTITUTIONAL CONDITIONS- REGULATIONS
regulations-profits		
blurred areas of regulations and definitions	legal	
regulations-copyright		
global regulatory framework		
fragmented regulatory framework		
level of complexity	scope	
need for external help		
regulations are both a disadvantage and an advantage		
intra-industry divisions in VGI and CCI	mindset	
missed expectations		
regulations-barriers		
the lack of information	institutional support	INSTITUTIONAL CONDITIONS- DRAWBACKS
ineffective public support system		
legal conditions - barriers, disadvantages		
fake/pretended public support		
game archiving		
games preservation		
role of private funding		
limited understanding of VGI	limited mindset	

Table 35. Data analysis – recommendations for EVGIE & CCI

Code	Theme	Aggregated dimension
CCI		
progressiveness	evolving viewpoint	RECOMMENDATIONS FOR CCI
comprehensive perspective		
initiative		
target audience	expanding consumer perception	
coherence in policies	institutional support	RECOMMENDATIONS FOR POLICYMAKERS
simplifying procedures		
separate institution		
monitoring game controversies		
inclusiveness of younger generations	building awareness	
expert knowledge		
supporting education		
missing skills in CCI		
creativity incubation	networking enhancement	
more focus on enhancing cooperation		
favourable environment for development	triggering cooperation	RECOMMENDATIONS FOR EVGIE





EVGIE		
tensions between the VGI and the other CCI	leveraging mutual understanding	RECOMMENDATIONS FOR CCI & EVGIE
lack of information	institutional support	RECOMMENDATIONS FOR POLICY MAKERS
R&D funding		
local & global funding		
forms of support adjusted to the industry expectations		
support for start-ups and small businesses		
ethical standards and regulations	changing regulations	
legislative and tax stability		
lack of clarity in the regulations		
legal issues - recommendations		
definition clarity in Polish & European games		
classification of profession-artist	progressive and future-oriented mindset	
environmental protection and sustainability		
European legislation lags behind the changes		
perception of games, cultural and educational value		
balancing the needs of different groups		
national & European protection	taking care of games' preservation	
the need for coordinated and integrated policies		
games preservation		
obligation to collect codes, games	expanding standpoint	RECOMMENDATIONS FOR EVGIE
game, code repository		
the need for a broader perspective		
games preservation	novelty in content creation	
product quality		

Finally, we have merged the analysis of codes recognised within the recommendations suggested by the informants in both groups (CCI & EVGIE) to capture the scope of recommendations better, understand their mutual relations, and identify potential overlaps. Thus, in section 5.3, we present as separate subsections the findings for CCI and EVGIE, and one subsection for commonly analysed recommendations. As we already mentioned, the research material covered an extensive amount of data. To provide clarity and coherence, we have discussed the findings by providing contextual generalisations and the most interesting insights illustrated by quotations.



5.2.4. Interviewees

Regarding the research sample, the following inclusion and exclusion criteria were adopted.

- A key inclusion criterion was that informants possessed knowledge and experience in cross-industry cooperation. A particular focus was placed on owners, managers, and employees representing EVGIE, CCI, and decision-makers associated with these two sectors.
- Members of EVGIE were defined as developers and publishers of video games, game distributors, hardware and software providers, non-governmental organisations, research organisations, decision-makers, etc. Conversely, in relation to representatives of CCI, the classification according to Regulation (EU) 2021/818 was adopted, which specified ten industries representing the cultural and creative sector. These are: architecture, archives, libraries and museums, artistic crafts, audiovisual sector (including film, television, video games and multimedia), tangible and intangible cultural heritage, design (including fashion design), festivals, music, literature, performing arts (including theatre and dance), books and publications, and radio and visual arts.
- Based on the network of contacts of the project team, in terms of geographical dispersion, the study was predominantly focused on Poland. It should be noted, however, that the geographical location does not interfere with the global nature of the activities of the investigated organisations. This means that despite the formal registration of game-related entities in Poland, their scope of activity is global, i.e., it focuses on European and non-EU countries (such as the USA). Moreover, all of the questions and research threads referred to the European perspective, thus reflecting the actual geographical scope of our informants' activities.
- As an exclusion criterion, developers of serious games focused on training competencies or skills (e.g., training students), and representatives of CCI lacking experience in cross-industry cooperation were excluded.





In Table 36, we present our informants and their profiles.

Table 36. IDI participants' characteristics

CCI			
No	Code	Stakeholder position	Type of stakeholder
1	CCI_1	Project & Relationship Manager	CCI – Music
2	CCI_2	Project & Relationship Manager	CCI -Museum
3	CCI_3	Vice Director	CCI -Archives
4	CCI_4	Editor-in-chief	CCI - Audiovisual sector
5	CCI_5	Company owner	CCI - Publishing House
6	CCI_6	Company owner	CCI - Design or artistic crafts
7	CCI_7	CEO	CCI - Music
8	CCI_8	Relations officer	CCI - Performing Arts
9	CCI_9	Manager	CCI – Museum
10	CCI_10	Owner/CEO	CCI - Audiovisual sector
11	CCI_11	CEO	CCI - Audiovisual sector
12	CCI_12	CEO	CCI - Audiovisual sector
EVGIE			
No	Code	Stakeholder position	Type of stakeholder
1	EVGIE_1	Managing Director	EVGIE – NGO
2	EVGIE_2	Senior Manager	EVGIE – Game developer & Service provider
3	EVGIE_3	Head of the Strategy Department	EVGIE – Policymaker
4	EVGIE_4	PR Manager	EVGIE – Game developer
5	EVGIE_5	Project Manager	EVGIE – Policymaker
6	EVGIE_6	Creative Industry Support Coordinator	EVGIE – Policymaker
7	EVGIE_8	Producer (formerly Project Manager)	EVGIE – Game developer
8	EVGIE_9	CEO/Founder	EVGIE – Game developer
9	EVGIE_10	Vice Director	EVGIE – NGO
10	EVGIE_11	CEO	EVGIE – Game developer
11	EVGIE_12	CEO	EVGIE - Research & lobbying
12	EVGIE_13	Managing Director	EVGIE – NGO
13	EVGIE_14	Freelancer	EVGIE – Media
14	EVGIE_15	Member of the Board	EVGIE – Game developer
15	EVGIE_16	Senior PR Manager	EVGIE – Game developer & Platform distributor
16	MFGI	1. Writer, Copywriter and Screenwriter 2. Art Director/Game Director 3. Producer 4. Chief Marketing Officer and Board Member	EVGIE – Game developer

Note: The seventh interview conducted within the EVGIE framework, initially coded as EVGIE_7, was reassigned to the group of CCI interviews due to the specific characteristics of the represented entity identified during the research.



5.3 Findings

To make the findings description coherent, we have adopted the following structure. First, for each subsection, we present the frequency analysis of our data depicted in the respective figures. Then, we discuss the aggregated dimensions and themes that were identified during our data analysis process. Finally, we add the citations to better illustrate the interpretations and outline the sense-making process.

5.3.1 Cross-industry cooperation from the CCI perspective

Our data analysis regarding the CCI investigation exposed **6 aggregated dimensions** (Figure 29). These were: cooperation challenges, cooperation–coordination, cooperation motives, cooperation results, cooperation values, and inclusiveness. In turn, 12 themes were distinguished within them, such as human-related constraints, cultural complexity, or evolving standpoint, and a total of 73 codes (assigned to specific themes), the number of which was indicated in the appropriate themes.



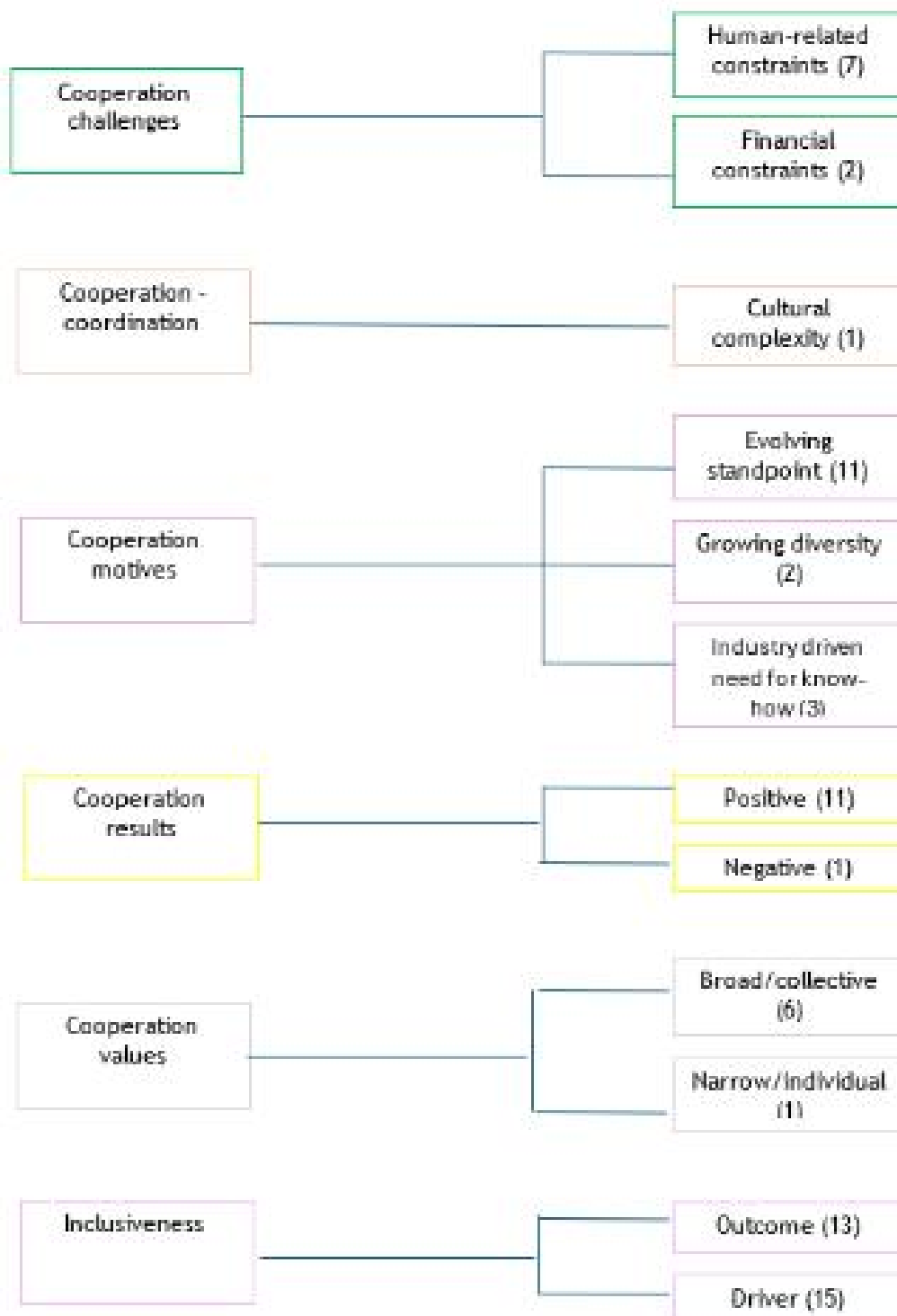


Figure 29. Aggregated dimensions and the frequency of codes within the themes – CCI



Cooperation challenges

The first revealed dimension covered cooperation challenges, where two main research themes may be distinguished: (1) human-related constraints and (2) financial constraints. Our informants outlined those two groups of factors as the main barriers that hinder the possibility of developing effective cooperation.

Among the **human-related constraints**, two codes were dominant: mindset-related limitations and a lack of skilled professionals.

There are various categories that may be outlined regarding the **mindset-related limitations**. We had 5 citations that expressed their relevance. Our informants stressed the resistance towards introducing any novum, which is mainly rooted in the lack of previous experiences and difficulty in accepting activities beyond the prior practices, i.e., informant CCI_1 outlined: *'(employees) were strongly shocked by this idea, because such activities had never been carried out at the Philharmonic. No one has done any research that could treat any industry we were involved in from a different angle, so this was a total novelty.'* Limited strategic awareness was the other reason revealed in our data, perceived as *'a change in strategy for looking at your institution in general'* (CCI_1). However, among the factors that are related to attitudes towards cooperation enhancement, not only the internal perspective of involved actors was raised. In fact, the policymakers' approach was mentioned several times as a narrow or partial way of thinking about the areas of potential merger of industries. One of our informants (CCI_3) believed that: *'until these broad financial institutions and decision-makers decide to get into it, understand it, and this is, I think, a generational change, it will not succeed at all'*. Thus, all of the codes revolved around a limited understanding and reduced awareness of a long-term approach towards considering the combination of common practices, projects, and praxis of collaboration between the investigated industries.

Regarding the **financial constraints** code, our informants complained about limited or wrongly addressed financial support that prevented them from initiating and developing the joint initiatives. However, surprisingly, the financial aspect has also been recalled in a broader perspective of the external perception of such initiatives. In fact, one of our informants revealed the fear of *the culture profanum* in the financial context that could even boost the potential



perception mismatch between the culture and games: *'First of all, we can't subsidise the event, because (...) someone can challenge us that it's not a statutory activity. And here I'm going back to that thread I was talking about earlier, which is this sense of elitism, and this is a huge problem for the whole industry'* (CCI_1). Therefore, financing is not only the real barrier (once it's limited), but also a potential one (once it impacts the experimentation process and willingness to go beyond the boundaries), as it may easily be used against the public institutions in assessing their activities by employing the perceptual division of 'higher and lower culture'.

The analysis revealed that among the key, sensitive barriers to inter-industry cooperation, the pivotal importance lies in human factors such as resistance to novelty, lack of previous experience or low strategic awareness, and financial factors, among which one can indicate limited availability of funds. Additionally, the informants outlined perceptual limitations related to the perception of financing initiatives combining culture and games.

Cooperation coordination

The second dimension was called cooperation coordination. In fact, although we tried to gain the information regarding the coordination mechanisms, it was not expressed explicitly as the cooperation practices remain limited, and our informants had little experience in practices they could share. However, we decided to keep the assumed dimension as it revealed a vital reflection to *'perceive the gamedev as a mixture of CCI'* (CCI_12). Thus, our informants stressed **cultural complexity** in the perception of the boundaries between creative activities that blur the lines between industries and make the coordination difficult to define and describe clearly.

The topics identified allow us to state that the functioning of the video games industry is based on great cultural complexity and the interpenetration of various fields of creativity, which, on the one hand, promotes innovation, but on the other hand, makes it difficult to define and implement effective coordination mechanisms precisely. These, in turn, are poorly developed and rarely used in practice because there is a lack of experience in formal practices of inter-industry cooperation.





Cooperation motives

Within the third dimension, we investigated motives for cooperation. The dominant theme in this area was labelled as an **evolving standpoint** focused mainly on changing perspectives of both the meaning and scope of values that are considered in potential collaborations. First, our informants outlined the need to change the meaning of and perception of institutions that considered the cooperation. In the case of the philharmonic (associated mainly with the 'high' culture and a narrow range of customers), evolving brand perception was the core reason to trigger the cooperation. As confirmed by our informant: *'The Philharmonic is associated with classical music only, it has a specific clientele, a specific image. And after I applied for a job here, in a conversation with the director, we agreed that we would like to acquire other spaces, and we would like a more modern image of this Philharmonic'* (CCI_1). However, it was also stressed that the benefits are mutual, as it was aimed at *'showing what classical music can draw from and give to the video games industry'* (CCI_1). Moreover, it is worth noting that the evolving standpoint in this case was not only mutual, but also treated as a strategic approach: *'in our strategy (...) betting on these new technologies and such, I would say, progressiveness is very important'* (CCI_1). Finally, our informants noted that the clash between video games and other cultural actors is rooted in the conflicting perception and positioning in the cultural scope, which *'can be very flattening. And it's just like calling video games a low culture.'* (CCI_3), and regarding the classical music: *'It's something that's been humbled for hundreds of years, which is this sense of such elitism. And here we have a problem, right, games are anti-elitist, here we have elitism. And how to reconcile this so that we don't have the feeling that an area of art is being made shallow, because I know that such a reception also happens'* (CCI_1).

Two other reasons mentioned less frequently as motives for enhancing the cooperation were the willingness to stress the role of women and **diversity** in building the cluster of cooperators, and the **growing need for know-how** and accessibility improvement as one of our informants revealed that: *'creation also of easy available resources, for just such stores and distribution channels, which can be used by these creators in the easiest possible way, which also requires on my side to create resources at such a level that will be processed well enough'* (CCI_9).





The synthesis of this dimension allows us to diagnose the key factors stimulating cooperation and collaboration of the video games industry with other cultural and creative sectors. Here, we should point out the evolving change in the approach to values and the industry's perception as one that creates 'high culture'. Thanks to this perspective and collaboration with mutual understanding and respect for values, this can contribute to creating attractive cultural offers to a broader audience.

Cooperation results

Among the fourth dimension of cooperation results, we distinguished two themes as we were able to categorise the emerging codes in **negative** or **positive outcomes**. In fact, we recognised only one negative code referring to environmental pollution that arises with the growing intensity of cooperation (CCI_12). On the contrary, we have registered several positive categories: networking, grassroots actions, extended versions, imposing the discussion on various levels, and the category of unexpected outcomes. Regarding the networking, our informants outlined a broad integration on various levels: *'No office has taken video games and education so seriously to create such projects, so we have become the start of discussions at different levels: political, educational, substantive. And we travel to various conferences.'*(CCI_3). Moreover, the internal, grassroots initiatives were also mentioned once the cooperation was initiated, as confirmed by informant CCI_1: *'all the activities were coming out from the bottom up, just from someone's needs, so I think that's the biggest asset of this'*, along with extensions (more activities, more locations, and more participants) in further activities. Another result covered the new levels of imposing the discussion as the integration of various activities triggers the unexplored themes plotted within the dominant narrative. As outlined by the informant CCI_6: *'Still, the music industry has benefited from this, because it is the music from this production that has gained a lot in popularity. But it also just broadens horizons, because I know many gamers who first played the game and then became interested in Sapkowski's literature, so here they just got to know the books and the novels. So it is certainly a kind of broadening of horizons.'* Finally, some unexpected outcomes were also reported as unforeseen initiatives that emerged spontaneously and covered the actors not considered before the cooperation. For instance, as outlined by CCI_1: *'we managed great, really a very cool relationship with the students of Game Design and Virtual Space, who made us author animations, specially prepared as if for this event, we also made their exhibitions, so we managed to create something valuable on this basis'*. The impact on the video games industry was also disclosed as *'(they) decided to do things there that are not done in games, with a very strong emotional charge'*.



The topics identified in this dimension reveal that although inter-industry cooperation may be associated with adverse outcomes (such as increased environmental pollution), its positive effects are dominant, among which the expansion of the network of contacts, grassroots initiatives, expanding the scope of activities, or initiating discussions at various levels are gaining importance. What is more, through inter-industry cooperation, the video games industry is becoming a platform for exchanging knowledge, integrating environments, and broadening participants' horizons.

Cooperation values

The positive cooperation results are highly combined with the values it brings, which is reported as our fifth dimension. We have recognised one value that is more of an individual (narrow) nature – Award from Amnesty International (CCI_4), and several values categorised as **broad and collective**. Within this category, it is worth noting the heritage protection that is enhanced by any cooperative initiatives, and was shortly described by CCI_9: *'Well, and here comes the whole idea of living heritage, that all this data hidden in a drawer, will not really contribute to the collective consciousness, and only at least some connection with the creative industry, with popular culture will be able to influence the preservation of heritage in the public consciousness, even if these constructions no longer function in the public space'*. Thus, the cooperation between CCI and VGI is perceived as a transmitter of heritage protection that would allow not only for preserving the cultural elements, but also expanding the usage and assuring the authenticity that may be fringed by recent threats: *'And it's fully authentic, it's not something dreamed up by someone, by an artificial intelligence or a person completely outside the cultural context. These are three-dimensional elements ready to be implemented in games that carry real historical value, are authentic, and you can create both a game from them, or you can create a virtual set for a film production.'* (CCI_9).

Inclusiveness

Finally, our informants tied up to the Inclusiveness dimension in various contexts. By analysing our data, we were able to categorise the codes into two themes – outcomes and drivers of inclusiveness.



First, our informants mentioned several **drivers of inclusiveness – media role, industry inclusiveness, disability perception, and the growing trend of social as well as economic inclusion**. The former is the prevailing category of drivers. Among these drivers, besides several already established examples of disability perceived as the well-known driver for inclusiveness, it was discussed within the geographical accessibility to *‘very broadly understood culture, whether it is an access to museums, to the cinema, to the library, or simply to just games as well, it is those who live in larger cities who simply have the whole situation made easier’* (CCI_4). Those constraints are addressed by games as *‘multinationality of games and openness to spending time together with other lovers of similar gameplay, makes people from third world countries, for example, feel like members of one common world, one common planet’* (CCI_12). Moreover, as stressed by CCI_10, the economic barriers to accessibility are slightly lower than in the case of other forms of culture: *‘accessibility certainly increases, if only by the fact that when they are available where other forms are not available, such as theatre. Because games are available regardless of the resources of the economy, if they can’t buy a game, they will steal it, and that’s it, but they will play it. And they won’t steal the theatre for themselves, right?’*. Finally, among this category of drivers, the technology was also recalled as one of the economic drivers that hinders inclusiveness. Our informant outlined the growing exclusiveness of technological advancements, motivated by the pursuit of gaining the competitive advantage without considering the possibilities of a broader audience: *‘So these games are poorly optimized, making developers prefer to give higher hardware requirements, instead of taking the time to optimize this game and make it run even on weaker hardware (...) despite the fact that hardware has evolved a lot. And video games (...) are taking shortcuts precisely’* (CCI_6).

Within the media role, one of the broadest examples was provided by CCI_9, who claimed that: *‘without the right tools for moderation, community building, building the mindsets of the entire community, and game rules that encourage, however, to support each other and not fight each other, this is a huge challenge. And I am always very impressed and have great respect for the community managers who function in such online games to create safe environments’*, but also the media role was discussed within the perspective of public space where it *‘does not talk enough about the diverse access to diverse culture’* (CCI_4).



Finally, our informants posed the inclusive specifics of the industry as one of the driving factors for cooperation. As CCI_12 claimed: *'In my theatre, I didn't have to deal with such a diversity of people, and here I have, and it's very cool'*, and *'In addition to inclusivity in the video games community, I think we also have quite a lot of, (...) this inclusivity in the industry'*.

Second, the categorisation of the **outcomes of inclusiveness**, besides some already well-known advantages, included two main categories of codes: **exclusiveness** and **over-inclusiveness**. Regarding the exclusiveness, the economic standpoint was mainly expressed as confirmed by informant CCI_1: *'(...) there is I would say snobbery, as if the game producers, instead of just being inclusive, I have the impression that they, however, bet on exclusivity, which I understand from the economic perspective, (...) and here I would see the danger that the producers will, however, as if just from the economic angle, (...), go towards exclusivity instead of inclusivity'*, or CCI_3 who even referred to the broader cultural picture: *'Accessibility of culture... There is no such thing. Every game is expensive. Every market game is expensive.'* However, besides the economic perspective, the societal perspective was also stressed, mainly in relation to the communities that may be exclusive itself as outlined by CCI_9 *'But when it comes to inclusivity in a broader context, when it comes to games, I think inclusivity first and foremost breaks down to creating good and safe communities. Because that's something that's very easy to ban, it is easy to push people out of games'*, and CCI_4: *'there is, unfortunately, a very large anti-inclusion movement in the video games community'*. Those two (economic and societal) perspectives may also hinder the possible cooperation, as the outcomes may be opposite to the intended ones. However, we have also recognised the code that we labelled as over-inclusiveness (i.e., an increased attention paid to inclusiveness which may sometimes be a bit artificial) and has been recalled by several informants – i.e., CCI_4 stressed the increased attention towards inclusiveness: *'this is, unfortunately, currently a very negative movement in the world of games, where games have been trying to be inclusive in a sometimes less sometimes more successful way for some time now, just like all other media that try to reach the player around the world.'*, as well as informant CCI_6 who also see the growing trend and claimed that: *'when we are too conservative, the pendulum must naturally swing the other way, and some industries, especially just video game developers, now tend to swing a bit the other way'*.

Other informants referred to a kind of artificial intertwine on minorities aimed to disseminate the value of inclusiveness – i.e., CCI_12 raised the gender issue; *'forcibly creating a female character because she is supposed to be a woman'* or CCI_5 mentioned the sex minorities issue: *'You can probably get the impression that sometimes the portrayal of sexual minorities*



in games is a little unnatural. It seems to me that this is a lack of some social skills or a lack of such typical sensitivity, and it's a bit of a check off the box in Excel that ok, we made a game for a sexual minority', but also added the broader context of potential rewards that come along with such artificial inclusiveness: 'It's not about sexual minorities coming into the game just to tick off that box so that, (...), a project gets funding or is promoted by some organization' (CCI_5). Another informant outlined the age inclusiveness, also forcibly imposed by other organisations besides the video games industry: 'the same thing about the language, that some theatres, such as commercial ones, are trying to do precisely this inclusiveness by force, to make shows that appeal only to the young, their language, controversial' (CCI_10). The outcomes of such (over)inclusiveness are also considered from the societal standpoint: 'the moment when someone is constantly fighting for attention for equality, takes space away from others who deserve that attention far more and for better reasons' (CCI_2) as well as economic standpoint: 'from this, paradoxes are made, and also (...) the consumer rules, and nowadays these games are heavily stigmatized, which forcefully push players, although there are such mechanisms that games are rated' (CCI_10). The other voice stressed that, because of those consequences, inclusiveness is not supported, but the decision to make the initiative more inclusive is rooted in the estimation of costs and rewards as CCI_5 mentioned: 'Well, and we're getting to the point where perhaps it becomes part of such a cool calculation for the creator and publisher, whether it's worth to go in that direction and support inclusivity, or whether it's better to avoid it because we'll be attacked again and get death threats or posted negative comments on the Internet'. Thus, based on our data, we realised that despite the growing trend of enhancing more inclusiveness in games and CCI cooperation activities, it may ultimately lead to a feeling of non-natural or even false drops and bring the reverse effect. It may be related to the past experiences of being within one of the dominant groups, which may result in a feeling of unnaturalness to have it another way.

In terms of the dimension under study, it can be said that, on the one hand, video games and inter-industry cooperation cause the breaking down of geographical, economic, and social barriers, while increasing the accessibility of culture and building an open community. However, on the other hand, challenges related to exclusivity appear, which are operationalised in the form of, for example, high costs of games or closed communities of players. As a result, misguided inclusiveness can occur, which is sometimes perceived as artificial. It is also worth noting that a more balanced approach combines authenticity and fundamental cultural values, with the requirement to meet formal and market expectations.



5.3.2. VGI and cross-industry cooperation from EVGIE perspective

Our data analysis in EVGIE revealed **7 aggregated dimensions**: games as culture, economic role, social role, technological role, inclusiveness, institutional conditions-regulations, and institutional conditions-drawbacks. Similarly to the CCI, here too we aggregated them into themes and codes, which numbered 19 (e.g., games’ perception, qualitative indicator, hindering technology spread, or institutional support) and 340 (in the case of codes, their detailed value was indicated for the relevant theme) – Figure 30.

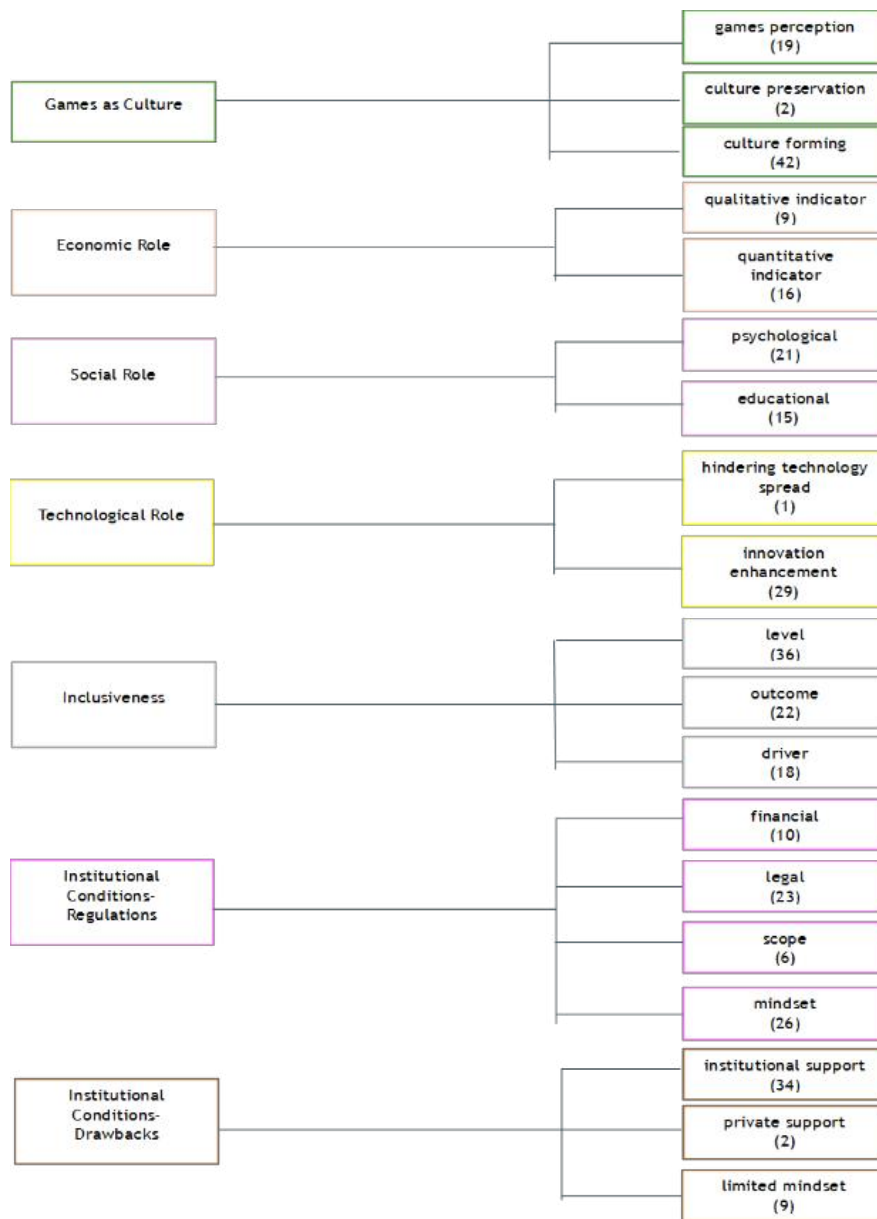


Figure 30. Aggregated dimensions and the frequency of codes within the themes – EVGIE



Games as culture

The analysis was first conducted on the most extensively coded aggregated dimension - Games as culture. It includes three themes: games' perception, culture preservation, and culture forming, to which a total of nine codes were assigned, such as the impact of society's age structure, games archiving, and the culture-forming role of games.

Regarding **games' perception**, respondents addressed themes related to **video games as a cultural heritage, games as part of culture**, as well as issues related to **entertainment culture** and the impact of demographics on **how games are perceived**.

It turns out that *'no other country has included video games on the list of recommended reading by the Ministry of Education. Poland is pioneering in this regard...'* (EVGIE_13). Moreover, games have an interdisciplinary nature, with a visible blending of *'very different fields, such as graphic arts...'* (EVGIE_4). However, it should be noted that video and computer games constitute an integral part of entertainment (including cultural entertainment), which *'fits into organising people's free time'* (EVGIE_3).

There is a prevailing belief that *'games keep us confined to our homes (...) and are not high culture or art'* (EVGIE_3). Nothing could be further from the truth. Games serve as a tool for establishing and enriching social relationships, which *'are profound [...] in games'* (EVGIE_3). Furthermore, game creators are guided by a *broader 'unique idea [...] mini world entertainment'* (EVGIE_4). Although they *'live off games'* (EVGIE_4), this *'does not mean that good culture cannot be created...'* (EVGIE_4), and *'the idea is the leading theme of the game'* (EVGIE_4).

An interesting yet still underrepresented research topic is the protection of digital creativity (**culture preservation**), i.e., computer and video games in Poland. Content analysis of interviews allowed for the aggregation of statements into two codes reflecting the discussed theme. These are: **games preservation and games archiving**.

As indicated by Polish legislation²², video and computer games are classified among works constituting cultural goods (alongside books, magazines, records, tapes, etc.). Nevertheless, there is little evidence of places where these works are archived, protected, and preserved

22 Act of November 7, 1996, on Mandatory Library Copies (Journal of Laws of December 23, 1996).



long-term. After all, as outlined by our informant, *'all books are sent to museums, to the National Library. All images by current creators are purchased by museums. Music is archived. Films are supported by grants, archived [...]. We should do the same for games. Treat them as another mature sector of culture. Let's focus on their education, analysis, and protection for future generations'* (EVGIE_16). Video games, like documents, films, or musical works, can be destroyed or lost. Such cultural goods are referred to as 'lost media'. In Poland, however, the issue of archiving seems to be barely noticeable. There is, however, a chance to fill this gap, because as one of the study participants states, *'A Polish digital museum of video games will eventually start in some form. I hope it will launch in the first quarter of next year and will exist and develop'*. (EVGIE_16).

The next thematic area that was analysed was **culture forming**. It can be said that it is the most substantively rich. It encompasses three main themes: **the culture-forming role of games**, **technological co-innovation**, and **games as adaptations and adaptations of games**.

It turns out that games constitute one of the significant cultural achievements with a unique character. Furthermore, we observed that the themes addressed by informants related to identity, heritage, and cultural legacy. One participant emphasised that *'games are already, in a way, an integral part of (culture - recall of the authors), and it seems (...) that in the youngest generations, they even overshadow traditional media, such as television or radio'* (EVGIE_15). Another participant stated that *'games (...) are a domain of culture that (...) very often interacts with other disciplines, and (...) can significantly surpass any Polish, even the most popular film, book, or music in crossing their medium'* (EVGIE_14). Finally, according to two participants, *'games are a driving force behind all sectors of culture'* (EVGIE_6), as comprehensively outlined by informant EVGIE_13, *'it's music, it's art, it's actors employed in production, people who also lend their voices'*.

An important element, and still an underexplored research and development area of the cultural role of games, is their **technological co-innovation**, exemplified by tools such as the Microsoft flight simulator, *which is already successfully used to train pilots* (EVGIE_5).

Among other tools that undoubtedly highlight the **adaptability** of games, one can also mention the *'surgical operation simulator (...) on which medical students can already learn'* (EVGIE_5). It is also worth adding other examples like *'the reconstruction of Notre-Dame Cathedral was assisted by work carried out by the French Ubisoft in connection with Assassin's Creed Unity'*



(EVGIE_14). Finally, the vast applications of games were mentioned as they *'are (...) the first consumer product in which experimentation with the potential of new technologies takes place, allowing for the testing of new innovations'* (EVGIE_1).

In light of the presented results, it can be stated that games are an integral part of culture and entertainment and an inherent element of cultural heritage, which simultaneously requires protection and archiving as other forms of culture. This challenge, however, becomes complex, especially in the age of digitalisation, where games increasingly function not as permanent products (i.e. games sold in boxes, produced on CDs for instance) but as services available temporarily under specific conditions. This transformation may have consequences for preserving and protecting new media, as archiving digital services can present barriers and limitations. At the same time, games are perceived not only as entertainment but also as a platform for building social relationships, transmitting values, and testing technological innovations. Thus, due to their interdisciplinary nature, they should become the subject of protection and research aimed at shaping contemporary society, economy, and culture.

Economic role

The second aggregated dimension analysed was economic role. It included themes such as *qualitative indicators and quantitative indicators*, in which the codes were aggregated accordingly. A detailed analysis of this dimension is described in the following section of the document.

Respondents emphasised the **qualitative indicators** while discussing the role of games. As mentioned by one of our informants *'on the one hand, it is an economic aspect because it is a huge business that is continuously growing'* (EVGIE_3). On the other hand, the indirect role has also been revealed as *'it is a major branch of the economy that simultaneously has a cultural-creating function, which can contribute to building... the country's soft power'* (EVGIE_3). This can also be perceived from the perspective of *'educated, well-prepared people for this work'* (MFGI).





Regarding the **quantitative indicators**, it can be said that *'the economic role definitely matters (...) the game is already about 1% of the gross domestic product. That's a lot'²³* (EVGIE_4). As other informants emphasised, *'these are not (...) small amounts in trade (...) overall'* (EVGIE_6), since *'most of the game products (...) are exported'* (EVGIE_6).

Moreover, the industry development over the last years was emphasized as *'we're talking about the entertainment industry, which (...) just (...) twenty years ago was, (...) a niche entertainment'* (EVGIE_2). Today, it generates *'greater revenue (...) than movies and music combined'* (EVGIE_2).

Finally, the video games industry, due to its scope (size) and economic impact, provides employment opportunities for many people with various qualifications and skills. We can talk about artists, actors, designers, etc. One informant made a kind of conclusion regarding this postulate. Namely, the video games industry *'offers a certain interesting place of employment for people (...) who might find it difficult to find engaging and interesting work (...) if there were no specific employment opportunities in games'* (EVGIE_8).

By synthesising this aggregated thematic area, we may outline that: firstly, VGI is a dynamically developing sector generating significant revenues; secondly, it has a global character, which strengthens its position in the international arena; and thirdly, it creates so-called 'soft power' such as the one delivered by artists, sculptors and designers.

Social role

The Social Role is a third dimension in which two thematic areas have been aggregated: *psychological* and *educational*. Each of these areas encompasses a diverse set of topics, reflected in the form of coded quotes, which are discussed below.

Topics related to the **psychological context** in games were discussed by the respondents in two contexts – as an alternative to the real world - *'Games (...) constitute a modern platform where, people can meet, discuss and enjoy and entertain some thoughts'* (EVGIE_1), and

23 Referring to Polish economy



second – the alternative way of social interactions, *'(...) they become (...) places where people interact'* (EVGIE_1), that *'influence human attitudes'* (EVGIE_4). It becomes extremely valuable for the kids with socialisation problems, as *'in such a virtual space, there are also groups, and they can meet there'* (EVGIE_6).

Games engage various generations and, from a psychological standpoint, they allow for feeling included and enhance well-being. Starting with younger players (e.g., from Generation Z), who willingly participate in *'cosplay, which is (...) a cultural movement of dressing up as characters from games'* (EVGIE_4), through today's sixty-year-olds, representatives of Generation X or the Baby Boomers who receive a special adaptive Silver mode (EVGIE_10).

In the area of **education**, participants strongly emphasised that beyond providing entertainment, education is valuable (EVGIE_2) and shared the following experiences, like an example of the collaboration between Ubisoft and MediCover, which, through the game Just Dance, promoted a *'program to prevent obesity and diabetes'* (EVGIE_13). Another example of integrating games into education is Minecraft, which *'is one of the best educational tools for the younger generation (...) because almost every subject -music, art, English, mathematics, especially geometry but also algebra, history, geography (...) can be (...) incorporated'* (EVGIE_13). Furthermore, based on the documentary series Frozen Planet (produced by the BBC)²⁴, an educational game was created with the aim of educating and raising awareness about sustainability and climate change (EVGIE_13). An interesting approach could also be educating about the process of creating a game, as outlined by informant EVGIE_16 *'we (...) can teach (...) about the design process, how long it takes, and how difficult it is'*.

Our informants also stressed that *'issues related to cybersecurity and digital exclusion can be promoted through games'* (EVGIE_13).

Video and computer games play an increasingly complex and multidimensional role, not only as a modern platform for communication and social interactions, but also as an influence on the attitudes, perceptions, and mental well-being of representatives of different generational groups. Moreover, games support education, promote health, and develop digital competencies. Finally, they impact social awareness of global challenges such as climate change and sustainable development.

24 Access to the series: <https://www.bbc.co.uk/programmes/b00mfl7n>



Technological Role

The fourth aggregated dimension is the Technological Role. Participants in the study referred to themes such as *hindering technology spread* and *innovation enhancement*.

Regarding the issue of **hindering technology spread**, an interesting yet still underrepresented topic was emulation. Although only one respondent referred to this issue, it is worth citing this statement: *‘Emulation, at least for non-commercial purposes, such as scientific research and education, should be permitted; in fact, it probably could and should be more broadly allowed in some way’* (EVGIE_16). It should be explained that emulation is the process of simulating or imitating the operation of one system (e.g., software) on another system, and this process is carried out by a dedicated program - an emulator (Johansson, 2023). In other words, it enables, for example, running console games on personal computers. Moreover, emulation is a way to preserve the cultural heritage of video and computer games (Farrand, 2012) and allows for the preservation of *‘content from the past,’* which otherwise might be forgotten (Ciszek, 2024).

Related to the second theme, **innovation enhancement**, our informants outlined that *‘(...)* Since the nineties, video games have been one of the variables driving the technological race (...), and have even been the accelerators of this race’ (EVGIE_12). Therefore, games are relevant for innovation enhancement as they serve as *‘(...)* a driving force for developing new tools, new technologies, which are then utilised’ (EVGIE_3). An interesting example is voice simulators, which are notably used by women (EVGIE_13). Furthermore, the technology advancement was also recalled as *‘a significant part of AI, or the foundations of AI, was simply created through games’* (MFGI). The same applies to VR (Virtual Reality), which is driven by games (EVGIE_2).

To conclude the analysis of this area, the thematic dimension can be summarised by the quote: *‘the role of the video games industry in Europe is quite significant (...), and when it comes to (...) the technological level, European game development is definitely on a (...) world-class level’* (EVGIE_15).

The themes raised by the informants within this aggregated dimension allow us to state that games are not only a tool for preserving cultural heritage and education (e.g. through emulation and protection of historical content), but also constitute a potential for the development



of new technologies and solutions that find application outside the video games industry. Examples such as the development of artificial intelligence, VR, or specialist simulators show that innovations generated in the video games industry permeate other industries, thus strengthening inter-industry cooperation.

Inclusiveness

The fifth aggregated dimension – inclusiveness - is extensive and rich in statements. It includes three themes: *level*, *outcome*, and *drivers*, each accompanied by numerous codes (quotes), whose descriptions can be found below.

Referring to the first of the three themes (level), it should be emphasized that in the course of our analysis we noticed that our informants, when referring to inclusiveness, present a particular division of it: pointing to content related to an individual, a person (such as gender discrimination), from the community referring to players and presenting the perspective of an organization. This was an inspiration for us and, at the same time, a clear indication that we should aggregate the discussed threads at a theme-labelled level.

As our analysis showed at the **individual level**, respondents emphasised that the first step towards inclusiveness is to recognise the differences in access to digital culture among various social groups *'the first step would be to understand the differences in access to digital culture among various socio-economic groups'* (EVGIE_1). The importance of counteracting discrimination and taking into account the needs of people with disabilities was also indicated. As one interviewee noted, *'a lot of games address topics of discrimination, minority issues'* (EVGIE_11), while another added *'(...) you care about making sure that (...) every person with visual impairments can increase or decrease the font size to make it comfortable for them'* (EVGIE_11).

From a **community (level)** perspective, the increase in the availability of games and their broader impact is visible *'it is evident that games are becoming more widely available (...) and are reaching a larger audience'* (EVGIE_5). However, not all actions lead to absolute equality. There are also critical voices regarding business models that can deepen the exclusion *'video games available for kids and aimed at children seem to contribute to increasing economic inequalities (...), because they are based on a business model (...) microtransactions'* (EVGIE_12).



From an **organisational (level)** perspective, respondents drew attention to the role of companies and the industry in promoting inclusiveness. Both systemic actions and the implementation of tools and guidelines are essential here as *'game creators have absorbed many topics and tools related to accessibility. There is a website I consider an excellent starting point - Game Accessibility Guidelines, where accessibility tools are divided into three (...) segments: easy to implement, difficult to implement, and very moderately difficult and difficult to implement'* (EVGIE_14). The industry is also evolving regarding the diversity of teams: *'the industry we've known from the beginning was an industry of big boys, enthusiasts; there were no female representatives at all. But fortunately, this has changed. For a simple reason: just as in the past, boys played games and thus created games, at some point, the world of video games caught the interest of girls, and now we have many female creators'* (EVGIE_4).

Despite these efforts, respondents also see limitations and ambiguity in the **outcomes** of implemented practices (second theme within this dimension). On the one hand, positive changes are emerging: *'a positive aspect is that game coding can be done just as well by a person in a wheelchair or someone with any other limitations. (...) So definitely, this industry offers such an opportunity'* (EVGIE_12). On the other hand, actions do not always bring the expected results *'looking at what is happening in the market, projects in which (...) games are developed to increase (...) inclusivity, (...) unfortunately, it doesn't work. When a game is made to be fun, to make people want to play it, and nothing (including the implementation of pro-inclusivity measures - researcher's note) is forced into it, it's a success. Unfortunately, we're currently at a stage where LGBT-related topics are often forced into games'* (EVGIE_15). This leads to reflection: *'On the one hand, inclusivity, and on the other hand, the reality that somewhat fails in the face of inclusivity or inclusivity in the face of reality'* (EVGIE_4).

It should be noted that the key factors **driving** these changes include both market pressure and growing social awareness. *'The industry itself adapts to market needs and companies know that to sell more, they have to be accessible to everyone'* (EVGIE_5). And the diversity of teams becomes an asset as *'the more diverse the team, the more creative it is, and (...) women are needed in (...) the industry because they change the games'* (EVGIE_13). Finally, an increasingly important role is played by people with experience of special needs, who co-create products for themselves and others *'because the product - the game - is created by and for people with special needs, those who have the greatest knowledge in this area. So, you have lots of layers of complexities there'* (EVGIE_1).



In conclusion to the above considerations, it can be said that the video and computer games industry is multidimensional and can be considered on three levels: individual, social, and organisational. Nevertheless, the interpenetration of these perspectives shows that games can counter social exclusion, promote equality and diversity, and build digital competencies in broad groups of recipients. However, it should be pointed out that the defined limitations or ambiguity of the effects of inclusive activities, such as gender discrimination and the resulting inequality in remuneration for work, may indicate the need for further exploration and perhaps development or redefinition of the current model.

Institutional Conditions - Regulations

The sixth aggregated dimension analysed was **Institutional conditions - regulations**. The themes discussed by the respondents focused on *financial, legal, scope, and mindset-related* issues. Let's now proceed with a detailed presentation of these issues.

Regarding the **financial aspect**, it can be said that issues related to regulations, guidelines, or support programs were of key importance to the study participants. It turns out that *'(...) guidelines, regulations, and support programs are quite well developed. Sometimes this is good, but unfortunately, sometimes it is very bad. Examples of actions that (...) work very well at the European level, or even at the Polish level, are various grants or programs that support the creation of prototypes or the establishment of new studies (...)'* (EVGIE_15). At the same time, not only is the offer important, but also the outcome of the policies, as *'it is effective to spend money wisely, meaning not only ensuring that the funds are spent, but also that there is some result from this expenditure'* (EVGIE_15).

Conversely, as one participant emphasises, *'since the mid-2000s (...) countries or regions have recognised the potential (...) that lies in the video game industry'* (EVGIE_12).

However, this has brought, and continues to bring, certain challenges, opportunities, and barriers related to **legal issues**. As one respondent complained, *'(...) there are some legal problems (...). There are many laws that need to be modified because, for example, the copyright laws that date back'* (EVGIE_11).



Furthermore, the legal constraints are rooted in a lack of definitions, as explained by our informant, *the problem with regulations in the video game industry in Poland is that it is not fully defined by law. (...) On one hand, it is clearly a creative and artistic activity, a culture and art; and on the other hand, as the authors remind us, it is directly connected with the economy, commercialisation, and needs. So here we have both commercial law and copyright law* (EVGIE_3). In other words, *‘there is a lack of (...) a clear legal definition of the video game industry itself or of the creative and cultural sectors as such’* (EVGIE_3).

One of the issues raised by respondents is **scope**. As it turns out, the scope of activities and obligations that entities in the video games industry must face includes not only the need to adapt to numerous regulations but also the availability of support and resources for various market participants.

As observed by our informants, the growing need to address the legal requirements has led to demand for special advisory as outlined by EVGIE_1 *‘due to the enormous amount of regulations, over the past 10 years (...) the entire sector of legal service providers in the scope of video games has emerged in all EU countries. (...) There are specialised lawyers working exclusively in the video game sector, helping companies implement all the regulations’*. Even though respondents noted another barrier is *‘assistance in acquiring knowledge, organising conferences, showcasing with a booth (...), this is not 100% covered, and mainly larger companies take advantage of it’* (MFGI).

Finally, one research participant stressed the significant drawback regarding *‘the creation of games on demand by the state or public sector. Unfortunately, tenders are usually not a good way to select the best contractor or the best idea. Also, in my opinion, trying to regulate this industry forcibly doesn’t work’* (EVGIE_15).

The legal and scope-related issues raised correlate with another theme we coded as **mindset**, which resonated clearly in our informants’ statements.

Among the interesting insights we noticed were those mentioned by EVGIE_12, who claimed that *‘the industry itself has (...) identification problems – who should represent it’*. Therefore, it can be said that a change in the mindset is necessary. In fact, *‘there is no single institution that consolidates everything, holds it in its hands, and standardises it; this is a very dispersed environment, and (...) all these regulations are outdated’* (EVGIE_6). Moreover, within this theme,



the most important aspects related to openness towards the video game industry and focused on issues such as legislation, bureaucracy, or support instruments. This is emphasized by statements such as *'all EU documents (...) are very general, there are no specifics'* (EVGIE_3) or *'game developers are concerned because every year the risk grows that someone will sue us for having an outdated cookie pop-up on our website'* (EVGIE_11), as well as *'the existing support instruments (...) were aimed at already successful entities. (...) Small independent studios that really need financial support (...) couldn't (...) apply due to bureaucratic difficulties (...), and often new staff had to be hired'* (EVGIE_14). Thus, the recommendations that were developed regarding those issues are comprehensive and focused on changing the general policy towards supporting the EVGIE.

The analysis shows the complexity of the challenges faced by the video and computer games industry at the national and European levels. Although support programs, development programs, and grants effectively support newly established studios and prototypes, the functioning of various entities in this industry (both small and large) is often hindered by outdated legal regulations, a lack of clarity in the definition of this sector, or excessive bureaucracy. The key to further industry development seems to be changing the current regulations, updating them, and adapting the support instruments to the market's real needs.

Institutional Conditions - Drawbacks

The final, seventh aggregated dimension analysed was Institutional conditions - drawbacks. Within the structure of this area, themes such as *institutional support*, *private support*, and a *limited mindset* were identified.

The theme of **institutional support** can be considered a continuation of our previous reports from our informants. As it turns out, for many of them, this remains an area that still requires attention. Interestingly, as one of the participants emphasises, the video and computer game industry *'developed without this institutional support, and even despite its displacement by other segments of culture, for which it was very long considered a kind of smaller sibling'* (EVGIE_14). Additionally, another participant notes a *'lack of knowledge among public institutions about what the video game industry is'* (EVGIE_12).



Regarding institutional support, it was also highlighted that the rules are *'very unclear about what criteria are adopted, or they are too general and not very practical'* (MFGI). In fact, in some cases our informant perceive the institution support as risky *'due to all the regulations being introduced and these various safeguards, some investors do not want to invest in startups that have received EU funds because there is always a risk that something was done improperly, and in five years someone will come and shut down that startup'* (EVGIE_9). It seems reasonable to use private support against the background of limitations resulting from **private funding**. However, our analysis has shown that market and systemic barriers are encountered in this thematic area. As one of the participants emphasised, *'private funding is one of the biggest obstacles for the growth of the European games industry'* (EVGIE_1). It can have twofold connotations. Firstly, the restriction in the availability of private funds may be caused by a financial crisis (such as high inflation). This is associated with a reduction, or even a halt, in private financial contributions. Secondly, it can stem from investors' expectations of a 'quick' return on investment. However, in the video game and computer game industry, this does not seem to be so obvious. Creating and releasing a game can take several years, and there is no certainty of its commercial success. Therefore, this also poses a risk for future private investors.

Our data analysis revealed that another theme concerns a **limited mindset** that needs to change. The limitations were addressed by informant EVGIE_12, who claimed that *'very often (...) institutions approach video games from the perspective of whether to pour money in or not (...), and game development is still (...) understood (...) as a branch of IT funding. But it's not a branch of IT. The heart of games is creation'* (MFGI).

Additionally, as the respondent claims, *'(...) funds are available, but they are often simply wasted in a way that they do not reach the right target, and the word I see everywhere in these grants is 'innovations,' but I think in the entertainment industry, it's not always about constantly innovating'* (MFGI).

Furthermore, *'in Poland, we essentially have no consumer research (...) today we don't know who the Polish player is, we don't know their expectations, we don't know how much they spend, we don't know if they monitor this entertainment'* (EVGIE_13), even though *'we are dealing with the most immersive form of entertainment. An entertainment that (...) is uncontrolled'* (EVGIE_12).



The summary of the topics discussed allows us to see that the video games industry encounters significant barriers related to support, not only institutional (public) but also private. Despite the growing importance of this sector, there is still a lack of knowledge on the part of public institutions and unclear general regulations. In turn, the expectations of private investors can be difficult to meet because a quick return on investment is expected, and the process of creating games is long and burdened with high risk, which may ultimately discourage financial outlays. In addition, there is a need to change the way institutions and market participants think. VGI is commonly perceived as a branch of IT, while its essence is creativity and creating unique content.

5.3.3 Recommendations for EVGIE, CCI and Policymakers

Before a detailed discussion of the recommendations that were derived from our data is presented, we illustrate the **4 aggregated dimensions** that we identified, along with the themes that we coded in our research material (Figure 31).

To enhance the understanding of the perspectives that are concerned within recommendations, we have gathered all the codes and decided to merge them around the actors they are designed for (nevertheless, the source of those recommendations). These were: recommendations for EVGIE, recommendations for CCI, recommendations for EVGIE & CCI, and recommendations for policymakers. In turn, 12 themes were distinguished within them, such as expanding standpoint, triggering cooperation, building awareness, or networking enhancement, and a total of 167 codes (assigned to specific themes), the number of which was indicated in the appropriate themes.



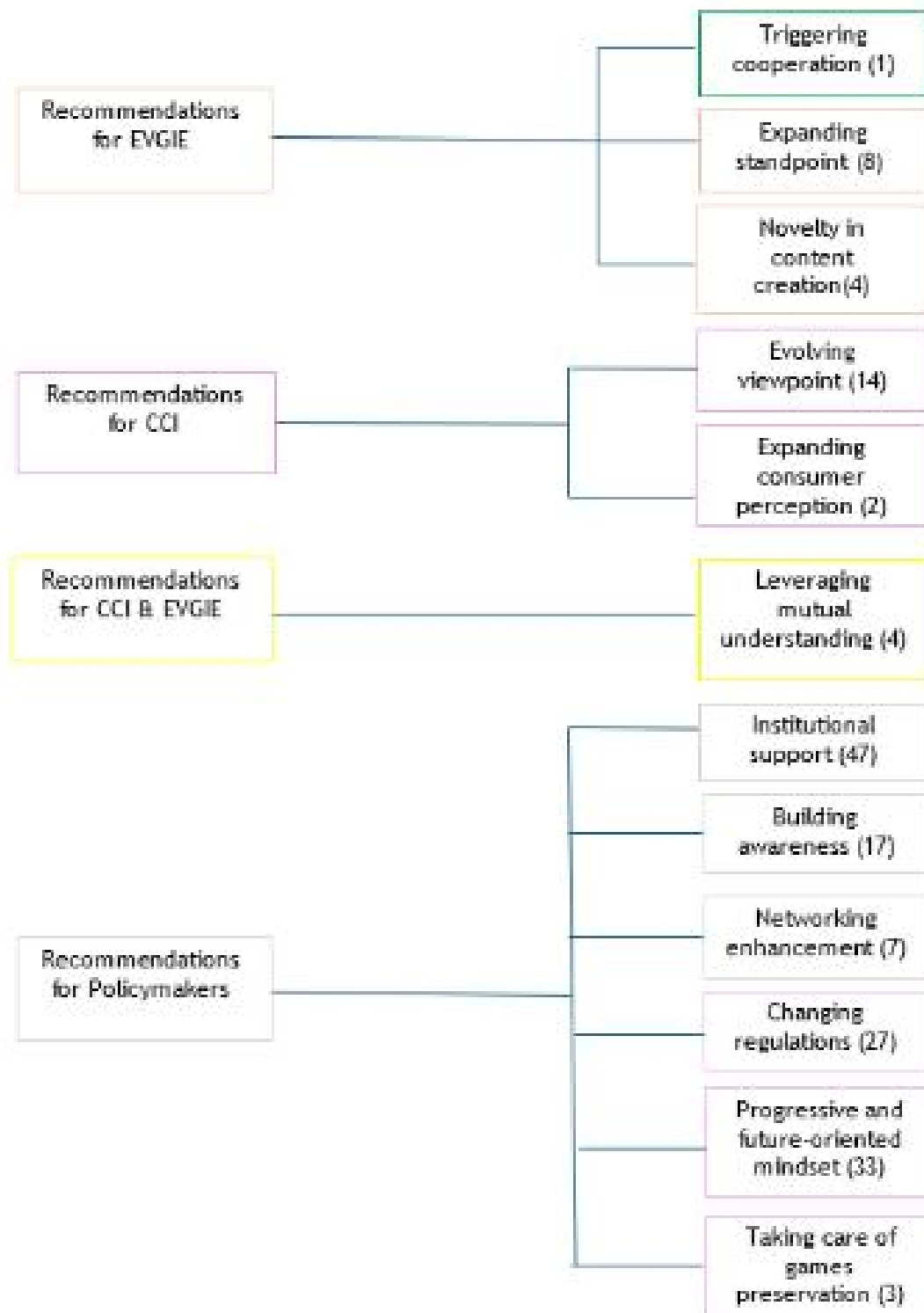


Figure 31. Aggregated dimensions and the frequency of codes within the themes – recommendations



Recommendations for EVGIE

The first theme within this dimension was mentioned within the context of inclusiveness that has already been discussed. However, we have decided to code it as a favourable environment for development that **triggers cooperation**, as it outlined the need to build a failure-tolerant environment and was recalled by our informant in the context of failures that emerged during the development of the final product. CCI_4 stressed out that *'the industry needs to have room to grow up and do it right. Because sometimes it succeeds, now, sometimes it doesn't'*.

It may be further supplemented by the other two themes in this area: **expanding the standpoint and novelty in content creation**. Within the first one, most codes considered the need for a broader perspective, where the higher willingness to experiment is mentioned - *'such a greater openness to experimentation, players are noticing that'* (mentioned by EVGIE_2) accomplished with expanding the market perception as outlined by EVGIE_12 *'so here overlaps the issue of low spending on games and thus the fact that Polish game developers cannot think of making a game solely for the local market'*. However, the catalogue of suggestions also covered the customer-centric focus described by VGI_15 as *'approaching the player and the world with a lot of empathy, (...), so that they are not focused only on their own ego and their fantasies'*. Besides the market and consumer, the business model was also recalled as a part of the **expanding standpoint**. As recommended by EVGIE_13, *'it is also worth thinking about such a business model, which does not require a huge investment upfront. You do not need to have a ready-made game to go to market. There are a number of games that are currently sold in such a model: subscription or in episodes, and this is something that has worked well'*. Finally, within this code, we have also recognised the suggestions to upgrade the development process, as it is mentioned by informant EVGIE_16, who stressed that in EVGIE companies are *'very focused on finishing the product and then potentially developing it rather than on achieving success. And very often this knowledge that it would be nice to go back comes very late'*. Ultimately, we have also decided to code the games preservation as a call for VGI made by VGI_16, who advocated to treat the games *'as another mature cultural department. Let's get on with educating, analysing, and protecting them for future generations'*.

The second theme revealed within this dimension revolved around the product quality and **novelty in content** creation. Our informants suggested more focus on *'good narrative games'* (EVGIE_3) and creation of *'more story-based single-player games, because I think everyone is getting over those very popular network games and hero shooters lately, and the industry has*



kind of gone that way' (EVGIE_5). Lastly, the originality in games was also pointed out. The informant VGI_4 mentioned that *'It seems to me that among these newly emerging teams, the weakest point is such design knowledge, that is, what should be done in the game itself to make the game a game. I see too much duplicity or that the narrative itself is just the most important, so the so-called walking sims are created'*.

Recommendations for CCI

Both themes that emerged within this dimension focus on future improvements and do not concern past experiences. This approach yields positive suggestions and reveals two conceptually close themes: **evolving viewpoint** and **expanding consumer perception**.

While analysing the data, we have categorised three facets that form the **evolving viewpoint**. First, we call **progressiveness**, as within this code, our informants mentioned the changing form of culture-forming mission that is the core purpose of many cultural entities. One of our informants mentioned: *'to give a form of participation, and games are simply great for this, to make it live. So that it is not just such a passive reception, as we were used to in museums where there are showcases and things on the walls, instead - such live participation'* (CCI_1). However, the progressiveness reflected in new cultural forms is strongly rooted in the mental boundaries, as it requires courage and being *'not afraid to enter new territory'* (CCI_1) and intention in thinking ahead: *'I would strongly recommend education, not some kind of post-censorship'* (CCI_5). Second, we call it a **comprehensive perspective** where, besides the mindset, the intertwined initiatives are mentioned. Some of the suggestions outlined the need to perceive the cooperation as a complex partnership – *'What is missing here all the time is such unified cooperation from the other side, from the museums. Because up to now, museums and the cultural sector have been the market for the creative industry, which simply pressed them with different products and they were of different quality. And in my opinion, this cooperation would be much more fruitful if it was a two-way partnership'* (CCI_9) or as a comprehensive set of outcomes as mentioned by CCI_6 *'But when it comes to the openness of development teams, sometimes they're just more busy making that game, and not thinking about expanding that universum'*. The comprehensive approach is also perceived as a diversified system of cooperation possibilities outlined by our informant as *'either some common communication platforms or a conference that would bring all these elements together somewhere under the*



banner of creating culture' (CCI_5). Finally, within the evolving viewpoint theme, the suggestions towards taking the **initiative** were outlined. CCI_2 suggested that when it comes to enhancing cooperation, the willingness to share and trigger the trade-offs is crucial, as *'we need to give someone something first, without expecting someone to compensate us. If we hit fertile ground, we will simply find that this person is willing to cooperate, and it should be replenished with the ability to recognise'* and reveal the individual drawbacks described as *'a clear communication in determining what one does not know, yet would like to learn'*. (CCI_2).

The second theme distinguished within recommendations for CCI was coded as **expanding consumer perception**. It concerns the target audience and changes the one-directional way of communicating, where the audience passively receives the product, into a new, more active approach, seeking various inspirations, and going beyond the traditional view of imposing the audience with the final product. Our informant CCI_3 explained in detail: *'That's the clue, to understand what our audience wants and prepare for them a project that is in line with their preferences, but excellent in content, prepared by us. And this is the golden mean. This is probably my biggest recommendation. But in order to understand this, you simply have to talk to these people, and this is the greatest effort, because you have to get out in front of the crowd, and you have to get out of that legendary comfort zone. Because the offices, the ministries, the school, all the stakeholders today always come out of a very patrimonial, or whatever you want to call it, level that they know best'*.

Recommendations for CCI & EVGIE

The next dimension of the recommendations concerned the development of CCI and EVGIE. It was coded as a common code of **leveraging mutual understanding**, as it was grounded in tensions between the EVGIE and the other CCI. As outlined by the informant EVGIE_1, while reflecting on the impact of VGI, there is *'disruption that it brings to the other sectors, and of course, this is not always welcomed by other sectors'*. Thus, those tensions are mainly noticed as a clash between totally different scopes of activities, language, communication, perception, and knowledge about the industrial characteristics. It has been very deeply discussed by EVGIE_15, who expressed that *'Creating all the audio under gamedev is not just recording a piece, but also editing it properly. It's also preferable to immediately start an implementation on the engine, where most, so to speak, classical venues, like the opera house or the National*



Music Forum, don't have a clue about it. They are able to create a super concert, and they are able to record the requested music. On the other hand, if we give them gamedev guidelines and ask them to implement them properly in the engine, they will completely not know what to do. This is a completely different industry'.

Recommendations for Policymakers

The dimension's recommendations for policymakers covered seven distinctive themes: institutional support, building awareness, networking enhancement, changing regulations, a progressive and future-oriented mindset, and taking care of game preservation.

In fact, the **institutional support** was the code derived from either CCI or EVGIE representatives, which confirms that the comprehensive, tailored help remains an actual need, even though the support system has evolved during the last years and several initiatives have been introduced by supporting institutions. Nevertheless, our CCI informants paid attention to *the coherence in policies*, in both levels – international (with the European regulations) and national (with internal policies), but as explained by informant CCI_1 *'The point is not in having everything as universal, but that not excluding each other'*. Another issue raised by our informants concerned the relevance of the policies and the inefficient speed of modifications as outlined by informant CCI_10: *'we have a lot of archaisms in the legislation, which somewhere inhibits a certain development and cooperation between different entities. Take all these patent laws, copyright laws, which are not aligned to today's times completely and absolutely, everywhere in the world, because everything is developing too fast, and legislation is always behind'*. Moreover, the expectations concern the improvements of existing models and mechanisms, as the incoherent instruments may ultimately lead to inefficiency of spending: *'officials will never come up with a model that is perfect. The important thing is that the money flows to the industry. I even think that sometimes the construction is without sense, it should be much simpler. That there is indeed a lot of bureaucracy, restrictions, and the creation of some meaningless indicators'* (CCI_11).

Another, thematically close code was called *simplifying procedures*. Indeed, almost every informant mentioned the difficulty level and unnecessary bureaucratic burden in various contexts. Some of them admitted that they do not even consider applying for funding because of such constraints. Informant CCI_7 called it very directly: *'The bureaucracy is just cruel, and it seems to me that this can also partially deter'*. As outlined by informant CCI_3 *'But if the Public*



Procurement Law were to be changed at all, it is such an idyll and utopia, so that the creative industry would like to participate in such tenders, because these contracts are not lucrative for them, they are not interesting for them, they are difficult for them. Because there is more risk for them in these contracts, contractual penalties, there is no flexibility if we want to go slightly in the other direction'. Informant CCI_10 also explained a call for greater autonomy and less rigidity in mechanisms 'It would be nice if people or the institutions that have influence, have stopped making people happy and helping by force. It would be best to leave such, for example, market freedom here as much as possible. This would certainly affect the opportunities for development, by not saying that something cannot be done. Creating some artificial restrictions and regulations that weren't there a while ago, yet new ones pop up every now and then...'

Some of our informants mentioned the idea of separating the institutions for gamedev and creating a distinct institution that would work *'similarly to the Institute of Film Art (CCI_11) and could be called the 'Polish Institute of the Video Games Arts' (CCI_8).'*

Moreover, the role of *monitoring the game controversies* was discussed as this field remains unregulated and the protection mechanisms are limited, as *'so far, for example, we have dealt with verbal moderation, with image moderation. But what about kinetic moderation? The movements that are vulgar in nature are translated directly into the game space'* (CCI_9). More advanced solutions are needed, as mentioned by informant CCI_11, who claimed that *'games are becoming more and more photorealistic, that games are very advanced, in terms of visual and also scenario sphere. So, we have, of course, obviously the criminal activities, some games somewhere inciting suicide, etc. (...). It is this monitoring of the market that is badly needed. And I don't think seriously anyone is really doing it'*.

Within the **institutional support** theme, our informants from EVGIE mentioned several other categories: lack of information, R&D funding, local and global funding, forms of support adjusted to the industry expectations, and support for start-ups and small businesses. As already mentioned, some recommendations were similar to or close to those that were developed by CCI representatives, focused on *local and global funding* as *'video games are a global product, and let's keep in mind that we can't talk about producing a video game only for the Polish market'* (CCI_12), but the recommendations were also more *R&D oriented*, aiming to *'push the technologies forward'* (CCI_1). The **lack of information** was recalled in various



contexts, and the interesting viewpoint was delivered by EVGIE_1: *'First of all, being aware of the different private funding opportunities across Europe. There are some initiatives now, like the EIT Culture & Creativity, which is now creating an investor club, and so on. But there is a certain mismatch between people looking for the next round of funding and the available funding resources, and that's something that the trade associations, of course, are trying to match'*. The missing information was not only described using the financial standpoint, but also as the lack of market knowledge or other managerial skills, as *'maybe sometimes not necessarily the sum of money itself as support, but more precisely, even consulting support in some areas. How to support this product that has already been chosen. So that this sales awareness is increased in these smaller entities, where this is certainly lacking. Because it's like you say, probably the smaller the company, the more such obvious things are simply missing'* (EVGIE_15).

Nevertheless, the type of support, whether it is financial, technological, consulting, or in any other form, our informants consequently emphasised that the forms of support need to be *adjusted to the industry expectations*. First of all, more customisation is needed, as outlined by the informant EVGIE_8. *These programs should be different for small, emerging, medium, and large enterprises. If there were funding programs, small creators, very young, who just want to establish studios, have completely different needs'*. Such customisation is postulated not only regarding the type of contest, but also regarding the level of formalities, as *'especially when you are a start-up, at this point we can't really get it, because somewhere some formality is undone'* (EVGIE_9). Informant VGI_13 summarised that the missing point is *'if there was no such micro-management at the national level'*.

Finally, the support designed for start-ups and greater openness for the industry (EVGIE_13) were mentioned. Such openness is manifested as support for an enduring structure of the industry, with dozens of independent players able to compete. As explained by EVGIE_13: *'A whole bunch of start-ups or Indie Games or small studios that don't have enough resources to compete.... And they don't necessarily want to be those companies that will be very easy to acquire, that will be easy to take over. They would very much like to continue to create independently and compete with larger studios, but they do not have enough resources, and here it seems to me that some support, some dedicated help for such start-ups, or smaller companies from the state would probably be advised'*. The need to focus on start-ups is also argued by the informant EVGIE_15, who claimed that: *'there is no point in supporting the larger*



developers, because if they are big, they should manage’ but also an interesting fear revealed by EVGI_9 who mentioned ‘because of all these set regulations and all these protection systems, some investors don’t want to invest in start-ups that have taken EU funds because there is a risk that something was done wrong and in five years someone will come along and that start-up will be dead’.

Closely conceptually linked to the last code is the second theme, which we called **building awareness**. However, most of the activities mentioned by our informants are rooted in evolving education. It is perceived from diversified standpoints: inclusiveness of younger generations, tailored as *‘educational programs, internship programs, when it comes to younger workers.’* (CCI_9) or expert knowledge usage: *‘to benefit from the experience of people who actually work on these games (...). Because, sure, game developers may not necessarily have experience from the point of view of such decision-making on a national scale. But their knowledge is an invaluable source of information on how to make such decisions. So, simply consulting people who are specialists in a particular industry, in this case, the game industry at least, should be a must’* (CCI_4). Such expert knowledge could be diversified and come from various representatives of CCI, as described by the informant CCI_7: *‘there would be a need for representatives of these different segments and this creative industry, (...) to create an appropriate council that would have competence and also adequate knowledge of this creative industry on many levels. It would be (...) not even so much a supervisory role, (...) but to raise awareness, (...), to show in which direction the funds should be moved (...). Because culture is an investment, it’s not economics, that from year to year we will get a return on what we invested. This is, at least, in my opinion, a minimum of 10 years’.* Another pillar in this theme concerned the support for technological education by *‘familiarisation of people, young people, with just technical elements. There is basically no such place to show young people how current modern technologies work’* (CCI_6), which would mean *‘a real explanation of this kind of developmental and educational role of games’* (CCI_11). However, the education of special skills *‘is already happening a bit. Universities are offering the programmes where someone can be educated directly in professions related to game dev’* (CCI_8), but it still should be plotted within a broader system as explained by the informant CCI_9, who mentioned that *‘In addition to good educational programs, because I think we still lack them... When it comes to formal education in games, we have a lot of institutes that deal with game studies or ludology, institutes that deal with the graphics part of games, applied computer science that are trying to combine this abstract world, programming, with the modern form of games. And we have only a few forms of joint contact’.*





Therefore, the final theme within this dimension was called the **networking enhancement** and revolved around the ideas of creativity incubators (CCI_6) and the missing perspective of joint contact points between the industries (CCI_5). However, informant CCI_1 mentioned that the networking is done voluntarily, and enhancement would be done by applying the perspective that is *'more supportive and in general noticing activities like ours, and to support such cooperations, because I don't see it at all being noticed by policymakers'*.

The issue of extensive, inefficient, and hindering regulations was the basis of another theme that emerged in the data and is called **changing regulations**. The catalogue of suggestions was very broad and covered ethical standards and regulations, legislative and tax stability, lack of clarity in the regulations, legal issues – recommendations, definition clarity in Polish & European games, classification of artist profession and environmental protection, and sustainability. We discuss here the most interesting suggestions. One of them is introducing more social policies against undesirable actions. Informant EVGIE_1 stressed *'Social cohesion, of course, we need better tools to address a toxic behaviour in the online communities, because that's one of the main challenges of the European societies at the moment that we have so many toxic communities spreading hate and lies on this information'*. Another was the postulation of more *'stability of legislation, stability of the tax system. The last two years have been quite a rollercoaster, and from our point of view, a great deal of resources have gone into making sure that we know how much taxes we have to pay'* (EVGIE_15) supplemented by a greater simplicity so that *'the same one simple rule applies to everyone from the European Union area, and no additional documents are required for this, because after all, it is the case that I pay anyway, that we pay the tax either locally or outside, since we have a VAT number'* (EVGIE_4). On the other hand, along with complaining about the extensive bureaucratic burden, our informants mentioned that the controlling mechanism need more authentications as they observe *'the lack of subsequent verification of how this money was used leads precisely to a far-reaching pathology that there are companies and institutions on the market and that simply live from grant to grant, because it is simply more convenient for them'* (EVGIE_12).

Another emerging suggestion was more legally oriented. Our informant pointed out the need to provide legal education and support regarding the IP issue. As outlined by EVGIE_13, *'development of intellectual rights protection, but also awareness of how such IP should be protected and how it can be developed, well, this is also an extremely important part of both the*



video games industry itself and all the education around'. Interestingly, even though the market for games is global, one of our informants postulated that the policymakers should establish the boundaries of definitions regarding the national (Polish) or international game (EVGI_16) or how to define the artistic profession in game dev (EVGIE_16).

Finally, among the changing regulations, our informants pointed out the environmental and sustainability issues and suggested that policymakers run the legislations focused on *'how the games industry can contribute to saving the planet from climate change and what we need'* (EVGIE_1) even though there are some positive practices in the industry as *'environmental protection is also very important, and here the industry is doing a lot in this regard, for example, this transition from these physical media to full digital availability'* (EVGIE_13), but also the need to *'think more also about, for example, issues related to the right to repair and to make these devices work a little longer plus, again, consumer protection when it comes to purchasing digital products'* (EVGIE_13).

The legislative and regulatory support needs to be supplemented by a **progressive and future-oriented mindset**, which is our next theme within this dimension, as *'legislation even at the European level has not kept up with the changes that are taking place in the industry and, above all, those aggressive financing models for which the limit of pure gambling is exceeded'* (EVGIE_12). A commonly discussed issue is the need to better regulate the AI usage, mostly mentioned as really urgent and making the policies needed *'as for yesterday'* (EVGIE_2). Informant EVGIE_13 also added that *'legislative processes are too slow in relation to technological development and should take place a little faster and with much greater participation in general of the entire IT sector. I mean, for example, regulations related to artificial intelligence because, let's be honest, we know that it has always been used by the video games industry and is and will be used to a much greater extent, while there are no clear guidelines related to the training of this artificial intelligence, feeding the data. And there is also no clear information on how these artificial intelligence creations can be used, where are the boundaries of copyright? (...) all the time it seems to be firstly not very precise, and secondly very poorly communicated'*. Within this mindset, there is a call for promoting the evolving perception of games toward positive connotations. It was called by EVGIE_10 *'a positive lobbying (...) because there is no such thing at all. About these negatives, you hear a lot, but after all, there are a lot of games that (...) develop creativity more, and we should also talk about it'*, also suggested in the form



of ‘social advertising’ (EVGIE_6). Balancing the needs of different groups was also recalled and explained as ‘balancing. On the one hand, we, as policymakers, have our priorities, (...) in general that are part of the cultural policy of the country. But on the other hand, it is necessary to remember that this has to be sold’ (EVGIE_3) within a limited timeframe as ‘consumption of culture has a very limited time dimension’ (EVGIE_4). As addressing all those postulates is complex, the need for coordinated and integrated policies emerged within our codes. One of our informants claimed that ‘it would be useful to have some kind of coordinator who would gather under his wing all the activities, institutions or entities that are involved in video games’ (EVGIE_6), and also able to ‘communicate this well just from one such communication hub’ (EVGIE_8).

The final issue that was raised within this set of recommendations concerned **taking care of games’ preservation** as ‘developers need to archive things related to the development of their games and either keep them internally or contact cultural institutions that will be trusted to preserve them for future generations’ (EVGIE_16), but as for today, this is not addressed at all. Therefore, there is a need for policymakers to ‘start collecting from the creators, (...) in a central European repository and a central Polish one’ to form ‘a digital code repository so that these games can be used or to have them so that they do not die’ (EVGIE_16). Research indicates that since the emergence of the video game industry, up to 87% of such software may have been lost (see: Palmak & Piłat, 2023). One institution dedicated to archiving video and computer games, as well as materials produced during their development and publication, is the Video Game History Foundation, based in the USA.

5.4 Conclusions

Our qualitative findings empirically confirm and provide evidence that maximising the value of the EVGIE within a broader social context, as addressed by the overarching goals of the **GAMEHEARTS** project, can be achieved through stronger, broader, and better-supported cross-industry cooperation. This applies both within the game industry ecosystem and in collaboration with other CCI. Moreover, we find that such cooperation can contribute to the development of more inclusive and culturally diverse creative products, as cultural partners may utilise games as an effective medium for expanding and diversifying their target audiences.





Additionally, our research positively verifies assumptions about the significant and development-oriented roles of the game industry across economic, technological, social, and cultural dimensions, underscoring the need for continued support for this sector. Particularly noteworthy among the various positive impacts, especially regarding their relevance for other CCI, society, and the wider economy, are the following:

- the tangible advancement of technologies through licensing and the transfer of game-industry innovations to other creative industries;
- job opportunities for professions such as artists and sculptors within VGI - not merely offering employment, but also often fostering greater creative growth and increased international visibility;
- the use of games as educational tools - not only for direct and targeted learning but also for the promotion and dissemination (both direct and indirect) of national culture and heritage as well as social norms;
- the formation of inclusive video games communities that bring together individuals across age groups and social strata, including 'silver gamers', for whom games can offer meaningful social connection and a sense of purpose.

In light of the growing societal concern around the erosion of social ties, particularly among older populations (Lyu et al., 2024), these social effects deserve further attention. Indeed, according to the results of the SW Research report (2024), analysing players' behaviour and social needs, nearly half of those surveyed (45%) enjoy feeling part of a larger community and value online contacts. This phenomenon can also be attributed to silver gaming, which is a manifestation of the socio-cultural popularisation of video games among seniors (Gałuszka, 2023)²⁵.

Contributions in terms of achieved goals

Notably, the themes that we identified in our data allowed us to better reflect on several areas targeted by the detailed objectives set out for the **GAMEHEARTS** project.

²⁵ In the literature it is acknowledged that silver games are those above 60 (e.g. Cogin, 2011; Dries et al., 2008; Meriac et al., 2010; Gałuszka, 2023).





First, we were able to deepen the understanding of the current and potential role of EVGIE, **which corresponds to the first detailed goal** of the **GAMEHEARTS** project²⁶. In particular, we have positively verified and developed several roles and contributions of VGI, which, to some extent, have been identified under our in-depth desk research (see Section 3 as well as Kościewicz et al., 2025). Those contributions and impacts are reflected in economic (qualitative and quantitative), social (psychological and educational), technological (innovation enhancement), and cultural (forming and perception) roles in the development of the economy and society. However, while interpreting our data, we have understood that the main hurdle that negatively impacts the possibility to take the advantage of the roles we recognized fully are the mindset and perception of games as '*low culture*' (less prestigious), and even though it is pretty obvious that games are relevant, have huge positive impacts, and may be used as a transmitter of values, attitudes or practices, still their assessment negatively impacts the possibility to use their potential. We call it using the metaphor of **PROFANUM**. It is reflected by perceiving games as commercial products, not artistic ones, and not discussing games as works of art, which makes them not generally considered a part of cultural heritage. One of the very significant reflections is that there is no preservation policy, either nationally or internationally, addressed by policymakers. Even though we could reveal some processes of changing perceptions in our interviews, we feel that they are neither changing quickly nor significantly. Although the shift in how games are perceived may be a subject of generational change, it still has to be better stimulated and prioritised in the policies, as such conflicting perceptions have long-term and broad consequences, and regarding the core goal of our project - not only hampering the possibility of potential cooperation but also impacting mutual interactions.

The conducted interviews also contribute to the second detailed goal of the **GAMEHEARTS** project²⁷, as our informants recognised several categories of drawbacks in existing regulations and policies and revealed the inconsistencies that hinder the opportunities of potential collaboration, as well as pose some risks. Most of them are within the legal-related codes and are concerned with blurred regulation areas and sometimes even conflicting policies between national and international regulations. The regulatory framework appears fragmented, but complicated at the same time, posing even certain risks that prevent the decisions to use the

26 Namely gaining an understanding of the current and potential role of the EVGIE in contributing to economic growth, job creation, physical and mental wellbeing, and social and cultural cohesion.

27 Namely, to critically consider existing EU, other European, and wider social policies, and explore the opportunities, risks, and social and cultural influence of the EVGIE).





available support. One of the arguments that appeared in our interviews was the perspective of private investors who are less keen to get involved in the cooperation or providing funding for entities that are somehow beneficiaries of European support, which confirms the growing need to adjust the regulations and change the perception of not necessarily supportive policies. Our findings also contribute to achieving that project's goal by outlining some inefficiencies in the existing perspective of support. Those inefficiencies concern two areas. First, the missed expectations were the theme that emerged as our informants outlined limited adjustments to the needs of beneficiaries (regarding their size or central area of activity). Second, the inefficiencies were mentioned in the context of the completed projects where the evaluation, dissemination, archiving, or further endorsement are lacking or remain limited.

Next, this stage of our research investigation contributes to the fifth detailed objective of the project²⁸ by providing several recommendations that could be addressed in future projects and more broadly, within the policies and perspectives that are employed while deciding, particularly about the streams of financing the initiatives and research related to EVGIE and VGD to the greatest extent. We present them briefly in Section 8 of this document.

Besides achieving the project's main goals, we also fulfil two specific objectives of WP3. Firstly, we refer to the identification and verification of value transfer and value co-creation mechanisms by EVGIE and CCI in the context of cultural audiences and the increase of (multidimensionally) inclusivity (O3.1).

Our qualitative analysis revealed one fascinating **insight regarding the inclusivity** theme. Although it is widely acknowledged that inclusiveness plays a vital role in changing the characteristics of the EVGIE industry itself and in games in particular, it may be perceived as hindering in some respects. One of the reflections that could be derived from our data is that the perception of inclusiveness is broadly diversified. It goes far beyond the established view concerning the disability to a more expanded standpoint where several facets are concerned (i.e., gender, age, nationality, cultural heritage). But, at the same time, we could recognise some negative impressions of excessive and non-natural imposing inclusiveness in games, mainly due to formal pressures, but also more informal tensions. In fact, some artificial and insincere entailments may become a burden and result in negative impressions and even

28 Namely to develop recommendations to the EU and broader European policy to support sustained and ethical innovation and growth in the EVGIE).



exhaustion of players and stakeholders (including potential partners). Thus, instead of promoting diversity, excessive inclusiveness may detract from a willingness to cooperate and even ultimately impact the individual evaluations, resulting in boycotting games or abandoning common initiatives. Finally, artificial inclusiveness was also mentioned as a must-have added to receiving financing or gaining credit; therefore, compared to the greenwashing phenomenon, we call it **DIVERSITY WASHING**.

Secondly, IDIs contribute to accomplishing the goal, focusing on developing strategic recommendations for VGD (O3.3) by gathering a set of recommendations for EVGIE that were developed from two standpoints – EVGIE itself and CCI in particular. These recommendations, presented in detail in section 5.3.3, are synthetically incorporated into section 8, focusing on recommendations.

Emerging contributions

Notably, two issues emerged in our IDI analysis, which we find essential to mention within the concluding remarks.

First, our interviews indicate that mechanisms of value co-creation are not only not described (as we mentioned in Kościewicz et al., 2025), but may also not be used in practice, or at least those **mechanisms are not considered** while considering possibilities of cross-industry cooperation.

Second, a certain emphasis should also be placed on the issue related to **game addiction**. According to the informants, this is a secondary and little-publicised topic, which should be part of basic education, as only in this way can the threat be avoided. To conclude, it is worth quoting one of the informants: *‘Video game addiction has been officially classified as a mental disorder by the WHO. However, in Poland (...) the problem is completely (...) ignored, overlooked (...) and such a situation is not good and (...) leads to pathology. (...) It does not help sector representatives (...) public administration to understand the needs well, because (...) the message that (...) reaches them may be distorted’* (EVGIE_12). We believe that the financial crisis in the video games industry and the focus on profits may foster a greater disregard for gaming addiction and the problem of children’s access to inappropriate content, and thus, this issue needs to be addressed by all actors of EVGIE.





6. QUALITATIVE DTTHONS²⁹

DTthon is an intensive, participatory design event based on co-design and co-creation principles. Similar to a hackathon (a programming marathon), it is based on the Human-Centred Design approach and the Design Thinking methodology.

Under the **GAMEHEARTS** project, the DTthons introduced an innovative approach to exploratory-verification research using both Design Thinking and Participatory Action Research approaches. In total, four GH DTthons took place between February and April 2025 and included three national editions (Wroclaw, Warsaw, Katowice) and one international edition (Wroclaw).

6.1 Aims

The GH DTthons addressed the following **research problem**:

How can the European Video Game Industry Ecosystem transfer value (such as transferring and disseminating game-related solutions and technologies) and co-create it (initiate and engage in co-innovation processes) with other Cultural and Creative Industries, including museums, live music performances and sports?

The key objectives set for GH DTthons were as follows:

1. Identifying how the EVGIE and the CCI can work together more effectively to create added value for each sector. This includes understanding existing practices and mutual relationships (analysing current affairs) and identifying ways to shape future cooperation (designing a model path).
2. Developing strategic recommendations and good practices for future cooperation between the EVGIE and CCI. This includes recommendations for entities undertaking such cooperation (cooperators) and institutions formulating legal regulations at the national and European levels (policymakers), to ensure sustainable and ethical growth of both VGI and CCI.

²⁹ This section provides a concise overview of the results obtained from GH DTthons. The complete results, along with interpretation, conclusions, and recommendations, are presented in D3.2 – DTthons summary (Wrona et al., 2025). The report is available in open access in the ZENODO repository (direct access here: <https://zenodo.org/records/16812906>).





6.2 Methodology

The **GAMEHEARTS** DTthons were designed as high-intensity, co-creative research events grounded in a hybrid methodology combining **Design Thinking** and **Participatory Action Research**. This integration enabled the project to address complex, multi-stakeholder challenges through iterative, evidence-informed processes involving direct engagement with practitioners from the EVGIE and the wider CCI.

Framework and applied tools

The DTthon format was structured around the **Double Diamond** design model developed by the UK Design Council (The Double Diamond, 2025). This model distinguishes four phases: discovering user needs, defining core challenges, developing potential solutions, and delivering validated outputs. All DTthon activities were embedded in this framework, with each team moving through the whole cycle during a 3-day intensive format.

To enhance thematic relevance, the design process was aligned with the project's proprietary **4E model of cross-industry cooperation**, consisting of four stages:

- **Establishment**: the initiation and formation of a partnership.
- **Execution**: the operational implementation of cooperation.
- **Ending**: the structured conclusion of a joint activity.
- **Endorsement**: activities that precede or follow formal cooperation, such as awareness-raising, knowledge-sharing, capacity-building, and peer exchange.

This process-oriented model served as both an analytical tool and a scaffold for developing cross-sectoral cooperation concepts during the DTthons.

Each DTthon event addressed a central **research challenge**:

How can the European Video Game Industry Ecosystem (EVGIE) cooperate more effectively with the Cultural and Creative Industries (CCI) to benefit all involved?

Participants worked in interdisciplinary project teams, typically comprising 5–7 members. Each team was guided by a professional facilitator from the DT HUB Centre and advanced through the following defined phases of the Design Thinking process:





1. **Initiation** – team integration, problem framing, stakeholder mapping, and clarification of objectives;
2. **Empathisation** – data collection via structured interviews, interpretation using the Critical Incidents Technique (CIT), and synthesis of user insights;
3. **Problem Definition** – reframing challenges from the user’s perspective, identifying root causes, and setting design constraints;
4. **Ideation** – generating, selecting, and evaluating potential solutions through creative facilitation methods;
5. **Prototyping & Testing** – developing cooperation path prototypes, obtaining peer feedback, and iterating based on critique;
6. **Implementation** – preparing final recommendations and visual materials for internal presentation and external dissemination.

A set of purpose-built tools and templates supported the process.

- **Trends and Benchmark Cards** – used to identify socio-cultural, economic, technological, and regulatory trends, as well as notable examples of VGIE–CCI cooperation;
- **Stakeholder Maps** – employed to identify and categorise key actors across both sectors;
- **Interview Cards** – structured to apply CIT and collect significant user experiences, both positive and negative;
- **User Profile Cards** – enabling teams to define and represent various EVGIE and CCI stakeholder archetypes;
- **Cooperation Journey Maps** (CJMs) – used to model cooperation processes across the 4E stages;
- **Feedback Matrices** – structured instruments to collect and organise evaluative input on emerging solutions.

These materials helped ensure methodological consistency and enabled comparison across teams and events.



Events and Participants Overview

Each DTthon lasted **three consecutive days** and followed a fixed schedule:

- **Day 1:** Stakeholder interviews, ecosystem analysis, and identification of trends and challenges;
- **Day 2:** Mapping existing cooperation processes, co-designing ideal collaboration paths, and preparing initial prototypes;
- **Day 3:** Refinement of proposals, development of recommendations, and group presentations (including hybrid presentation during the international edition).

Participants worked in three teams per DTthon. Team outputs were documented and presented on-site, forming the empirical basis for facilitator reports.

In total, **72 participants** took part in the DTthon series. Participant composition included:

- 20 video game developers,
- 18 from broader EVGIE,
- 19 from the CCI,
- 4 from sports organisations,
- 8 from academia (i.e., scholars investigating VGI),
- 3 from policy-making or lobbying bodies.

Each team was formed to ensure sectoral diversity, enabling participants to explore cooperation from different perspectives.

#1 Wroclaw Edition (February 21–23, 2025)

This edition was organised at the Wroclaw University of Economics and Business and included 17 participants. Team compositions reflected a mix of VGD, EVGIE, and CCI representatives.





#2 Warsaw Edition (March 7–9, 2025)

Hosted at the Polish Creative Industries Development Center with support from the Polish Ministry of Culture and National Heritage. Included 20 participants across VGD, EVGIE, CCI, sport, academia, and policy roles.

#3 Katowice Edition (March 21–23, 2025)

Organised with the City of Katowice and Municipal Business Incubator Rawa.Ink. 19 participants were brought together, including publishing, architecture, cultural heritage, and music professionals.

#4 International Edition (April 9–11, 2025)

Held again at WUEB, the international event included 16 participants from seven countries (the UK, Finland, Germany, the Netherlands, Sweden, Austria, and Poland). Participants represented organisations such as City Football Group, Imperial War Museums, London Symphony Orchestra, Universität Wien, University of Salford, Breda University of Applied Sciences, and Tampere University.

Each edition concluded with internal feedback collection. Participants completed standardised evaluation forms, and facilitators compiled 12 detailed reports on team performance and process outcomes. These documents provided the primary source material for the consolidated analysis.

6.3 Key findings

Based on real-time team dynamics, lived experiences, and stakeholders' engagement, the findings reveal current issues and future opportunities for building stronger, more intentional cross-industry partnerships.





Subsection 6.3.1 analyses the current cooperation landscape, highlighting structural discrepancies, misaligned work cultures, and systemic discrepancies across the four key phases of cooperation: Establishment, Execution, Ending, and Endorsement. A tension map illustrates the differences in core values, practices, and rhythms between EVGIE and CCI stakeholders.

Subsection 6.3.2 looks to the future by outlining co-designed proposals for how cross-sector cooperation could be redesigned to be more equitable, sustainable, and impactful. It highlights key success factors and enabling conditions supporting more resilient cooperation across sectors.

Subsection 6.3.3 distils five strategic insights, offering actionable policy, research, and ecosystem development directions. These include the need for a shared language, meaningful matchmaking, long-term continuity, human facilitation, and systemic infrastructure.

6.3.1 Current landscape of cross-industry cooperation

Each DTthon was designed not to simulate ideal cooperation, but to expose actual frictions, behavioural patterns, and sectoral mismatches. The accompanying diagram serves as a diagnostic map (Figure 32), capturing the lived realities of cooperation across four distinct phases: Establishment, Execution, Ending, and Endorsement (adopted as a result of our desk research). It tells us not what should happen but what happens when EVGIE and CCI actors attempt to work together.



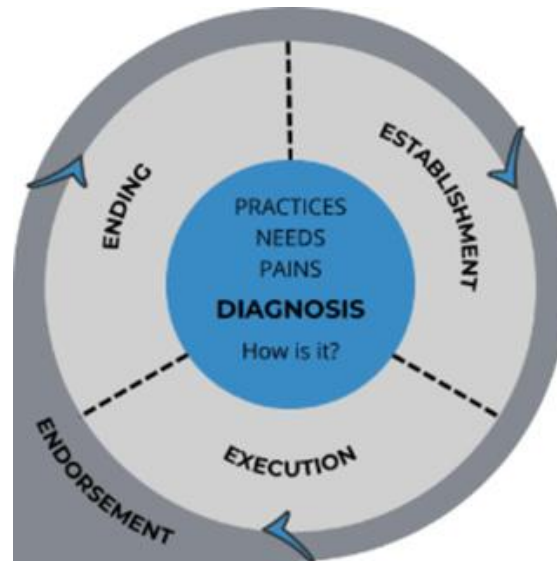


Figure 32. Four stages of cross-industry cooperation – diagnosis: how is it?

The DTthon implementation explicitly emphasised process over output, reflection over simulation – teams engaged in direct interviews, stakeholder mapping, and co-design exercises structured around the 4E cooperation model. The point was to observe, record, and interpret – not polish or optimise. As a result, the diagnostic insights reflect the authentic rhythm and friction of EVGIE–CCI cooperation as experienced by participants, not as theorised in external models.

Figure 32 guides this section and reflects the empirical anatomy of cooperation, not its aspirational ideal. It captures how cooperation unfolds: the tacit dynamics, misalignments, and experiential insights revealed through the lived practices of 72 participants, distributed across four workshops and twelve interdisciplinary teams. Below, each phase of the 4E model is unpacked through three lenses: observed practices, emergent needs, and experienced pains. The diagnosis is not hypothetical. It is grounded in field-generated data during DTthons – interviews, stakeholder mappings, cooperation path reconstructions, and team reflections – interpreted to inform a deeper understanding of how EVGIE–CCI cooperation currently operates.



Diagnosis of cross-industry cooperation

The analysis below follows the 4E cooperation model and is structured around three analytical lenses: practices, needs, and pains.

1. Establishment – How does cooperation begin?

In this initial phase, cross-sector cooperation usually emerges reactively rather than strategically. Initiated often by external stimuli such as funding calls or personal invitations, partnerships tend to arise due to circumstantial alignment rather than systemic readiness.

Practices

Cooperation typically forms around short-term goals – responding to grant calls, building project consortia to meet formal criteria, or joining initiatives led by familiar partners. Game developers frequently act as initiators, drafting project concepts before inviting cultural stakeholders. Consequently, CCI actors are often brought into ongoing processes, limiting their ability to co-define project assumptions. Structured onboarding, shared terminology, or joint expectation frameworks were largely absent.

Needs

Participants called for early-phase infrastructure to support mutual understanding. Specific suggestions included onboarding tools such as checklists, introductory workshops, and exploratory formats like residencies or co-design sprints. These formats would allow actors from different industries to clarify roles, expectations, and limitations before entering subsequent phases.

Pains

The asymmetry of the starting conditions generated recurrent frustration. Cultural institutions reported being overwhelmed by the tempo and presumed fluency of the digital side. Entering systems already in motion created a sense of disempowerment. Participants noted a recurring experience of being integrated too late, leading to misunderstandings that later became operational conflicts.





II. Execution – How is cooperation operationalised?

This is the phase where divergent institutional logics, tools, and work rhythms collide most visibly. What functions in one sector often disrupt operations in the other.

Practices

Workflows diverged sharply. Game developers employ methods: iterative prototyping, rapid feedback loops, and flexible design cycles. In contrast, cultural organisations operated on long-term planning models shaped by procedural approval chains, compliance norms, and institutional accountability. Collaboration tools also varied – some teams used digital platforms (Asana, Notion, Miro), while others relied on basic communication tools like email and Word documents. There was little cross-team planning, and project timelines were seldom visualised collectively. Intermediaries, when present, tried to coordinate and mediate but were not always empowered to impose standardise collaboration logic. Decision-making structures were inconsistent, emerging informally or defaulting to whoever initiated the cooperation.

Needs

Participants strongly expressed the need for “bridging roles”: individuals fluent in digital and cultural contexts who could actively guide the cooperation process. Additional requirements included shared workflow tools, time management templates tailored to hybrid realities, and regular check-ins to recalibrate assumptions. Without these, considerable energy was spent managing the interface, rather than advancing project goals.

Pains

Both sides experienced pressure. Cultural professionals reported compromising standards to meet the accelerated pace. Developers, in turn, felt hindered by procedural rigidity. Conflicts over ownership, revision control, and decision authority surfaced in several teams. For projects in which cooperation brokers were engaged, it was noted that intermediaries frequently had to navigate conflicting expectations in the absence of sufficient support and established precedents.



III. Ending – How do projects conclude?

This phase was identified as the least recognised or even most neglected. While establishment and execution received some attention, closure was often procedural, abrupt, and incomplete.

Practices

DTthons show that so far, the endings were quite minimal. A report might be filed, a presentation delivered, or – if applicable – a prototype demonstrated. Afterwards, teams disbanded. Structured debriefings, post-project evaluations, or lessons-learned sessions were almost absent. In many cases, participants expressed uncertainty about what became of their output or whether it would be reused at all.

Needs

During DTthons there was a strong call for formal closure mechanisms. Suggestions included retrospective workshops, shared reflection formats, internal feedback loops, and documented post-mortem analyses. Equally important was clarity about continuity: ownership of outputs generated under the joint project, conditions for reuse, and access to documentation. Teams saw value in shared digital repositories to preserve outcomes beyond the workshop setting.

Pains

Incomplete closure creates both emotional and organisational residue. Participants invest energy and expertise into cooperation processes, only to be left with a sense of unresolved absence. Lack of feedback, visibility, and continuity discourages future engagement and hinders institutional learning.





IV. Endorsement – How is cooperation scaled or institutionalised?

Endorsement is the point at which good practice becomes visible, shareable, and repeatable. Unfortunately, few collaborations reached this phase with impact.

Practices

Dissemination efforts were mainly informal. Outputs were shared via personal channels – conference talks, social media, or internal reporting – but rarely reached broader audiences. There were no dedicated platforms or mechanisms for institutionalising successful formats. Evaluation, where it existed, was bureaucratic rather than formative.

Needs

Participants identified the need for curated platforms, validated casebooks, and accessible models that could make promising practices visible across sectors. There was also demand for public recognition – certification schemes, awards, and quality labels. For example, funders were encouraged to be more proactive in scaling by supporting post-project events, peer forums, or follow-up phases.

Pains

The absence of endorsement mechanisms led to fragmentation. Each cooperation effort started from scratch. Insights were lost. Progress remained localised. Practitioners lacked validated models to emulate, and policymakers had little evidence to guide decisions.

Summing up, the 4E model – Establishment, Execution, Ending, Endorsement – captures the empirical anatomy of cross-sector cooperation. The DTthons revealed that a lack of intent does not hamper cooperation between the EVGIE and CCI, but by the absence of structure. Without support at each phase – entry, operation, closure, and scaling – even the most inspired partnerships remain fragile, short-lived, and invisible.



Map of tensions: EVGIE – CCI

To foster meaningful collaboration between the EVGIE and the broader CCI, it is crucial to **recognise and comprehend the fundamental distinctions that define how these sectors function**. These differences manifest as distinct professional approaches, motivations, and communication styles, which can hinder mutual understanding. To support a more inclusive and effective cooperation model, the following section introduces a ‘tension map’ – a visual tool designed to identify typical areas and scopes of divergence in perspective.

Figure 33 below presents this map, outlining six critical areas of difference between EVGIE and CCI. Each axis highlights the extreme contrasting working styles, values, and practices typically characterising the two sectors. By clarifying these tensions, the map helps expose potential sources of misunderstanding and establishes a basis for improving collaboration. Looking at the empirical material as a whole, including discussions held in the working groups, it should be emphasised that the tension map should be seen as a set of six continua. The elements identified on the left and on the right represent extreme cases, but between them lies a broad spectrum of possible solutions, features, behaviours, and characteristics of actors engaging in cross-sector cooperation.

This means the map is more complex than it might initially appear: along each axis, partners from both EVGIE and CCI can occupy different positions, closer to one side or the other. A purely modelled view is not necessarily accurate, where EVGIE partners are associated with the left-hand extremes and CCI partners with the right-hand extremes.

In other words, the tension map should not be read as six dichotomies limited to values at the two poles, as these extremes merely illustrate the most typical images of EVGIE and CCI actors engaged in cross-industry cooperation that emerged during the DTthons.

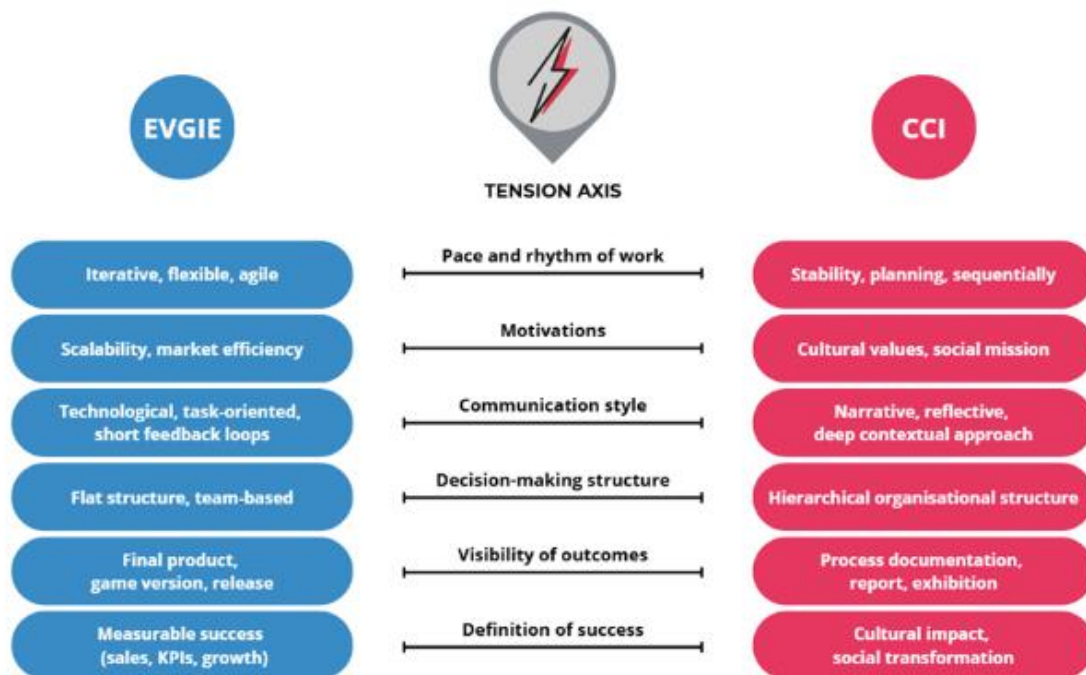


Figure 33. Tension map between EVGIE and CCI

The first axis relates to the **pace and rhythm of work**. According to DTthon participants, the EVGIE operates within a fast-paced cycle of sprints, updates, and testing. It works quickly and flexibly, constantly refining and optimising its products before releasing the next version. It's a 'beta' environment, open to experimentation and rapid feedback. By contrast, other CCI often work considerably slower, shaped by institutional calendars, application procedures, and long-term planning. It is a world of curatorial timelines and formal processes, where a premiere may be preceded by months of negotiation.

The second axis concerns **motivation**. In the EVGIE, the driving force is the market. Success is defined by a product that works, sells well, engages users, and can be scaled up globally. In other CCI, the meaning is the point of reference: the message, mission, cultural value, and social impact. Clicks or metrics do not solely measure success, but by the change that the project brings to culture, education, or a specific community.



The third axis is **communication style**. Game developers often communicate in their own kind of code, using short iterations, schemes, and pitches. Their concise, pragmatic, and goal-oriented communication focuses on tools and tasks. In the culture and creative sectors, however, narratives dominate, with stories, context, emotions, and values taking centre stage. Conversations tend to be longer and richer in historical, ideological, and identity-based references.

The fourth axis contrasts **decision-making structure**. EVGIE teams tend to have a horizontal structure, with decisions made collectively, overlapping roles, and shared contributions. On the other hand, cultural institutions tend to be more hierarchical, with clearly defined roles and decision-making powers assigned to specific positions, such as curators or directors. When these two approaches come together, tensions can arise over questions of authority and who ultimately makes the decisions.

The fifth axis addresses the **visibility of outcomes**. Game development focuses on tangible results, such as a finished product, version, or release. The focus is on functionality – what can be tested, measured, and observed quickly. In many cultural projects, however, the value often lies in the process itself, such as collaboration with participants, shifting perspectives, and enabling dialogue. The ‘work’ may be a shared experience, even if it leaves behind no tangible output.

Finally, the sixth axis is the **definition of success**. For EVGIE, success is measured in numbers: users, growth, retention, and return on investment. This data can be presented to stakeholders and investors. For other CCI, however, success is about social, educational, and cultural impact. This is more difficult to quantify but is often more deeply connected to long-term societal development.

It should be noted that the entire tension map (Figure 33) – as well as the other results and conclusions related to the DTthons – is based on the data collected from participants in four GH DTthon events. Although more than 70 people, representing diverse sectors, took part in the discussions in the case of the games industry, the sample primarily reflects the perspective of smaller organisations, which – as is true for the European games industry – dominate numerically within the population of game developers. Therefore, the results may





not equally capture the perspective of large studios (e.g. Ubisoft, CD Projekt, 505 Games) or other underrepresented entities (e.g., some EVGIE actors, selected CCI, or public institutions). For this reason, when analysing the tension map, it is important to emphasise its model-based nature, grounded in qualitative research data³⁰. It is a framework that emerged through exploration, and its adoption requires further qualitative verification or quantitative testing.

6.3.2. Vision of the future cross-industry cooperation

While the diagnostic part of the DTthons focused on capturing the current state of cross-industry cooperation, the creative part explored its **future potential**. One of the DTthons' main objectives was to consider how collaboration between EVGIE and CCI could be organised to create value for all parties involved.

To this end, interdisciplinary teams were tasked with designing an experience-based, target pathway for future collaboration. Using the 4E framework – Establishment, Execution, Ending and Endorsement – the teams developed concrete models, tools and principles to guide cross-sector partnerships.

The teams' proposed solutions can serve as inspiration, offering adaptable and testable concepts to foster stronger and more meaningful collaboration. Grounded in real insights, these solutions focus on systemic improvement and point to a desirable future.

The diagram presented in Figure 34 reflects the aspirational nature of cooperation.

³⁰ It should be noted that the DTthons were used as a qualitative, exploratory study, conducted with a purposively selected group of practitioners experienced in cross-industry cooperation. In our sample, participants came mainly from small video game companies (the dominant actor type representing EVGIE) and somewhat larger cultural and creative organisations (CCI were represented by diverse actors). They drew on their own experiences – and sometimes expectations – of cross-sector cooperation. For this reason, as is typical for qualitative research, the findings cannot be generalised to either EVGIE or CCI. It is important to understand both the specific nature of the research process and its limitations. The total group studied was not representative, and the conclusions may not fully reflect the complex reality.



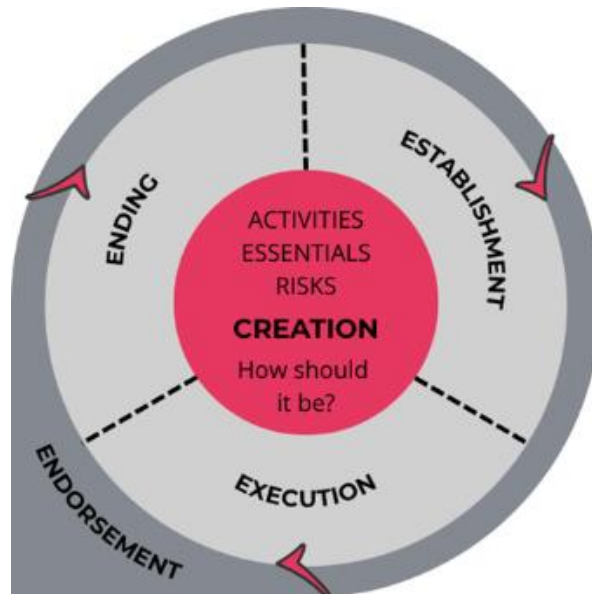


Figure 34. Four stages of cross-industry cooperation – creation: how should it be?

Each phase from Figure 34 – Establishment, Execution, Ending and Endorsement – is unpacked through three lenses: **desired activities**, **enabling essentials** and **perceived risks**. The first includes activities that participants would like to see as part of future cooperation; the second provides everything necessary for effective collaboration; and the third includes potential threats that require particular attention.

(re)Design of cross-industry cooperation

1. Establishment – How might we initiate cooperation more effectively?

The establishment phase lays the foundation for meaningful cross-sector collaboration. At this stage, creating an environment that fosters mutual trust and encourages open exploration is essential, helping to identify potential partners through shared experiences rather than relying solely on formal declarations. Recognising common values, developing a shared language, and synchronising working rhythms are all essential for building a functional relationship. A more professionalised approach to partnership-building is highly beneficial at this early stage - one that views collaboration as a structured and intentional process rather than an ad hoc connection.



Activities

During this phase, potential collaborators participate in joint activities, such as matchmaking events, sector-specific meetups, ecosystem mapping and shared workshops. They define common goals, identify stakeholders, and align needs and opportunities. Cross-sector mentoring and co-design sessions help to build trust and a shared understanding. These initial engagements result in a cooperation strategy, project vision and preliminary roadmap.

Essentials

The presence of facilitators and shared tools, such as glossaries, templates and platforms that support onboarding, is key to this stage. Early clarification of roles, collaboration models (e.g. partner-partner or provider-client), KPIs, and risk factors is essential for success. Introductory sessions help to align language, values, and timelines, while legal and financial advisors ensure that both parties are ready and able to proceed.

Risks

If the partnership is based solely on external triggers, such as calls for proposals, or if roles remain ambiguous, mismatches that arise in the early stages may become apparent later on. A lack of time for trust-building, limited knowledge of the other sector and top-down onboarding can result in power imbalances, unrealistic expectations and communication breakdowns during implementation.

II. Execution – How might we strengthen our operational cooperation?

The execution phase is where collaboration takes shape and ideas become reality. At this stage, DTthon participants emphasised the importance of having flexible yet clearly defined frameworks that enable creativity rather than constrain it. Effective cooperation should be based on synergy - the purposeful combination of complementary skills, perspectives and resources - and supported by transparent communication centred on shared objectives. Agile, iterative project delivery and ongoing facilitation are vital for maintaining momentum and navigating complexity across sectors.





Activities

Execution involves multidisciplinary teamwork, the agile delivery of tasks, and regular reviews of milestones. Through shared platforms, partners co-create content, conduct user testing and iterate based on feedback. Project management encompasses communication protocols, check-ins, timeline reviews, and stakeholder engagement. Continuous learning is built in through expert sessions and partner consultations.

Essentials

Effective execution relies on clearly defined roles, a shared methodology (e.g. Agile with KPIs) and coordination by leaders familiar with different sectors. Tools such as Trello, Asana and Discord can be tailored to the team's needs. Ongoing communication, access to expert advice (legal, promotional and financial), and knowledge exchange help maintain momentum and adaptability.

Risks

Failure to synchronise working cultures, paces, or approval chains can delay progress and undermine trust. Without ongoing facilitation, teams may struggle to balance iteration and stability. Poor risk management, a lack of clarity over ownership or an imbalance in visibility between partners can cause friction and halt progress.

III. Ending – How might we ensure meaningful closure and knowledge retention?

While the Ending phase formally concludes a collaborative project, it should also be seen as a strategic opportunity to consolidate outcomes and lay the groundwork for future cooperation. As well as wrapping up deliverables, this stage provides a valuable opportunity to reflect on successes and failures, and consider how shared experiences can inform future efforts. Maintaining relationships and retaining knowledge are just as important as the project's tangible outputs. A structured closure process involving joint evaluation, documentation and knowledge sharing ensures that the collaboration ends with intention, clarity and continuity.



Activities

The closure phase involves holding formal wrap-up meetings and conducting post-mortems to evaluate the results and processes. Partners archive materials, clarify IP, licensing and documentation, and develop shared summaries for external dissemination. Celebration events, showcases and publications mark the end of the project and provide an opportunity for recognition and continuity planning.

Essentials

Achieving high-quality closure depends on assigning a dedicated person or team to oversee it. Formal tools such as checklists, shared repositories and evaluation templates help to consolidate learning and secure project legacies. Reflection sessions, user feedback and documentation ensure that the outcomes remain accessible, reusable and valuable for future initiatives.

Risks

Failing to achieve closure can result in the loss of knowledge, unclear ownership and disengagement. If the evaluation is superficial or fragmented, key insights will be missed. Without visibility and shared learning, successful practices cannot be reused, scaled up or fed back into institutional memory, which weakens their long-term impact.

IV. Endorsement – How might we foster sustainable, long-term cooperation?

This stage involves making the project's outcomes visible, accessible and influential beyond its original scope. It is an opportunity to demonstrate the value of collaboration, not only in terms of market impact but also in terms of its contribution to the broader ecosystem and the common good. Endorsement involves embedding the results, relationships and lessons learned into sustainable practices, shared knowledge and institutional memory.

Activities

Partners share their results via open-access repositories, public showcases, webinars, press articles and exhibitions. They also contribute case studies and best practices to shared knowledge platforms. Long-term strategies include establishing communities of practice, applying for certification labels, and engaging with policy agendas to secure recognition.



Essentials

Endorsement requires systemic support through digital infrastructure for sharing, platforms for visibility and recognition frameworks, such as awards, peer endorsements and policy support. Engaging with funders, the media, institutions, and professional communities ensures that collaboration gains traction and contributes to broader transformation.

Risks

Without institutional support or dedicated mechanisms, projects tend to remain isolated. Informal promotional channels lack reach and continuity. Without quality standards, centralised dissemination or follow-up funding, even successful cooperation risks being overlooked, unrecognised, and impossible to repeat.

To sum up, the four phases of cross-industry cooperation – Establishment, Execution, Ending and Endorsement – highlight that successful EVGIE–CCI cooperation requires more than just goodwill. The desired cooperation model hinges on establishing a shared language, fostering trust, creating flexible structures, and cultivating long-term relationships. Effective collaboration is intentional and relational, grounded in mutual understanding and supported by frameworks that foster innovation. Such strategic partnerships can strengthen both sectors and create culturally relevant and socially impactful experiences when approached strategically.

Key success factors for effective EVGIE – CCI cooperation

Based on the results of the GH DTthons, it can be assumed that successful cross-industry cooperation depends on **twelve key factors**. These factors reflect current practical experience and future design. Each factor is a recurring condition that supports meaningful, equitable, and lasting collaboration. Together, they provide a blueprint for establishing effective, sustainable, and impactful partnerships.

1. **Shared vision and common language:** successful cooperation begins with a clearly defined joint vision and shared goals, as well as a mutual understanding of key terms and working concepts. Developing a common language is essential to avoid miscommunication.
2. **Cross-sector translators and facilitators:** cooperation is strengthened by involving intermediaries who have insight into both sectors and can bridge cultural and procedural differences, mediate tensions, and support coordination.





3. **Structured and transparent collaboration frameworks:** clear roles, responsibilities, timelines, communication protocols, and decision-making rules should be formalised and accessible to all partners. Transparency builds trust and improves accountability.
4. **Iterative and agile project implementation:** projects should follow an adaptive, step-by-step process involving frequent feedback loops, user testing, and the opportunity to make adjustments. Agility supports innovation and responsiveness to change.
5. **Mutual learning and knowledge exchange:** cross-sector collaboration allows one to learn from each other's tools, values, workflows and constraints. Ongoing exchange enhances understanding and builds competencies on both sides.
6. **Equal and trust-based partnerships:** effective cooperation requires parity, not subcontracting. The contribution of each party should be recognised, and value creation should be shared. Trust is built through openness, respect, and fair treatment.
7. **Cross-sector platforms and supporting infrastructure:** cooperation should be enabled by shared digital and physical platforms that facilitate partner matching, access to resources, project management and knowledge sharing.
8. **Professionalisation and access to expert support:** in addition to goodwill, partnerships benefit from access to legal, financial, promotional, technological expertise and structured project management tools and methods.
9. **Sustainable closure and reusability of outcomes:** projects should conclude with more than just delivery; reflection, documentation and continuity or reuse planning are essential. Outputs must be secured, visible, and available for future initiatives.
10. **Visibility, dissemination and recognition:** collaboration results should be promoted publicly through events, publications, networks, and media visibility to raise awareness, attract new partners, and reinforce the value of cross-sector work.
11. **Long-Term Relationship Building and Continuity:** cooperation should not be a one-off event. Sustained partnerships and follow-up initiatives strengthen the cross-sector ecosystem and foster a culture of ongoing cooperation.
12. **Systemic and Policy Support:** Long-term success depends on structural enablers such as supportive public policies, streamlined funding procedures, institutional backing, and resources for testing, experimentation, and scaling up.





Effective cooperation between the EVGIE and the CCI is not just about overcoming differences between sectors; it is also about using those differences to create meaningful complementarity. Success depends on efficient project management and jointly shaping initiatives with cultural depth and market relevance. Lasting and scalable partnerships depend on facilitators and systemic support structures, such as funding, platforms, and expert networks.

Crucially, this support must be comprehensive. While technological tools and financial mechanisms are vital, intermediaries, coordinators and cross-sector knowledge brokers play a crucial role in translating intentions into action. Operating at both European and national levels, these actors are key to enabling structured, sustained, and equitable collaboration.

The desired future of EVGIE–CCI cooperation is not a spontaneous ecosystem, but an orchestrated one, built on shared values, mutual understanding, and ongoing facilitation. Only within such a context can we design the next generation of cultural experiences that are interactive, inclusive, and socially rooted.

6.3.3. Next steps: strategic insights for further exploration

The following section summarises key insights from DTthons that highlight recurring barriers and point to strategic directions for further research, the development of public policy, and the establishment of a resilient, sustainable cooperation between EVGIE and CCI. These insights were developed based on the following structure:

1. Extended name of the insight.
2. Brief description of the insight.
3. Consideration of who the insight concerns? What type of user?
4. Consideration of what behaviours, practices, routines, difficulties, or experiences underpin the insight.
5. Consideration of what facts or observations confirm it.
6. Consideration of the causes of the observed situation.
7. Consideration of why the insight is strategically important and how it can affect future cooperation between EVGIE and CCI.
8. Recommended actions stemming from the insight.
9. Consideration of research inspirations – potential directions for exploration.





Insight #1: Babel tower

The first insight (Figure 35) addresses a fundamental challenge in cross-sector collaboration between EVGIE and CCI: the absence of a shared language. Titled 'Babel Tower – When translation fails, collaboration falls', it highlights broader issues such as linguistic, procedural, and cultural differences, which often lead to misunderstandings, communication breakdowns, and missed opportunities for synergy. Shared tools such as glossaries, briefs, and communication platforms either lack existence or are inadequate. The insight emphasises that collaboration cannot function effectively or be scaled up without 'translators' – whether individuals, tools or practices capable of bridging meanings and working styles. This represents a critical starting point for developing the infrastructure required for clearer, more integrated, and impactful cooperation between sectors.

INSIGHT #1

„BABEL TOWER“ – When translation fails, collaboration falls

Expanded insight title: Lack of a shared language means lack of collaboration; A communication gap; Absence of tools, and missing cross-sector translation

Brief insight description: EVGIE and CCI operate in different languages, both literal and symbolic. Without translation, differences in concepts, working styles, values and processes mean that even the most promising projects end in misunderstanding and lost potential for synergy. There is a lack of shared communication interfaces, glossaries, rituals and individuals who can translate meanings and working styles.

Who the insight concerns: Project teams (EVGIE-CCI), grant providers, policymakers, tool designers, and educators

Insight foundation:

- Linguistic, procedural and cultural differences between EVGIE and CCI
- Lack of shared tools, such as briefs, glossaries and repositories
- Stereotypes, communication chaos and an absence of connections
- The need for 'translators' and 'ambassadors' of collaboration

Evidence:

- This observation emerged as one of the key themes in at least eight project teams
- Tools proposed by the teams included canvases, decalogues, platforms and glossaries
- The roles proposed by the teams were cross-sector advisor, facilitator and community manager

Causes: Silo mentality, lack of cross-sector education, absence of intermediary standards and infrastructure

Strategic importance: Without shared languages and communication interfaces, collaboration cannot survive or be scaled up. Overcoming this fundamental barrier unlocks the full potential of EVGIE-CCI synergy.

Recommended actions:

- Introduce the role of an intersectoral translator and communication platforms
- Develop cross-sector education through podcasts, comics and webinars
- Standardise communication tools such as briefs, glossaries and collaboration canvases

Researcher inspirations: [1] How can the quality of cross-sector communication be measured? [2] Which tools and rituals are the most effective for synchronising different sectors?

Figure 35. Babel tower





Insight #2: You've got (no) match

The second insight (Figure 36) focuses on the crucial role of partner alignment in cross-sector collaboration between EVGIE and CCI. Titled 'You've got (no) match – Without alignment, even the best idea won't happen', it highlights the absence of a systemic approach to matchmaking and pre-alignment – that is, the early-stage alignment of values, goals, and working styles. Without proper preparation, partnerships that emerge by chance often lead to tensions, misunderstandings, and short-lived outcomes. The insight emphasises that, without the right partner match, it is impossible to establish high-quality, lasting collaborations. There is a need for tools and processes to help assess compatibility and support the development of trust-based relationships based on shared goals.

INSIGHT #2

"YOU'VE GOT (NO) MATCH" – Without alignment, even the best idea won't happen

Expanded insight title: Matchmaking is a process, not a coincidence; The lack of a system (tools) for matching partners and pre-alignment

Brief insight description: EVGIE-CCI partnerships are often formed by chance. There is a lack of systematic matchmaking, which involves a structured process of mutual discovery, alignment checks and open dialogue about values, risks and goals. This step is crucial for building trust and establishing long-term, intentional collaboration. Without such pre-alignment, cooperation is like a blind date with an incompatible partner – it may be spectacular, but it usually ends quickly.

Who the insight concerns: Project teams (EVGIE-CCI), creators, operators, public institutions, funders, policy designers

Insight foundation:

- Lack of tools for assessing compatibility
- Low-quality collaboration due to unresolved differences
- Absence of a shared vision, goals and ground rules leads to tension

Evidence:

- This insight emerged in at least seven project teams
- Tools proposed by the teams: GAME SET MATCH, pre-alignment canvas and partner profiles
- Processes proposed by the teams: onboarding, AI-assisted matchmaking and treating the preliminary phase as a separate project stage

Causes: Lack of matchmaking infrastructure, intermediaries, and sufficient time and resources to properly prepare partnerships

Strategic importance: Without proper partner alignment, it is impossible to establish either a high-quality or a lasting collaboration. Matchmaking forms the basis of the relationship infrastructure for EVGIE-CCI cooperation.

Recommended actions:

- Implement matchmaking platforms with both AI and human support
- Introduce a mandatory pre-alignment phase in grants and project frameworks
- Provide education on work styles and compatibility assessment (e.g. checklists)

Researcher inspirations: [1] What partner traits predict successful collaboration? [2] How can a systemic pre-alignment process be designed that can be implemented across different sectors?

Figure 36. You've got (no) match





Insight #3: Plan it, don't pitch it

The third insight (Figure 37) emphasises that the conclusion of a project should not signal the end of collaboration; quite the contrary, it should mark the beginning of a new phase. Under the title 'Plan it, don't pitch it – Results only grow when nurtured beyond launch', it highlights the lack of continuation strategies, visibility of outcomes, and opportunities for reflection and knowledge sharing once a project has concluded. Too often, EVGIE-CCI collaborations disappear with the end of funding, resulting in lost learning and missed opportunities for ecosystem development. Long-term value cannot be sustained without dedicated tools, such as knowledge repositories, follow-up activities, or systemic 'aftercare'. The insight, therefore, emphasises the need to recognise and fund the endorsement phase as an integral part of the project lifecycle. This ensures that shared outcomes remain visible, accessible, and capable of informing future initiatives.

INSIGHT #3

"PLANT IT, DON'T JUST PITCH IT" – Results only grow when nurtured beyond launch

Expanded insight title: The project is not the end – it's just the beginning: Lack of continuation strategy and visibility of outcomes

Brief insight description: Too many EVGIE-CCI projects culminate in a 'premiere'. There is insufficient space for reflection, documentation, promotion of outcomes, knowledge sharing and continuation planning. The system fails to learn from projects because there is no structure or opportunity to do so. Without nurturing relationships and results after a project ends, a shared ecosystem cannot be built. We need 'aftercare' to become standard practice in collaboration.

Who the insight concerns: Project teams (EVGIE-CCI), funders, operators, support institutions

Insight foundation:

- Lack of knowledge repositories, post-mortem documentation and follow-up pathways
- Project outcomes often disappear after funding ends
- The 'Endorsement' phase is often underestimated and underfunded

Evidence:

- This insight was identified by at least ten project teams
- Tools proposed by the teams: development logs, journals, celebrations, reports on return on investment (ROI), and repositories
- Suggested solution: provide funding for post-project activities to ensure the visibility of outcomes

Causes: Short-term grant model, lack of roles and policies for continuity, and low perceived value (prestige) of documentation and reflection

Strategic importance: Without visibility and knowledge sharing, we end up with isolated islands rather than a true ecosystem. A systemic approach to collaboration must consider the sustainability of relationships and outcomes.

Recommended actions:

- Implement an "after care" component as a mandatory project stage
- Create public repositories (lessons learned) and casebooks
- Promote (and reward) knowledge sharing as a project quality indicator, and allocate funding for the Endorsement phase

Researcher inspirations: [1] What follow-up systems ensure long-term impact? [2] How can we measure project outcomes six months, one year and three years after completion?

Figure 37. Plan it, don't pitch it





Insight #4: Human API³¹

The fourth insight (Figure 38) shows that successful cross-sector cooperation is driven by people, not tools or technologies alone. ‘Human API - with the subtitle: People are the interface between sectors, not tools’, it draws attention to the essential role of facilitators, advisors, and intermediaries – those who can translate, mediate, manage emotions, resolve tensions, and support the flow of information. Without these ‘invisible links’, collaboration tends to fall apart. It emphasises that relational functions are often undervalued and underfunded despite being critical to building sustainable, trust-based partnerships. There is a need to recognise the facilitator as a permanent feature of cross-sector projects, and to invest in developing soft skills as an integral part of the project ecosystem.

INSIGHT #4

"HUMAN API" – People are the interface between sectors, not tools

Expanded insight title: Collaboration needs people – technology and tools are not enough; The role of facilitators, advisors and brokers as a condition for success

Brief insight description: Cross-sector collaboration doesn't just happen. It requires people who can translate, facilitate, manage emotions, resolve conflicts, and direct the flow of information. Facilitators, advisors and relationship stewards are the invisible yet essential links that enable sustainable cooperation. Without them, tools are useless, and teams fall apart.

Who the insight concerns: Project teams (EVGIE-CCI), funders, policymakers, educational institutions

Insight foundation:

- Lack of a dedicated person overseeing the quality of collaboration
- Tensions arising from differences in work styles, pace, and core values
- Absence of shared standards for work and communication in cross-sector teams

Evidence:

- This insight emerged in at least nine project teams
- Solutions proposed by teams: training and certification of facilitators; ensuring a facilitator is present at every stage of the collaboration pathway (ESTABLISHMENT, EXECUTION, ENDING, ENDORSEMENT)
- Tools proposed by teams: conflict matrices, caretaker roles, relational evaluations

Causes: Lack of recognition for soft skills and underfunding of relational and intermediary functions

Strategic importance: Without 'bridge people', real collaboration is impossible. Facilitators play a core role in the relational infrastructure, which is just as essential as tools and platforms.

Recommended actions:

- Introduce the role of facilitator as a permanent element of collaborative projects
- Provide funding, training and certification for EVGIE-CCI collaboration facilitators
- Integrate soft skills into project evaluation through relational assessments

Researcher inspirations: [1] What competencies and tools are essential for cross-sector facilitators? [2] How can the impact of this role on project success be effectively measured?

Figure 38. Human API

31 In the world of technology, an API (Application Programming Interface) is a system that enables different programmes to 'understand' each other, even if they were developed separately. In the context of cross-sector collaboration, a Human API is a metaphor for a person who acts as an interface between different systems, languages, cultures and working styles. They could be a facilitator, cross-sector advisor or relationship broker – someone who enables collaboration where technology or procedures alone are insufficient. A Human API is not a technical function, but rather a relational and strategic role that is essential to the success of EVGIE-CCI cooperation.





Insight #5: Build the bridge, not just the boat

The fifth insight (Figure 39) highlights the fact that isolated projects are insufficient; what is required is a lasting, integrated infrastructure to support cross-sector collaboration between EVGIE and CCI. With the title ‘Build the bridge, not just the boat – We need infrastructure, not just isolated initiatives’, the text emphasises the lack of shared spaces, coherent policies, and intermediary systems that enable long-term cooperation. Although the video games sector and the cultural and creative industries frequently move in the same direction, they do so independently and without coordination. Collaboration cannot rely solely on goodwill or one-off initiatives – systemic solutions are required, such as shared platforms, supportive policies, integrated tools, and funding models. Without an ecosystem approach, building lasting relationships or realising the full potential of EVGIE–CCI collaboration is impossible.

INSIGHT #5

"BUILD THE BRIDGE, NOT JUST THE BOAT" – We need infrastructure, not just isolated initiatives

Expanded insight title: There is a lack of an ecosystem, not just projects; EVGIE–CCI collaboration requires supportive infrastructure and policies

Brief insight description: A partnership requires more than just goodwill. Ad hoc initiatives are insufficient for building a lasting EVGIE–CCI collaboration. There is a lack of platforms, policies and intermediary institutions, as well as a lack of a shared map – a systemic framework. While the video games sector and the cultural and creative industries often head in the same direction, they do so independently. It's time to build a bridge - a trusted, systemic infrastructure that will connect them physically, digitally and organisationally for good.

Who the insight concerns: Policymakers, programme operators, funders, and both EU and national institutions

Insight foundation:

- Lack of a shared platform – no common space, policy, or point of contact
- Fragmented projects, difficulty in finding partners, information, and funding
- Need to integrate tools such as AI, matchmaking systems, and knowledge repositories

Evidence:

- One of the teams diagnosed it as: 'Brilliant but broken'
- Suggested solutions by teams: integrated educational systems, 'AI for Creativity' policies and EU innovation hubs
- Proposed solutions: 'Platform of all platforms', GAIME, HEARTS and an IP Clearinghouse

Causes: Lack of cohesion policy between sectors, fragmentation of existing systems, insufficient investment in cooperation infrastructure

Strategic importance: Projects without an ecosystem cannot grow. We need policies and institutions that support ideas and build an environment in which they can develop.

Recommended actions:

- Develop a European collaboration platform for EVGIE–CCI
- Integrate funding, tools, knowledge, and partnerships within a single space
- Establish an AI for Creativity policy
- Ensure continuous presence and funding for intermediary institutions

Researcher inspirations: [1] Which governance models best support the sustainable development of creative ecosystems? [2] How can policies be designed to encourage long-term, cross-sector collaboration?

* The **IP Clearinghouse** is an institution that acts as an intermediary and registry for intellectual property (IP) rights, facilitating circulation, licensing and sharing. It is a platform that registers copyrights and licences, verifies the legal status of creative assets (e.g. visuals, narratives, and musical works), mediates the granting of licences and sub-licences or rights transfers, and simplifies legal formalities between partners from different sectors.

Figure 39. Build the bridge, not just the boat





To conclude, the five strategic insights presented in this section offer a grounded yet forward-looking diagnosis of the core barriers to EVGIE–CCI cooperation, as observed during the DTthons. They reveal recurring systemic gaps – linguistic, relational, structural, and procedural – that limit the potential of cross-sector cooperation. Importantly, they also illuminate areas with the most significant potential for strategic intervention: shared language, purposeful matchmaking, continuity beyond project timelines, investment in human relational capacity, and the construction of enabling infrastructure. These insights form a roadmap for building a more resilient, inclusive, and scalable collaboration ecosystem. They also serve as a call to action – for researchers, policymakers, funders, and practitioners alike – to shift from isolated initiatives towards systemic solutions that empower long-term, trust-based partnerships across sectors.

6.4. Conclusions

The **GAMEHEARTS** DTthons revealed, with unusual clarity, both the promise and the precarity of cross-industry collaboration between EVGIE and CCI. What emerged from this process was not merely a set of best practices or anecdotal insights, but a field-tested model of how such cooperation unfolds – in reality, with all its friction, asymmetry, and intermittent brilliance.

The 4E framework – Establishment, Execution, Ending, Endorsement – was not imposed but inductively validated. Across the four DTthon events, participants repeatedly demonstrated that **successful cooperation** is not a matter of **shared vision** alone, but also of **shared infrastructure, process design, and mutual literacy**. The absence of structured onboarding, translation roles, and closure rituals was not a marginal issue – these were the core reasons why many projects plateaued or quietly collapsed. Similarly, the absence of endorsement mechanisms ensured that even the most promising initiatives remained invisible to policy, unfunded in replication, and untethered to institutional memory.

The DTthons offered not a simulation of cooperation but a controlled exposure of its anatomy: an unvarnished portrait of how EVGIE–CCI interactions currently work – or fail to. In that sense, the methodology served not only research, but diagnostic and developmental functions. It made visible what is often hidden: the emotional labour of co-creation, the inertia of sectoral silos, and the gap between innovation on the ground and support from above.





If cross-industry cooperation is to move from episodic experimentation to system-level change, the lessons of the DTthons must be taken seriously. That means **recognising the Endorsement phase** not as a decorative afterthought, but as the linchpin of sustainable impact. It means embedding facilitation not as an optional support role, but as a strategic infrastructure. It means designing collaboration models as robust at the point of closure as they are at inception.

Above all, it requires a shift in perspective: from treating collaboration as a sequence of deliverables to seeing it as a developmental architecture – one that must be consciously scaffolded, institutionally supported, and narratively sustained.





7. QUALITATIVE FOCUS GROUP INTERVIEWS

7.1. Aims

The implementation of research activities within WP3 assumed the potential utilisation of focused group interviews (FGI) to possibly clarify, deepen, and verify planned completed research tasks, as well as to support the research team in understanding the results of previous studies (particularly those that were unexpected or unclear).

Completing all planned research tasks (presented earlier in sections 3 through 6) enabled the identification of certain common or specific themes (i.e., insights corresponding to the key challenges) worthy of deeper qualitative investigation through focus group interviews from the perspective of interpretive validity.

Nearly 18 months of both desk and field research have led us to the identification of the following key challenges worth further examination (Klimas et al., 2025a³²):

1. **Profanum** - games continue to be perceived as '*low culture*'.
2. **Made in Europe** - the growing influence of Chinese capital in European game development.
3. **Babel Tower** - communication emerging as the main barrier to collaboration, including co-innovation processes.
4. **Diversity Washing** - growing pressure on inclusivity versus gamers rejecting unnatural inclusivity efforts.
5. **Innovation Mirage** - innovation measurement among game developers revealed that they often do not perceive themselves as genuinely implementing innovation. What is more, technological innovations are found to have the lowest level.

Therefore, the objective of this verification-exploratory research phase was as follows.

- Verify, deepen knowledge, and achieve a fuller and more accurate understanding of key challenges facing the contemporary video games industry and specific industry characteristics, including those revealed by developers through previous research.
- Minimise the risk of misunderstandings and mistakes in interpreting key findings and deepen final interpretations.

³² The key challenges were described through five research insights in a form of poster published in OA via ZENODO (Klimas et al., 2025a; direct link: <https://zenodo.org/records/15386297>). Poster was used during recruitment to FGI.



7.2. Methodology

7.2.1. Research approach

Given the adopted objectives, we opted for an **in-depth qualitative inquiry** to capture game developers' stories and experiences related to the insights identified in previous stages of the project and initial recommendations concerning the facilitation of collaboration between VGI and CCI. We wanted to uncover the nuances and contexts behind the insights, rather than to confirm or reject them. To facilitate discussion and sense-making, and to improve the understanding of the insights, we have applied metaphors as titles for the concepts and prepared their short descriptions supplemented by potential doubts and questions. The summary of our concept cards is presented in Figure 40, while the particular concept cards are presented in their entirety in the subsequent section presenting the FGI results (i.e., Section 7.3).





Figure 40. Set of concept cards used in FGI – an overview





7.2.2. Interviewees

To conduct FGI, we have applied **purposive sampling** (Suri, 2011), meaning we have intentionally selected informants who would be able to (1) verify insights relevant to the scope of our study gathered in previous stages of the project, (2) reveal new insights. Therefore, our choice of informants was based on the following **inclusion criteria** (all must be met): representative of a video game development studio or a game developer; experience in cross-industry cooperation; representative of the European video game industry. Additionally, the following **exclusion criteria** were implemented: representatives of game development studios focused on serious games only; participants of previous research stages carried out under WP3 of **GAMEHEARTS** project.

Participants were **recruited through a threefold approach**. First, an information about the planned research, along with an invitation and access to the poster summarizing the key industry challenges (Klimas et al., 2025a), was sent via email to participants of previous research activities (in total to more than 70 people) with a request to refer individuals who meet our criteria and who, in their opinion, are characterized by openness to sharing knowledge. Second, analogous email correspondence was directed to all industry associations holding member status in the European Games Developer Federation, totalling 24 national trade associations representing game developer studios based in 22 European countries. Third, information about possibly participating in the study was disseminated using the LinkedIn profile @Gamehearts Research. Finally, this study was conducted with eight practitioners representing organisations headquartered in four European countries: Austria, Ireland, Sweden, and Poland (4 informants). An overview of the informants is given in Table 37.

Table 37. Informants engaged in FGIs

Code	Type of organisation	Core game segment	Position/Role in organisation	FGI
I1	Video Game Developer / Service provider	PC games	Functionality Assurance Project Manager	1
I2	Trade association / NGO	NA	Researcher / Project manager	1
I3	Video Game Developer / NGO	PC games	Founder, Lead Producer	1
I4	Video Game Developer	PC games	CEO / CTO	1
I5	Video Game Developer	PC games	CEO	2
I6	Video Game Developer	PC games	Owner/Lead developer	2
I7	Asset Seller and Game Developer	PC games	Senior Technical Artist/Co-owner	2
I8	Publisher and porting house	Console games	CEO	2



7.2.3. Data collection

In total, we have conducted **two online FGI via MS Teams**. The interviews took place on June 10th and June 12th 2025. Four informants took part in each of the interviews. One of the interviews was conducted in English, and the other one was conducted in Polish. Notably, each interview participant familiarised themselves with the study information before participation, consented to participate, and gave the required GDPR-related consents.

The interviews were based on **a semi-structured scenario** (Appendix D), they lasted approximately **120 minutes each**, were recorded, and automatically transcribed. Our scenario guide with a reflexive focus (Arsel, 2017) consisted of two parts.

The first part was built around five key insights gathered in the previous stages of the WP3 (i.e., desk research, survey, IDIs, and DTthons). For each of our five insights, we developed a concept card consisting of a major observation, strategic challenge, and initial recommendations (more details in Section 7.3). The informants received the concept cards a few days before the interview to facilitate discussion, so they had time to reflect on them.

The second part of the scenario referred to exploring new insights that were not captured in the concept cards.

7.2.4. Data analysis

We have applied **narrative analysis** (Earthy & Cronin, 2008) as an analytical technique to examine how informants construct and share stories to uncover themes, understand their experiences related to key insights, and the meaning they ascribe to them. We have therefore focused on informants' stories as a unit of analysis, rather than individual words, lines, or phrases.

We have followed the deductive approach to narrative analysis, meaning the analysis provides hypotheses (insights in our case), and then looks for evidence in a story that will either verify, nuance, or disprove them. We also used this logic in the way we presented the findings – we first presented the insight discussed with interviewees and then presented their stories or reflections related to the insight.





7.3. Findings

7.3.1. Profanum

The first of the discussed insights was designated as ‘Profanum’, directly corresponding with the metaphorical term ‘Sacrum & Profanum’ and referring to the still observable perception in both social and economic spheres of the computer and video game industry as trivial, inferior, and a low-culture sector when compared to other cultural and creative industries that may be harmful from a business perspective to some extent. Manifestations of this stigmatising approach were revealed through literature analysis, direct interviews, and DTthons. The identified phenomenon, which may only superficially appear to be outdated, creates specific challenges that, along with potential actions to improve the current state of affairs, are presented on the dedicated concept card below (Figure 41), which served as a starting point for discussions with interview participants.





PROFANUM

Key observation: Some perceive gaming as an inferior, low culture activity, sometimes shameful or even harmful, which limits the possibility for the industry's growth. Games are not discussed (or perceived) as works of art, and they are not generally concerned as a part of cultural heritage.

The strategic challenges:

How can we change the perception of VGI and eliminate the 'social stigma' to make cooperation with 'respected' industries (CCI, education) more natural?

How to create an image of VG so that VGI is a desirable collaboration partner for CCI?

Initial recommendations:

- Joint on-going **campaign** of VGI actors changing the perception of gaming, targeted at key stakeholders and various target groups, both individuals (parents, caregivers) and institutions (schools, educational institutions, museums, etc.); the campaign should address various types of benefits and skills (i.e., strategic thinking, quality time with friends / relatives, relax, destress, reflex, etc.); benchmark: [The Superpower of Books – EURead](#); [Europe Reads – EURead](#)
- Develop collectively a **VG benefits labelling system** that would inform about a particular type of benefit, experience or skill related to a particular game (**benchmark:** nutritional value in food industry), VG labelling system should help users understand the social / educational value of a game by providing information about the type of outcomes, experiences or skills the game has to offer; lobbying for making such informative labelling a law; contrary to current [Pegi Public Site](#) system that informs about potential harms of gaming, this new labelling system would inform about the positive sides of gaming
- To prevent the harmful usage and to build the positive image of gaming, create **'the code of responsible gaming'** and promote it among the target groups; **benchmark:** [Code of Conduct for Individual Members of the Internet Society - Internet Society](#)
- A campaign **promoting games as a medium of cultural expression and digital heritage** and game developers as artists. Beyond just raising awareness through numbers (turnovers, employment, number of games, monthly expenditures on games, etc.), the goal would be to show games as a medium that can expand the universe of a given artistic work, reach broader audiences, and succeed on a much larger scale - not just financially, but also geographically. Artists working in the more traditional realms of culture often lack visibility, and using their IP in a game opens up not only the potential for global reach through a game's commercial success, but also a chance to boost the popularity of the original piece of art.



INSIGHT 1

Figure 41. Concept card for the first insight – Profanum





In the context of the first insight, our informants generally agreed that games are indeed still sometimes perceived as an inferior form of culture, which can be described as **'stigma surrounding the VGI'**. Such an agreement resulted from their business experiences or social observations. However, we noticed a few nuances during the discussion. Despite the general agreement, our informants differed in evaluating the time period when stigma occurs, the scope of its impact, and the required actions to get rid of it.

In terms of the **time period of stigma**, some of our informants considered the negative image of games to be a tale of the past:

'I think we're a bit behind those times. Yes, there was a time when games in general were most often perceived through the lens of violence. However, since the ministerial funds appeared and we became very proud that Cyberpunk has become our cultural and national product and can be given as a gift to the president, right? Well, since then, there's no such problem really.' (I8)

Others believe the stigma around games is still present:

'Everyone who loves games knows this, that at some point they were told they were playing games too much, right? So it definitely exists. (...).' (I1)

'The phenomenon of the stigma itself, in my opinion, exists. I would say that when I talk to people who are from outside the industry, they're like: "great, you're sitting at the computer and playing games. But what are you doing seriously?' (I6)

We uncovered some contextual nuances in **where and when our informants experience or notice stigma**. One of the situations when stigma is an obstacle is the business activity:

'It was an advertising agency and we tried to suggest to clients with large advertising budgets that we could do something in the direction of interactive forms of advertising. But there was this approach that these are games, these are for kids, we are not interested in that.' (I6)



Stigma can also be found in a society, particularly among individual caregivers and in schools:

'There (in schools, facilitator's note) parents, like many teachers, treat games as evil that spreads among children. Yes, because children take their phones and run to the toilet during a long break, because that's the only place they can play on their phones. (...) Yes, games are evil, because their children do not consume higher culture, do not read, do not go outdoors to play football, they take their phones and, in parents' or teachers' opinion, play games. Interestingly, most of the time they are not playing games, but they are actually on social media.' (17)

The same informant noticed how stigma turns into an untapped potential of games that schools are not realising:

'Instead of teaching children how to use tools, how to use computers, how to use phones, let's just throw them away and let's not have to deal with this problem here and let society deal with it somewhere else.' (17)

During the interviews, our informants mentioned **the role of the media in sustaining the stigma**:

'There's still a lot of media or other organisations that say - look, playing games is harmful. There is addiction, there is violence in these games. The content is harmful to (...) mostly children.' (13)

'It seems to me that the reception of games in society is not so different as in the media. Because how are computer games presented, or console games, games in general? Well, they are usually presented as negative things.' (15)

One of our informants paid attention to **the role of other industries** in sustaining or diminishing the stigma around VGI:

'Then we have a gambling industry that tries to very much latch onto the video games industry to actually show like, oh, gambling isn't that harmful, or like they try to in their language very much use the word 'gaming' instead of 'gambling' because gaming is perceived as less harmful than gambling.' (13)



We can see how ‘matching’ some industries with VGI may bring harm; conversely, some industries may provide their appeal to shed a positive light on video games. Our informants mentioned, for example, the cases of game applications in particular industries as something that proves the social value of games:

‘There are art games, but there are also games that can help with education, with healthcare. There is a huge social benefit of video games, and these elements should be louder than the narrative of addiction and violence.’ (I3)

‘Educational games, I think are the best way to change that (negative image of games, note by facilitator) for the better.’ (I4)

As for the **actions required to let stigma go away**, our informants differed in their opinions. Some believed only a little support is necessary because generally, the stigma will fade away with time:

‘How to help that stigma go away? That’s something that will work itself out with time for sure (...) the recommendations that are on the screen (insight card – note by facilitator), such as the labelling systems, these are things that are or can be helpful.’ (I1)

The natural fade away of stigma was assigned to a new generation, once players, now coming to power:

‘Time works very much in favour of the game development market, because customers who were once young recipients of games, are now becoming adults. They are now becoming teachers, parents, guardians. These are the people who experienced games, so to speak, somewhere in their youth, and it seems to me that this issue of familiarisation with this product is a big feature, slowly changing this perception of games as profane, lower culture.’ (I5)



However, other voices were more sceptical about a self-resolving problem of stigma:

'I don't agree it will go away with time. When new generations that have grown up with video games will get in power. This is actually already the case because Gen. X, the 80s kids are already in positions of power, and even though there is maybe some progress, but it is not like the stigma is suddenly going away.' (I3)

The same informant suggested a more active approach, one that would balance the negative voices:

'Yes, there are things that can improve with time, but I feel like there is also a loud push in the opposite direction. There should be a strong push from the games industry that focuses on the benefits of video games.' (I3)

Another informant highlighted the need for more intentional communication of games based on the understanding that gamers are all around us:

'I think we need to be more aware of how we talk about the consumption of games. (...) The term 'gamer' has become a very volatile word because there are so many connotations. 3 1/2 billion people regularly play some sort of game. If each and every one of those identified as 'I'm a gamer' on the same premise, I think the discussion would look different because then every person calling it low culture would remember that they have a partner, a sibling, a friend, a child who is part of that culture and is active. And so that would maybe shift perspective.' (I2)

The same informant noticed that stigma is not the only image problem of the VGI and how other image problems may hinder the VGI firms' efforts to acquire funding:

'The games are not perceived as neither culture nor technical innovation, which is a serious challenge for academia, but also entrepreneurs and companies of all different sizes, when they want to receive access to grants (...) And culturally significant services, if they're neither cultural enough or innovative enough, despite all the arguments to the contrary, then they are kept out of those systems and pipelines and the public support.' (I2)



The conclusion is that **'stigma' around VGI is not a tale of the past, it's harmful impact can be found in various domains, from business activities, through informal conversations, to social interactions** between teenagers and caregivers. Due to negative media messages and active forces from other industries, **we cannot expect the stigma to go away naturally. If sustained, it will keep preventing the industry from financial growth.**

7.3.2. Made in Europe

The second discussed theme (initially identified through literature analysis but also visible during data analysis activities) focused on ownership structure changes in the European video games industry. The insight designated as 'Made in Europe' points to the growing participation of non-European capital, primarily Chinese capital, as a phenomenon with potential impact on European cultural heritage. Previous research (e.g. desk research, IDIs) suggested that significant ownership changes may imply changes in the content and form of messages that games convey. The question that can be posed is whether this phenomenon is identifiable, and if so, whether it should be treated as a threat or perhaps an opportunity, as well as how to potentially care for or even protect Europe's video game achievements. The description of the insight and key challenges is presented in the corresponding concept card used during FGIs (Figure 42).





MADE IN EUROPE

Key observation: the growing share of Chinese entities in the European game industry raises a lot of questions about the long-term effects (including both benefits and consequences) of this trend. On the one hand, the inflow of serious capital can help strengthen European game studios struggling with market challenges, by protecting jobs, getting funding for investments, supporting market penetration or even market development. On the other hand, Chinese companies might start shaping games' cultural, social, and cognitive content in ways that don't necessarily align with European values like freedom of speech, democracy, independence, or inclusivity.

The strategic challenges:

How can we secure the existing and future digital cultural heritage of VGI in the face of Chinese expansion?

How can we encourage players to value and choose 'made in Europe' games?

Initial recommendations:

- Increase the awareness of 'country / region of origin' for VGI among key stakeholders (players? Who else?) through **educational campaign** highlighting the meaning of **country (region) of origin effect** in games and showing that game design has particular embedded values and how region of origin affects these values and the players.
- Create an **'ingredient branding'** program that would enable to mark and distinguish products reflecting particular **European values**; these values should be identified and defined collectively by VGI industry actors and cultural industries representatives; potentially a label would be granted by a committee recruited from the key national NGOs and European NGOs (i.e. VGE, EGDF). Promote the label and the program among players and distributors – make it an important choice factor in the buying process; **benchmarks:** Intel Inside, Goretex, [THE 17 GOALS | Sustainable Development](#).
- Focus on strong education around games and embedded values, starting from the youngest players and their caregivers. The idea itself does not mean just using games as effective teaching tools in schools (which, to be fair, is already happening more and more), but rather bringing education about games into the curriculum. Or even running a broader public campaign. A campaign explaining the mechanisms games use - not just monetization techniques, but also how they influence players. How they shape attitudes, behaviours - social, economic, even civic ones.



INSIGHT 2

Figure 42. Concept card for the second insight – Made in Europe





Our informants generally believe **Chinese expansion in European VGI is not a threat**. They consider the idea and the quality of the product as the major choice factors for gamers, not the country of origin:

'I don't know if this is strictly a problem (...) The game defends itself without any additional efforts.' (I6)

'I don't really see any bigger topic here, if the game is made nice and well, it sells well, but if the game is not made well, people don't like it.' (I8)

Our informants distinguish between the **business side of foreign investments**, which they consider a positive aspect, and the **potential threat of a cultural war**, which they discuss mainly from a theoretical point of view, as they have not observed such influences:

'We're happy to see transnational investments like these, including the Chinese ones. We need to distinguish between national investments and national interests from private investors and private companies entering into international markets. Many people have been quick to assume that private Chinese investment companies become sort of equivalent to the Chinese Communist Party.' (I2)

'Their funding and the people who invest... mostly they are focused on the business side of things, and usually there is no impact on the actual content of the games.' (I1)

'I can imagine, as if it were an element of a cultural war, but in that case it would be a really, really long period of time, yes, in which the changes would be supposed to take place here. So I admit that I don't really see it here.' (I8)

When exploring the topic of the country of origin effect in VGI and potential threats of foreign cultural influences, our informants mentioned that other countries or regions should be considered as well, **besides China**:

'The same thing can be said about US-based companies trying to invest in international markets.' (I2)



'Why the focus on Chinese? Because we have been culturally dominated in video games by American companies and Japanese companies for, like, decades, I would say.' (I3)

'If this problem existed in terms of actual investor influence, I would not limit myself to China, because the same concerns may be directed towards investors from the Middle East.' (I6)

'American companies do it the same way. Every country. Every country that has money tries to make the companies it has invested in speak more in its direction and go in its direction. Well, that's politics, and it has always been like that.' (I7)

Our informants had mixed feelings when presented with the idea of branding the European games. On one hand, they acknowledged the problem of the unequal competition from the Chinese market:

'China is basically blocking European publishers, I mean, they make it pretty difficult to publish. To properly publish a game in China, you need to have the whole procedure, and not many titles get accepted to receive the published number and all that. It would be nice if the European Union recognised this and helped us by maybe creating some kind of unity among European developers.' (I4)

On the other hand, there was an impression that such a branding program would not be enough to compete with Chinese firms:

'A label or ingredient branding program is really great for awareness. I would not be opposed to this, but I think ultimately, we need to value European companies more and basically empower them and enable them to provide sufficient weight against, you know, dealing with the large Chinese or American companies. We're dealing with very large corporations. And we basically need to make sure that we can push back on the same level, and I don't think that we're gonna meet that if there's just, you know, a label. So 'this is made in Europe' - I don't think that's enough.' (I3)



There were also opinions that such a program would either not matter to a final user or have a minor and local relevance:

'I don't think that creating this branding for European games would make any difference to the end customer.' (15)

'Maybe on a small scale, here and there, but more generally it probably didn't have much of an impact on the final customer, who is simply looking for a good game (...) Here, the local patriotism of Poles is high, so when it comes to labelling the game as Polish - ok, as it already appears somewhere, but I doubt it has any significance at all, especially considering that the game is from Sweden, France, or Germany.' (15)

Another informant raised concerns regarding the difficulties in classifying a game as a European one from a practical standpoint:

'When to consider the game European? When is it not European? What percentage of the game must be made in Europe? What values must the game convey? Who would analyse it?' (17)

The conclusion is that **Chinese investments are not perceived as threatening the European VGI from the cultural standpoint, no more than other foreign investments. They are rather welcomed from the business standpoint.** Still, our informants call for more institutional support to make the competition with large Chinese or American companies more even.

7.3.3. Diversity washing

The third insight, titled 'Diversity washing', referred generally to inclusivity of games and in games, but also indirectly to inclusivity in the video game industry. The chosen label is not accidental. It refers to the commonly used term of 'green washing' related to the deliberate business positioning of organisational activities as sustainable activities, or at least activities that do not harm the natural environment. The implementation of in-depth interviews showed that in some cases, pro-diversity and pro-inclusiveness actions are taken solely under pressure



from the external environment, including institutional and social pressures. The interviews also revealed that such actions are often easily detected and strongly criticised by gamers. It was also suggested that the effect of a kind of over-inclusivity is growing gamer reluctance toward pro-diversity and pro-inclusivity movements and actions in general, regardless of whether a particular game or game studio does this out of genuine conviction or solely for business purposes. The social significance of this type of opinion formulated by interview informants, combined with insufficient recognition of the ‘diversity washing’ thread in terms of possible negative effects, provided grounds for discussion and verification of the scale and even existence of the “diversity washing” phenomenon (Figure 43).





DIVERSITY WASHING

Key observation: The inclusiveness in VGI seems over-endorsed and artificially imposed in games, which brings negative connotations or even fatigue to players. Thus, contrary to the primary goal of promoting diverse roles of games, it brings boycotting and may ultimately even negatively impact individual assessments. Finally, compared to the greenwashing phenomenon, inclusiveness may also be used to artificially gain credit, leading to diversity washing in games.

The strategic challenges:

How to address inclusiveness to truly respond to societal needs in a way accepted by gaming community?

How much inclusiveness is needed (are there any reflections regarding the way to understand and measure the desired level?)

Initial recommendations:

- Be inclusive to develop inclusive games – inclusivity can't be treated like a checklist of rules to tick off in a game. Real credibility comes from truly embracing inclusivity as a value. That means the company itself needs to be inclusive - only then is there real consistency between what the firm says through its games and what it does internally. What also matters is working - at least in small or even zero-cost ways - with authentic organizations and communities. Even small steps in the right direction make a difference.

Benchmarks:

- <https://www.cdprojektred.com/en/diversity>
- Among the game companies committed to creating a diverse, equitable, and inclusive gaming culture around the world are Level Infinite, NetEase Games, HoYoverse, and Lilith: <https://www.thinkwithgoogle.com/intl/en-apac/future-of-marketing/management-and-culture/diversity-and-inclusion/top-game-companies-grow-dei/>
- Ben & Jerry's (ice cream) – the "Love Comes in All Flavors" campaign supporting the LGBT+ community (including renaming their "Chubby Hubby" flavor to "Hubby Hubby" as a gesture of support for same-sex marriage);
- Justice ReMix'd – a campaign against mass incarceration (featuring a special Justice ReMix'd ice cream flavor plus an awareness campaign highlighting the issue of mass imprisonment and racial inequality in the U.S. justice system). The newest campaign (2024) [Progress Comes In Many Flavors | Ben & Jerry's](#) encourages people to social activism as everybody can make the positive impact.



INSIGHT 3

Figure 43. Concept card for the third insight – Diversity washing





When referring to a practice of diversity washing, identified in previous stages of the project, some of our informants reacted decisively, **rejecting the notion that inclusiveness may be labelled as artificial or excessive:**

'I just straight up reject the statement, and I question the premise of the idea of diversity washing, the idea of something being too inclusive becomes a logical fallacy because it infers that there's a point of inclusivity that is unwanted.' (12)

'I don't think diversity washing is the largest problem when it comes to this topic. I still feel that companies that shout 'diversity is important' are better than absolute silence and nothing communicated at all.' (13)

During the discussion, the **political, cultural, and religious contexts** behind ideas related to Diversity, Equity, and Inclusion (DEI) concept in games were mentioned, accompanied by noticing the polarised views on this matter, which makes the topic complex and potentially controversial:

'Right now, we have two forces; on one side, we have a part that strongly advocates for inclusivity and expects a lot of inclusivity, and on the other side, we also have quite a significant minority that says absolutely no inclusivity, that it is entirely inconsistent with faith, religion, history, and so on. And in the middle, we have, as usual, the majority of people, including myself, who are generally looking around, left and right, and wondering what is actually happening here?' (18)

'Even today, people, developers, they are scared to speak out, and they are scared to make their own creative decisions. That is how the conservative anti-democratic forces have gained ground.' (12)

This shows that creative **decisions regarding DEI ideas in games are prone to various social pressures and even personal consequences.**

When discussing the issue of DEI ideas in games, our informants mentioned the **boycotts** and wondered about their real impact. Despite boycotting seems to be a practice of a minority of gamers, still the publicity it gets can't be ignored:



'We shouldn't underplay the impact of that vocal minority that does work against this and does work for boycotting games, boycotting studios.' (I1)

'I think it's very important and I agree that we shouldn't underplay the impact of the vocal minority, even though it is a minority, I think we should, you know, specifically remember what damage and impact for instance Gamergate³³ had 2014 and how that sort of became the seed of the modern culture war, and how many people like were involved, but many of them were outside of the games industry.' (I2)

Some claimed that such boycotts do not necessarily have a financial impact on games:

'The boycotts that we've seen, they're of course scary and become arguments against working with DEI topics or inclusiveness. But we've also seen that they very rarely have any major financial impact on the games themselves.' (I2)

'Not always screaming about a game that something is wrong with its inclusivity will negatively affect its sales.' (I7)

But there was also an opposite opinion on this topic:

'They verified one specific character and made a black samurai, which is why players raised an alarm that it is a black samurai. Why are they doing something like that? That caused the drop in value to the entire company.' (I5)

Our informants generally agreed that the concept of DEI is a part of the game design, but there were differences in **how such ideas should be incorporated**. One of the informants preferred visible symbols over nothing, even though the symbols were not supported by in-depth statements, arguing that even a minor symbolic gesture supports the cause:

³³ Gamergate or GamerGate (GG) was a loosely organized misogynistic online harassment campaign motivated by a right-wing backlash against feminism, diversity, and progressivism in video game culture. It was conducted using the hashtag "#Gamergate" primarily in 2014 and 2015. Gamergate targeted women in the video game industry, most notably feminist media critic Anita Sarkeesian and video game developers Zoë Quinn and Brianna Wu. Source and more on: Gamergate (harassment campaign) - Wikipedia.



'If that means that a lot of brands use the rainbow colours during Pride Month, while I do feel it's probably a bit of a hollow thing, if there's no substance behind it, right? I still feel it's better than completely ignoring it.' (13)

Other informants preferred that DEI ideas were a natural background of a game's story and did not counter the historical facts:

'Me personally being a really big fan of history, if for example on TV they offer me to watch a historical series, where there's a British princess or queen and she is black, then I immediately get out, because it has absolutely nothing to do with inclusiveness, but more with the fact that it simply wasn't like that.' (18)

'It's simply presenting an interesting story in such a way that it includes those elements we want to convey, including inclusiveness, but it's not the forefront, as a characteristic that defines the product.' (15)

'As for me abandoning ideology. Diversity, whether it refers to skin colour or orientation, should be seen as an addition and something that makes the universe more credible, not a key element defining the characters.' (16)

One of our informants, when referring to DEI incorporation in games, shared their process of **user-driven game development**, which was meant to increase user satisfaction and find a balance between a basic design and additional options:

'Obviously, you can never make everyone happy. But from our experience, we have been working on early access games where we develop them together with the community in an iterative process. We first release the demo, then an updated demo, then the access games and major updates and all the time we are listening to the community, we're reading the forums, and we try to maximise the amount of happy people and minimise the amount of unhappy people. And it's never perfect. You can never make everyone happy. (...) I look at this from the perspective of balancing the expectations of players and providing everybody a way to enable some additional options or settings.' (14)



Another informant presented the view that the level of inclusivity in games is **a result of a creative decision** of its creator, with no objective regulations:

‘And the idea that inclusiveness is being artificially imposed seems more like a subjective standpoint to me than an actual like legitimate critique of any policy or regulation. Because there isn’t really a policy or regulation telling you how inclusive a game needs to be, because it all comes down to creative decisions like we have.’ (I2)

The conclusion is that **DEI remains an important idea in VGI, but the opinions on how to incorporate it in game design seem varied**, from organic, natural, and toned nuances in the background to more direct symbols, even if not supported by in-depth corporate activism. Also, in terms of the game development process, two standpoints emerged: the first one, user-driven and iterative, where DEI ‘add-ons’ seem negotiated through testing with a community of gamers, and the second one, vision-driven, where the level of DEI ideas in a game design remains a subjective decision of the creator. **What makes the topic complex is its political background and polarisation of societies** in this matter, as noticed during the interviews.

7.3.4. Babel tower

The fourth insight concerned communication, an aspect identified among the key success factors as well as key barriers in cross-industry cooperation between EVGIE and other CCI³⁴. Research within the DTthons showed that communication is an integral element of every cooperation, at every stage, and even before it is established. However, it turns out (as commented by all 12 interdisciplinary working teams participating in DTthons) that partners often cannot communicate with each other effectively. There are many manifestations of these difficulties, starting from specialised and hermetic language, through different preferences regarding communication channels and styles, to the degree of communication formalisation. Considering the above, the fourth thematic thread explored during the FGI was precisely communication, without which effective and mutually beneficial cooperation is de facto impossible, especially at the strategic level (Miller et al., 2002). The fourth insight was labelled ‘Babel tower’ (Figure 44), a metaphorical representation of a situation in which people cannot communicate effectively due to not only strictly linguistic differences, but also cultural, institutional, cognitive, and conceptual ones, which ultimately leads to lack of understanding, chaos and communication noise, and impossibility of cooperation.

³⁴ Communication issues were identified by DTthons participants as important from the perspective of both key barriers and key success factors for cross-industry cooperation. Moreover, regarding communication, they also identified improvement recommendations. More information can be found in Deliverable 3.2. DTthons summary (Wrona et al., 2025).



BABEL TOWER

Key observation: Our research strongly indicates that cross-industry collaboration between VGI and CCI is not yet widely utilized, and one of the key barriers - both to initiating cooperation and to carrying it out effectively and fruitfully - is communication. The communication problems between gamedev and other cultural and creative sectors are complex and multidimensional. They include the use of highly specialized and often hermetic vocabularies, different preferences (or even complete divergence) in communication forms (e.g., written vs. verbal, formal vs. informal), channels (e.g., email vs. Discord), and even timeframes for communication (e.g., strictly within working hours vs. anytime when needed).

The strategic challenges:

How, when, and by whom should communication differences be addressed to maximize mutual understanding?

Initial recommendations:

- **Strategic direction:** the need to develop a collaborative language between VGI and CCI
- **At the project level:** creation of joint Production Document and a glossary of the key terms early at the beginning of the project.
- **At the industry level:** organizing cross-sectoral fairs for CCI (an opportunity not only to engage with the specialized jargon of various CCI sectors but also to foster networking); enriching the agenda of gaming industry fairs with sessions that, for example, present gamedev as a potential cross-sector collaboration partner (and, conversely, including sessions dedicated to gamedev at fairs organized by other CCI sectors).
- **At the inter-industry level:** for example, an institution offering research grants and supporting cross-sectoral projects, committed to the development of the creative industries (e.g. a ministry), could take the initiative to prepare a kind of glossary of key industry-specific terms that characterize individual CCI sectors in terms of, for instance, competencies and technologies.

Benchmarks:

- Corporate "plain language" programs - initiatives in which companies simplify internal communication by eliminating unnecessary jargon and promoting clarity and comprehensibility at all levels of the organization. Many organizations run programs that support communication between employees of different statuses (e.g., managers and line workers) or from different departments (e.g., IT and sales). More: <https://nulab.com/learn/collaboration/overcoming-language-barriers-communication/>



INSIGHT 4

Figure 44. Concept card for the fourth insight – Babel tower





When discussing the fourth insight, our informants admitted that the **communication differences are one of the potential root causes** of the lack of cross-industry cooperation between VGI and CCI. This is an observation worthy of emphasis, as it indicates not only that the importance of communication is greater than the DTthons results suggested (which exposed the thread of difficulties and communication barriers hindering cooperation and negatively affecting the achievement of cooperation objectives and cooperative success), but additionally provides a possible, practice-grounded interpretation of the quantitative research results presented in Section 4, which strongly indicate a negligible level of cross-industry cooperation between EVGIE and other CCI.

'I do see that there is a difference in communication that sort of hurts the collaboration between industries.' (I3)

'With culture, it's important to get to know it, to familiarise oneself with the environment, to know the artists' community. Because if one is not in this environment, it is indeed difficult to break into it.' (I7)

What could foster the collaboration, according to our informants, is **more contact points** so the VGI-CCI collaboration could kick off more naturally:

'We need more contact points between those industries, for example, a conference that is around the creative industries. I think there are a lot of people who would like to collaborate also on the other side, but they're not in the same channels as we are.' (I3)

'Organising cross-sectoral affairs for CCI - I think this is something that should be explored further because this is what gets people talking, right? And if creatives from different industries start talking, they will see that they are very similar to each other, they just work in a different medium. If we can help with building that baseline understanding on both sides, I think that would lead to more cooperation. And more successful projects.' (I1)

One of the interviewees called for **simpler and more streamlined procedures** of cooperation, as the fast-paced *modus operandi* of game developers does not allow them to engage in administratively time-consuming and complicated projects:



‘Developers generally have very little time, very little patience for non-streamlined collaborations (...) especially because they’re very financially vulnerable. They don’t have time to take long meetings and discuss new strategies when they know that they’ll be out of money in three months if they don’t have a demo ready. So I think for games to actually work in promoting cultural heritage, with or without those types of partnerships, the funding model and the requirements for those funding models need to be very clearly defined and streamlined from the beginning and avoid overhead and administration along the way.’ (12)

Referring to communication problems directly, one of our informants suggested the practice of **establishing communication protocols** between the cooperating parties:

‘So perhaps the solution to the problem would be to create some communication protocol here, (...) with a clear definition at the very beginning of the cooperation of what is possible to achieve on both sides.’ (16)

During the interview, there was a suggestion that perhaps the initial problem needs reframing onto a different context, as the **communication problem exists** not necessarily between the various industries but **between the different roles – creative vs business** (it is worth to note that similar comments were made by DTthons’ participants pointing out different dominant logics applied by game developers and other representatives of creative industries, often working based on public funding):

‘I would redefine this topic a little bit. I think the issue is not between the cultural and video games industries, but there is a huge discrepancy in understanding the topic between the business side and the creative side (...) even within a single company.’ (14)

The informant then continued, pointing attention that a problem is not only in communication but also in a **lack of basic business skills among creatives**, which creates the need for dedicated training:



'Those people usually are very creative, they create their own companies, their own games, and yet they disregard basic rules of the market, or they don't have the business knowledge. And I have observed many times very talented people who spent many years on making their projects, which just had wrong assumptions on the basic level. And there is a great need for education of basically how to make games from the business standpoint, how to run a studio, how to market the game.' (14)

In fact, the same topic – the lack of business skills - emerged again later, during the discussion:

'Help game companies on the business side because what we often see is that there are a lot of game developers that start their own studios because they want to make something cool, and they can make something cool, but they don't really know how to do the business development.' (13)

Also, other informants shared stories showing that communication problems do not apply to EVGIE-CCI cooperations only, but to cross-industry collaborations in general:

'Personally, I don't have much experience when it comes to these CCI interactions. However, communication issues are cross-industry, and I actually have a lot of experience with that, for example (...) with the motorsport industry. And there was actually the whole array of misunderstanding from what can be done at all using the game dev approach, through various hours of communication, well, generally the communication was very difficult, and finally the project has been stalled for almost a year.' (16)

'I will have less to say here, because we didn't collaborate with cultural organizations (...) but when it comes to communication, we indeed communicated with entities not from the game industry (...) And there you can notice something that may also be a solution for those cultural entities, namely, that if they are interested in a certain topic and this game dev side does not operate with some astronomical jargon... we always adjust the level of communication to each other. However, they quickly learn these things, as they are very eager to understand.' (15)



We may conclude that the investigation of the fourth insight revealed that **communication-related differences are not the only root cause of limited cross-industry cooperation**. The lack of contact points (here, one may consider the need for institutional support to be implemented) between these industries, different channels they are present at, and more generally speaking, **a ‘silo’ situation, is another factor that limits the collaboration opportunities**. One of the ways to tackle this problem would be creating a **net of boundary spanners**, either individuals or organisations that would connect different entities and teams from VGI and CCI, facilitating communication, knowledge sharing, and collaboration across industrial boundaries (note that the need for institutional facilitation was also identified in DTthons). Another option (also identified during the DTthons) would be an organisation of inter-industry (cross-industry) trade fairs or events, allowing, to some extent, even minimal, the understanding of different perspectives, different approaches, different communication styles, as well as establishing the very first contact and perhaps the establishment of cooperation.

7.3.5. Innovation mirage

The last, fifth insight corresponds directly with the quantitative research results on profiling European game developers regarding implemented innovations (as they perceive). Following the EGDF’s classification of innovations of video game developers (EGDF, 2021, 2022), it was established that, generally, in the perception of the surveyed 1270 developers from Europe, the level of innovation is very low across all three types of innovations: technological, business, and content innovations. Moreover, contrary to initial assumptions, it turned out that the lowest level is attributed to technological innovations. Content innovations appear to be in first place. The rather pessimistic picture of developer self-assessment in innovation prompted the search for answers about possible causes of this state of affairs. The discussion on this thread was labelled ‘Innovation mirage’ (concept card presented in Figure 45) since the quantitative research results stand in opposition to the widespread, but also scientifically supported image of the video games industry as based on innovations (Iddris et al. 2023; Klimas & Czakon, 2018; Ozalp 2024), primarily on technological innovations (Mohammed et al. 2024) perceived as the driving force or even *spiritus movens* of the video games industry.





INNOVATION MIRAGE

Key observation: European Video Games Developers developed **multidimensional** model of **innovations** of video game developers covering three types of innovations **technological** (related to game technology), **business** (related to business models of games), and **content** (related to artistic content in games). The concept of multidimensional innovations assumes that all three types of innovations are relevant for video game industry, while technological and business create the key pillars of the game industry core and content innovations are the most relevant of games pioneers. Our study shows that out of these three types of innovations VGI seems to focus on content innovations and the remaining two spheres remain 'blind spots'.

The strategic challenges:

How can we make sense of these outcomes – should they be seen as positive or negative?

How video game developers may develop 3-dimensional innovations (is it needed? is it possible?)

Secondary sources:

- [Games are the driving force of the digital revolution \(2021\)](#)
- [A EGDF white paper: Games as a Driving Force of the 21st Century \(2022\)](#)



INSIGHT 5

Figure 45. Concept card for the fifth insight – Innovation mirage





When discussing the **scope of innovation types in VGI**, some of our informants agreed with the view that content innovation dominates in VGI. They tried to explain it using two arguments: ease of invention and scalability:

'In my opinion, content innovation is the most popular because it is the simplest, it is based on the skills of people creating content. Business innovation, on the other hand, is more difficult because most of the monetisation methods are already on the market. Other methods of monetisation are more difficult to invent. (...) As for technology innovation, it's even worse. It requires a huge R&D and budget.' (16)

'It's also worth noting that content is probably the most scalable.' (15)

But another informant argued that innovations in VGI are not narrowly focused:

'I wanted to disagree that the video game industry mostly focuses on content innovation. The widespread use of Unreal Engine for movie productions - I think this is 100% technological innovation that was created for the video game industry, which is now used even more outside of it. (...) I'm sure there are a lot of people who would say that the video game industry focuses on business innovations far more than on content innovations, and that it is a bad thing, actually. (...) This is definitely not an issue that the video game industry focuses only on one type of innovation.' (11)

During the interview, this opened an interesting avenue, where interviewees started reflecting **on how the industry defines innovation**.

Another interesting topic emerged: how **grant framing affects innovation efforts** in game development. One of our informants noticed that:

'I do agree that the focus is often very much on content. Because the grants are usually set up in a way that you know they come from a Ministry of Culture or so, and then they don't account for all the facets that games can be innovative. So then some submissions get declined because they may not have innovative content, but they have a hugely innovative business model.' (13)



The problem of a mismatch between the requirements of grants and the realities of innovating in game dev was also raised by another informant:

'So the notion is at a very high level that games are not innovative and they shouldn't apply for culture grants. Grants say no, no, no. This is tech stuff. We don't care about this.' (I2)

The conclusion is that **VGI seems highly and permanently innovative**, in many dimensions; **however, many innovations within the industry seem silent**, or have a form of by-product innovation, which is a secondary outcome of efforts to achieve a different, primary goal, usually a content innovation. It seems that **recognising and acknowledging the industry's innovative power would foster its growth and open new possibilities for grant applications**. For the VGI to get the innovation recognition it deserves, innovation efforts need to be reflected, first by innovators themselves, and then by turning these efforts and outcomes into success stories for better publicity.

7.4. Conclusions

Implementing FGI allowed for positive verification and building upon knowledge regarding three insights: *Profanum*, *Babel Tower*, and *Innovation Mirage*. It was also possible to some extent to falsify assumptions regarding relatively negative insights, such as *Diversity washing* and *Made in Europe*. In a broad sense, implementing FGI allowed for deepening the realisation of objective O3.1 concerning understanding cooperation mechanisms and O3.3 concerning developing practical recommendations (also included in section 8). In a narrow sense, the implementation of FGI brought the following findings.

- **There is a negative perception surrounding the whole category of video games** – the 'stigma' as we call it. Its impact can be noticed in various domains, from business activities to informal conversations and social interactions between teenagers and caregivers. Due to negative media messages and active forces from other industries (i.e., gambling), one cannot expect the stigma to fade away naturally. If sustained, it will keep preventing the industry from financial growth.



- According to this study, Chinese investments are not perceived as threatening the European VGI from a cultural standpoint, no more than other foreign investments. **Foreign investments are rather welcomed from the business standpoint.** Still, our informants call for more institutional support to make the competition with large Chinese or American companies more even.
- **DEI remains an essential idea in VGI, but according to this study, the opinions on how to incorporate them in game design seem varied**, from organic and toned nuances in the story's background to more direct symbols, even if not supported by in-depth corporate activism. In terms of the game development process, two standpoints emerged: the first one, user-driven and iterative, where DEI 'add-ons' seem negotiated through testing with a community of gamers, and the second one, vision-driven, where the level of DEI ideas in a game design remains a subjective decision of the creator. What makes the topic complex is its political background and the polarisation of societies in this matter, as noticed during the interviews.
- This study shows that the **communication problem (although relevant) is not the only root cause of limited collaboration between VGI and CCI.** The lack of contact points between these industries, different channels they are present at, and more generally speaking, a 'silo' situation, is another factor that limits the collaboration opportunities. One of the ways to tackle this problem would be creating a net of boundary spanners, either individuals or organisations, that would connect different entities and teams from VGI and CCI, facilitating communication, knowledge sharing, and collaboration across industrial boundaries.
- **VGI seems highly and permanently innovative, in many dimensions;** however, many innovations within the industry seem silent, or have a form of by-product innovation, which is a secondary outcome of efforts to achieve a different, primary goal, usually a content innovation. It seems that recognising and acknowledging the industry's innovative power would boost its growth and open new possibilities for grant applications by VG firms. For the VGI to get the innovation recognition it deserves, innovation efforts need a reflection, first by innovators themselves, then turning these efforts and outcomes into case studies, success stories, and celebration opportunities for better publicity.



8. STRATEGIC RECOMMENDATIONS

The essence of scientific research lies in creating knowledge and expanding the cognitive perspective on the world around us. However, simultaneously, a kind of mission of scientific research, beyond the aforementioned contribution to theory, is also to contribute to practice. Therefore, **this chapter focuses on practical implications**, to a large extent, the strategic implications of the five completed stages of scientific exploration. These implications take the form of recommendations formulated directly based on the results of the successively implemented research steps - from integrative desk research, through quantitative testing survey, exploratory IDIs, verification-exploratory DTthons, to verification-deepening FGIs. It should be noted that a summarising view on recommendations built on all of the adopted research steps is presented in Section 9 in Table 38.

The developed recommendations aim **to leverage the growth dynamics and development pace of video game developers, and consequently, more broadly, of the European video game industry**. Taking into account modern concepts of competitive and sustainable competitive advantage, which see their source in establishing and exploiting cooperative relationships (Dyer & Singh, 1998), including coopetition relationships (Xie et al., 2023), for the purpose of value co-creation (Galvagno & Dalli, 2014), value transfer (Bouncken et al., 2020), and above all co-innovation (Saragih & Tan, 2018), the recommendations aim in particular **to indicate directions and ways of utilising the relational approach within the European game industry**. The general message is to transform EVGIE–CCI cooperation from a promising exception into a systemic and successful practice. It is so, as coordinated action across the stakeholder ecosystem could reinforce Europe’s digital and cultural sovereignty and unlock new channels for economic growth, civic participation, and social innovation. The convergence of games with other cultural sectors offers a strategic opportunity to shape the digital futures of Europe on its own terms - ethically, inclusively, and with a distinct narrative voice.

The recommendations are presented from a target audience perspective with particular attention to two perspectives: video game developers (as those directly contributing to the growth of VGI) and policymakers (as those empowered to stimulate the development of both VGD and, more broadly, the growth of VGI). Additionally, depending on the scope and subject of research at a given stage of the research process, the set of formulated recommendations also includes recommendations for EVGIE and other CCI.





8.1. Desk research

The strategic recommendations from the desk research address the structural challenges and emerging opportunities for advancing cooperation between the EVGIE and CCI. Organised by function rather than administrative level, this structure aligns with EU policy frameworks and prioritises impact, clarity, and implementation feasibility.

Recommendations for EVGIE

a) Developers, publishers, and industry associations

- **Form strategic alliances among mid-sized and independent studios:** foster joint lobbying, co-investment in innovation platforms, and shared resource pools to reduce market vulnerability.
- **Participate in multi-stakeholder policy design:** contribute to co-creating funding frameworks, research agendas, and cultural strategies at both EU and national levels.
- **Invest in transmedia-ready intellectual properties:** cultivate game titles with narrative and aesthetic depth to enable cross-platform adaptation into film, literature, education, and music.
- **Lead ethical innovation:** set internal standards for responsible AI use, inclusive design, and sustainable labour practices, particularly in fast-scaling or high-impact projects.
- **Engage with cultural heritage and civic narratives:** develop titles that reflect regional memory, local languages, and social dialogue to enrich cultural legitimacy and audience resonance.

b) Intermediaries and ecosystem enablers (e.g., clusters, innovation hubs, consortia)

- **Facilitate matchmaking across sectors:** launch platforms or events connecting VGIE developers with CCI institutions, aligned by thematic focus or project type.
- **Invest in joint research and prototyping infrastructures:** create physical and digital spaces for experimentation and co-development, supported by multi-source financing.
- **Standardise tools and contracts for collaboration:** develop open templates for IP sharing, revenue splits, and co-licensing, tailored to game-based cultural projects.
- **Provide long-term support structures:** move beyond pilot funding by establishing multi-year innovation cycles with built-in evaluation and scaling phases.
- **Map and benchmark innovation ecosystems:** monitor emerging regional leaders, successful partnerships, and regulatory friction points to inform future interventions.





c) *Recommendations for policymakers and regulators*

- **Institutionalise EVGIE–CCI cooperation in cultural and innovation policy:** embed cross-sectoral collaboration into strategic EU frameworks such as Creative Europe, Horizon Europe, and the Digital Decade. At the national level, integrate VGIE into cultural strategies and recovery plans.
- **Safeguard European authorship and ownership:** implement EU-wide IP frameworks for co-creation and adaptation to protect cultural integrity, fair revenue sharing, and the long-term rights of creators.
- **Develop robust AI governance in creative domains:** introduce guidelines specific to creative AI deployment, ensuring accountability, human-centred design, and support for junior creative labour.
- **Mobilise public procurement and cultural funding instruments:** open existing public tenders and grant schemes to game-based cultural interventions in education, heritage, and social impact.
- **Enable digital cultural sovereignty:** treat VGIE as a strategic cultural infrastructure, capable of strengthening Europe's narrative autonomy and civic identity in the global media landscape.

d) *Recommendations for (remaining) CCI*

- **Adapt to hybrid creation models:** build organisational capacity to work with digital-native media, including training in co-design, IP management, and agile development.
- **Translate legacy formats into interactive experiences:** leverage existing collections, performances, or exhibitions as content for game-based storytelling, simulations, and public engagement.
- **Build cross-sector partnerships:** pursue co-productions with VGIE actors using shared thematic goals - e.g., memory, identity, or sustainability - and co-apply for EU and national grants.
- **Document and share effective practices:** create publicly accessible case studies and toolkits outlining how to engage with game developers across different domains.
- **Recognise games as peers in cultural programming:** include video games in artistic festivals, institutional curricula, and public collections alongside traditional cultural outputs.





8.2. Survey

The quantitative research on 1270 VGD allowed us to formulate some evidence-based recommendations for policymakers and video game developers. Quantitative and methodologically rigorous, this research is believed to give a relatively objective picture of the characteristics of European developers in terms of utilising (and the legitimacy of utilising) a relational approach to building competitiveness based on innovation through intra-ecosystem cooperation (within EVGIE) and cross-industry (with CCI).

Recommendations for video game developers

- **Raise awareness about the broader understanding of innovativeness** which – in the light of quantitative analyses – characterises VGD and includes behavioural, product, and process innovativeness. In general, VGD should be aware that their innovativeness stems not only from the innovation present in the games they create.
- **Consider the promising potential of using strategic collaboration in innovation processes within EVGIE and CCI** (i.e., implementation of co-innovation processes). The research shows limited current use of co-innovation relationships, while also confirming their impact on the organisational innovativeness of VGD.
- In the general outlook **building innovativeness, special focus should be placed on establishing and utilising co-innovation relationships with the institutional microenvironment** (EVGIE actors like research firms, public institutions, accelerators, lobbying entities) and **with industries focused on culture expansion** (sectors such as audiovisual, literature, publishing, visual arts). It's worth highlighting that structural equation modelling shows that within co-innovation relationships in EVGIE, ties with the institutional microenvironment are slightly more important in the context of innovativeness than ties with game users (i.e., with casual players, gamers, testers, and influencers). Yet currently, game studios appear to focus heavily on the latter.
- **Pay attention to the mixed impact of maintaining co-innovation relationships with industries focused on culture preservation.** On one hand, they may slightly support product innovativeness, but on the other, they may negatively affect behavioural innovativeness. Therefore, this type of co-innovation relationship requires special caution from those managing innovation.



- **Take action to increase innovativeness across different dimensions, including behavioural, product, and process innovativeness.** Based on the self-assessment results, while pro-innovative efforts should ideally be undertaken simultaneously (as the overall level of innovativeness is low across all three dimensions), in cases of limited resources, the following order is recommended: focus first on product innovativeness, then process innovativeness, and finally, behavioural innovativeness.
- **When focusing on product innovativeness, consider establishing and using co-innovation relationships with the institutional microenvironment** (such as EVGIE actors, such as research firms, public institutions, accelerators, lobbying entities) and with industries focused on culture preservation (such as CCI, such as archives, libraries, museums, artistic crafts).
- **When targeting behavioural innovativeness, it may be beneficial to engage in co-innovation with game users** (EVGIE actors like research firms, public institutions, accelerators, lobbying entities) **and to actually avoid co-innovation relationships with industries focused on culture preservation** (CCI like archives, libraries, museums, artistic crafts).

Recommendations for policymakers

- **Support both intra-industry and cross-industry cooperation aimed at co-innovation:**
 - co-innovation relationships within EVGIE carry slightly greater weight, so this type of co-innovation relationship could potentially be prioritised,
 - regarding co-innovation relationships within EVGIE, ties with the institutional environment proved to be slightly more significant, while for CCI, it was relationships with industries focused on culture expansion – this points to a more specific, stakeholder-oriented direction for recommended support actions,
 - in order to stimulate organisational innovativeness of VGD it is reasoned to enable the launch of and strengthen both co-innovation relationships within EVGIE and with CCI,
 - in order to stimulate behavioural innovativeness of VGD it is recommended to support co-innovation relationships mainly within EVGIE with game users,
 - in order to stimulate product innovativeness of VGD it is recommended to support co-innovation relationships mainly within EVGIE with institutional microenvironment and with CCI with industries focused on culture preservation,





- in order to stimulate process innovativeness of VGD it would be needed to find other stimuluses as considered co-innovation relationships does not have significant impact.
- **Stimulate (especially) process innovativeness and process innovations** a largely unnoticed dimensions of innovativeness and innovation of VGD:
 - SEM indicates that process innovativeness showed the strongest connection with organisational innovativeness of VGD.
 - Descriptive statistics show that the level of process innovativeness is rated relatively low by VGD themselves (an average of 4.5 on a 7-point scale – more specifically, the lowest average rating of 4.21 was given to innovativeness in the area of game production).
 - As indicated by regression results, the co-innovation relationships of VGD neither within EVGIE nor with CCI significantly impact process innovativeness. Therefore, policymakers must find other ways to efficiently support this dimension of game developers' innovativeness.
 - Considering the forms of support implemented so far to promote development or, more narrowly, to stimulate innovativeness in VGI, it can be said that current support primarily addresses product innovativeness, while there are virtually no dedicated solutions aimed at fostering process innovativeness.
 - Process innovations are recognised by the OECD (OECD / Eurostat 2018) as one of the key types of innovation and are even treated as a complementary counterpart to product innovations, which are currently the primary focus in the VGI sector, leaving process innovations aside, which further strengthens the case for supporting process innovativeness.

8.3. In-depth interviews

The exploration of recommendations for improving the functioning of VGI, but also broader EVGIE and CCI, was one of the direct assumptions of individual in-depth interviews. Therefore, while below we present a synthetic approach to recommendations flowing from practitioners involved in the implemented IDIs, it is worth noting that detailed recommendations from this research stage have been described in section 5.3.3 Recommendations for EVGIE, CCI and policymakers.



Recommendations for EVGIE

Based on our data from IDIs, we can outline a set of recommendations for EVGIE, developed from two perspectives: EVGIE itself and, more specifically, the CCI context. Our informants outlined the need to join the efforts to build an open, conducive environment where **cooperation** grows naturally and is **triggered** by trust and failure tolerance.

- The call to adopt the greater initiative-taking **standpoint** was mentioned in either the market perception or the development of business models. It also concerns the **greater novelty** in content creation supported by the willingness to experiment.
- The need to **leverage mutual understanding** was raised. A clear example can be seen in the industry-specific language used by representatives of the sectors, which also constitutes a barrier not only to communication but also to operationalisation of potential initiatives. This issue concerns the relationship between policymakers and EVGIE and cross-industry cooperation, i.e., between EVGIE and the CCI. The particular needs, qualifications, and skills required in game development in some way narrow the scope of cooperation with artists, musicians, or other talents, as well as the openness and understanding of the procedures involved in creating a game project. As our participants indicated, creating music live or for film adaptations is one thing, but implementing it into a game is another.
- A necessity to **consider both** industries' specific cultural and creative **needs** when establishing potential cooperation.
- The video game industry itself recommends focusing on creating high-quality products, projects, and games **with a strong cultural or historical message**. And although there is a widespread belief in the cultural role of games, their creators often emphasise that their primary goal is business-oriented rather than promoting a particular message.

Recommendations for policymakers

As mentioned in section 5, the qualitative stage of our research enabled us to offer several recommendations for future projects and, more broadly, for shaping policies and decision-making approaches, mainly regarding how funding streams for initiatives and research related to EVGIE and VGD could be supported.





- Our informants emphasised the **need to highlight games' educational and cultural roles**. Games are increasingly used and visible in didactics and education. However, this primarily applies to so-called serious games. It should be noted that the growing variety of games (not only serious ones) delivers important messages and encourages reflection among audiences (e.g., *The Last of Us* or *The Witcher*). Game developers also support the development of fields such as medicine, aviation, and ecology. Therefore, the industry is not only a source of entertainment but also possesses educational and popularisation value, which simultaneously requires support from political decision-makers.
- This aspect is reflected in additional participant recommendations, which refer to the **perception and related needs of various groups** and integrated policies. During interviews, the crucial role of support from decision-makers was emphasised; however, it was also noted that the distribution of power, engagement, and purpose should change. This indicates the need for close cooperation between representatives of institutions and game developers in creating development programs, assistance initiatives, or grants tailored to the size of the company, studio, or publisher (e.g., small, medium, or large studios). IDIs also revealed a broader need for cooperation, understanding, and a change in the attitudes of public institutions towards EVGIE. A significant difficulty often arises from the dominant stance of officials and the lack of knowledge of how the video games industry operates and what the particular needs of entities are.
- The need to **develop a comprehensive EU-wide approach to video games preservation**, including implementing coherent and unified measures across countries. This could involve the formal recognition of video games as part of national and European cultural heritage, the systematic archiving of games and related artefacts in a centralised EU digital repository, and the mandatory preservation of games in national heritage collections. Additionally, copyright legislation should be clarified to explicitly allow copying, emulation, and playback of games, particularly those no longer commercially available, for archival and educational purposes.
- A call for **greater coordination and integration within the policies** was also a frequent issue within our data in both – CCI and EVGIE groups of informants, who complained about fragmented programs at various levels. The need to enhance the coherence and prioritise the policies vital for diversified beneficiaries was strongly emphasised.
- At the same time, we observed a call for **improving the speed of legislation** and legislative changes, their swift implementation, and the **clarity and transparency** of existing **regulations**. Informants pointed out that some current regulations do not keep pace with the rapidly evolving video games industry and lag behind the challenges. Moreover, it





is important to remember that controlling video game companies is challenging due to their global and European nature of operations. Therefore, it is justified to unify laws and regulations at the European level, which would enable transparency, as well as freedom in the flow of activities and operations.

8.4. DTthons

The conducted design thinking marathons were intended not only to explore and expand knowledge about the mechanisms of cross-industry cooperation in the framework of the 4E model, but also to collect direct recommendations - those formulated by the interdisciplinary working teams engaged in the DTthons. It is important to note, however, that **the recommendations from the DTthons are limited to the context of cross-industry cooperation**, which was the specific focus defined in the research challenge of the marathons.

Recommendations for video game developers

- **Treat creatives as co-authors, not contributors.** Stop outsourcing the meaning. Museums, writers, educators – they don't provide "assets," they bring narrative depth. Engage them early. Share authorship.
- **Translate your language.** Drop the internal jargon. If your pitch starts with "game loop" and ends with 'pipeline', it's not a conversation. Use analogies. Build bridges, not barriers.
- **Prototype fast, but explain slowly.** Speed is an advantage only if your partners understand where it's heading. Build in deliberate pauses to align.
- **Respect the source, reimagine the form.** Cultural IP doesn't need to be preserved – it needs to be transformed responsibly. Be bold, but not careless.
- **Think global, design accessibly.** National heritage is a strength, not a shield. Translate local identity into global grammar.
- **Acknowledge the play imperative.** Players want agency, not lectures. If your project's educational – fine. But if it's not fun, it's not a game.
- **Be honest about constraints.** The cultural sector doesn't run on crunch. Be transparent about time, budget, and change risk.
- **Budget for misalignment.** Misunderstandings are guaranteed. Build them into your project plan like weather on a shoot.
- **Use your team's internal diversity.** Your narrative lead might already speak 'museum'. Don't default to tech leads as the only interface.





- **Document the journey.** Process stories – why choices were made, what was learned – are often more powerful than the final product.

Recommendations for other CCI

- **Let your IP evolve.** You're not licensing replication – you're enabling reimagination. Protect your values, not the surface form.
- **Frame your pitch for developers.** Don't bring abstract missions. Bring the story, potential mechanics, and target audiences. Talk like a co-designer.
- **Embrace the market without fear.** Commercial viability is not betrayal. Games sit at the intersection of meaning and market. So can you.
- **Find your interpreters.** If tech intimidates you, build a bridge. A producer, a student, a facilitator – someone who speaks both worlds.
- **Tailor your portfolio.** A collection of exhibitions won't speak to developers. Show what can be translated into interactivity.
- **Respect the user.** Gamers are not a passive audience. They test, break, and inhabit. Your message must survive contact with them.
- **Initiate contact.** Don't wait to be approached. Attend game jams, festivals, or creative labs. Curiosity is currency.
- **Understand your rights.** Know your licensing power and limits. Negotiate from informed positions, not fear.
- **Protect your energy.** Don't mimic the developer's pace. Define your own tempo and boundaries for sustainable collaboration.
- **Lead with values.** Make your ethical lines visible from the start. Games transmit meaning – be intentional about what yours will say.

Recommendations for policymakers

- **Treat the cooperation infrastructure as essential.** Templates, glossaries, matchmaking platforms, shared toolkits – these are critical enablers, not extras. Build and maintain them as public infrastructure.
- **Design funding for the creative process, not just its outcome.** Prototyping, misalignment, and reframing – these are part of innovation. Current funding models penalise the process. Fix that.





- **Formalise and professionalise intermediary roles.** Cross-sector ‘translators’ – those who navigate between game engines and curatorial language – are essential. Train, fund, and recognise them.
- **Adapt funding frameworks to sector asymmetries.** CCI and VGD don’t scale the same. Avoid one-size-fits-all applications, timelines or KPIs. Fund diversity by design.
- **Enable smooth IP flow.** Make it easier for public institutions and creatives to license content to developers. Streamline contracts and remove legal ambiguity.
- **Create searchable directories of trustworthy partners.** Let CCI actors find credible studios, and VGD discover licensing-ready institutions. Verification builds confidence.
- **Preserve games as cultural heritage.** Legalise emulation, fund digital archiving, and protect interactive work as part of Europe’s memory.
- **Fund failure as data.** Invest in post-mortem analysis, not just success stories. Projects that ‘almost worked’ often reveal more than polished case studies.
- **Fund embedded formats: residencies, bootcamps, creative labs.** Let people meet in real time, not just online. Contact precedes cooperation.
- **Elevate games in culture and education policy.** Stop treating games as peripheral. Integrate them into mainstream public engagement, learning, and cultural diplomacy frameworks.

8.5. Focus group interviews

Although the focus group interviews were thematically limited and primarily concentrated on deepening the understanding of specific insights identified in the other stages of the research, they also provided material that allowed for formulating strategic recommendations.

Recommendations for video game developers

- In light of the interviews, the great importance of DEI in game development was confirmed. Interview participants strongly indicated the necessity **of being more sensitive to inclusivity**, which is connected with the necessity of a natural and creative approach to inclusivity in games and their creation, but also awareness that inclusivity is nevertheless a must-fulfil requirement.³⁵

³⁵ A similar recommendation was formulated based on the preliminary stakeholder workshop organized by Tampere University within WP2 and described in D2.2 Workshop Report (Bagnall et al., 2024 – chapter 6).



- **Build a greater openness to other cognitive, business, organisational approaches** – an attempt to minimise silo and tunnel thinking, or at least greater awareness of ‘mental silos’ which will allow for greater openness to diversity specific to particular CCI. Participation in inter-industry events or events of creative industries other than the video games industry itself may also be valuable.
- **Game developers need less strict boxes to fit in and more open briefs when applying for grants.**

Recommendations for policymakers

- One of the potential factors preventing faster development of the video game industry may be its (still noticeable and felt) stigmatisation; hence, it is recommended to **undertake awareness-raising, informational activities** showing the video game industry in a positive (also from a **business perspective**) light. A good idea may also be strengthening the cooperation of public institutions with the video games industry, which could constitute real proof of the legitimacy of perceiving game developers as valuable business partners. The thread of a kind of ‘specific’ and harmful perception of the video games industry also became visible in the context of institutions and political decision-makers.
- Focus interviews indicate concerns of practitioners regarding the **need for regulation and support of European VGD in terms of their competitiveness over non-European brands and game studios**. A possible solution presented and discussed with interview participants was the introduction of labelling games with a ‘*Made in Europe*’ mark – the idea (described in more detail in Figure 42) gained approval from participants of both FGI.
- Creating conditions or support in the form of a kind of ‘contact point’, enabling the building of mutual awareness, cross-industry contacts, and transparent and effective (i.e. mutually understandable) communication.
- In the context of recommended changes in the financial support system, **FGI indicates the need to implement separate funding options for newcomers and smaller studios**.
- **Game developers need more helping hands with business issues.**





9. SUMMARISING CONCLUSIONS

This report integrates the results of mixed-method research focused on broadly understood mechanisms of co-creation (including value transfer), with particular emphasis on co-creation of innovation through intra-ecosystem cooperation (i.e., within the European Video Games Industry Ecosystem) and cross-industry cooperation (i.e., between video game developers and entities from other sectors classified as Cultural & Creative Industries).

Importantly, in addition to results that cumulatively expand knowledge about game developers, the video games industry, the ecosystem surrounding it, and the functioning of the CCI, the report also presents research-inspired recommendations.

Knowledge development

In general terms, the cognitive contribution of the five-stage research process (Figure 1 in the executive summary) to the existing understanding of VGD, VGI, and cooperation between VGD and representatives from other CCI is twofold.

First, the research helped to **better understand the untapped potential of the games industry in terms of its impact on the economy (including technology), society, and culture**. It is particularly important to identify the potential offered by enhanced orientation toward initiating and leveraging **intra-ecosystem and cross-industry cooperation**.

On the one hand, according to the quantitative study (Sections 4.3.1-4.3.2), such cooperation, both intra-ecosystem and cross-industry, is currently not intensively exploited in practice. On the other hand, cooperation creates opportunities for competitive advantage for involved parties and the surrounding environment. This is supported not only by numerous studies grounded in other industry contexts (which form the basis for the entire relational approach in strategic management), but also by identified success case studies (Section 3.3 and Kościewicz et al., 2025) and the qualitative findings presented in this report, especially those from DTthons (Section 6.3).

Furthermore, from the economic perspective, the quantitative results show that cooperation in the area of innovation positively impacts the innovativeness of game developers (Section 4.3.4), which - as is well known - is one of the key factors driving the development of the entire video games industry (Iddris et al. 2023; Klimas & Czakon, 2018; Mohammed et al. 2024; Ozalp 2024).



Finally, from the socio-cultural standpoint, especially in the case of cross-industry cooperation, such cooperation can represent one of the effective pathways to increase accessibility to culture and cultural heritage, as demonstrated, for example, by the conducted IDIs, DTthons, and FGIs.

Second, a key cumulative outcome of the research process **is a detailed diagnosis of the phenomenon of cross-industry cooperation in the context linking VGD with organisations and actors from other CCI**. In particular, the cognitive contribution lies in the development, empirical verification, and in-depth characterisation of a cross-industry cooperation model in the form of the 4E framework, including:

- a detailed description of the phases included in the **4E cooperation model - establishment, execution, ending, and endorsement** - in terms of their current state, desired state, directions for improvement, collaboration decalogue, and tensions map (mainly Section 4.3);
- identification of three coordination mechanisms that are crucial in the execution phase of cooperation focused on value co-creation - namely: static-adaptive management, proximity, and knowledge management (part of the desk research results published in Klimas et al., 2025);
- identification of phases that tend to be unconscious and, consequently, receive insufficient attention - ending and endorsement (Sections 3.3 and 6.3);
- linking the 4E model with co-innovation phases, which include co-creation, co-development, co-deployment, co-delivery, and co-dissemination (Klimas & Czakon, 2022), as presented in Figure 46;
- establishing that the extent to which collaboration is utilised across the co-innovation phases - and thus the extent to which co-innovation relationships are embedded in the 3 out of 4 innovation-related phases of the 4E model - is very low or even marginal (Section 4.3).



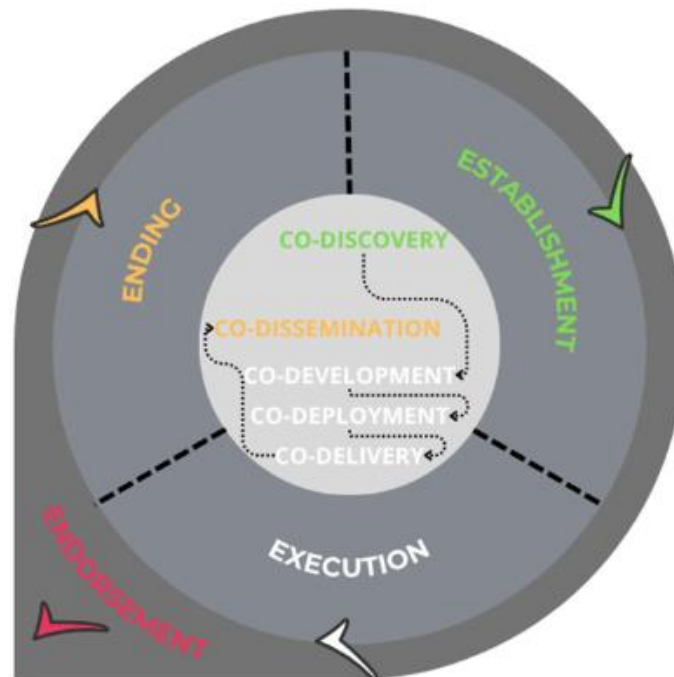


Figure 46. Detailed 4E model for cooperation in the area of innovation

Practical implications

A key element - and at the same time a distinct practical contribution of this report - is a **comprehensive set of strategic recommendations** worth considering in the context of enhancing the development potential not only of VGD, but of the entire video games industry and - assuming cross-industry cooperation - also other CCI. These recommendations are presented in detail primarily in Chapter 8 and Section 5.3.3. Below, we provide their concise summary in a tabular format (Table 38) covering the recommendations that emerged most strongly across various research activities. It should be noted that the recommendations provided in the table are not prioritised, as prioritisation would require dedicated research investigation.

As shown in Table 38, the recommendations are primarily addressed to two target groups: management staff, mainly from the video games industry (but also from other CCI), and policymakers.

**Table 38. Summarising the perspective on key recommendations**

Focus	Recommendation	Target audience	Beneficiaries		Research source				
			Direct	Indirect	SLR	Survey	IDI	DTthon	FGI
Business & Organisation development									
Cooperation	Use an open approach and cooperate at different levels, e.g., intra-industry, cross-industry, intra-ecosystem, and/or inter-ecosystem, to better create value, transfer value, and innovate.	VGD CCI	VGD CCI	Economy	✓		✓	✓	✓
	Have a greater initiative-taking standpoint when it comes to cooperation and greater openness, be open-minded.	VGD CCI	VGD CCI	Economy			✓	✓	
	Leverage mutual understanding and trust, avoid tunnel and silo thinking (e.g. understand differences in business goals and organisational cultures, consider the specific cultural and creative needs).	VGD CCI	VGD CCI	Economy			✓	✓	
	Communicate clearly, be honest, accurate, and follow detailed reporting.	VGD CCI	VGD CCI	Economy			✓		
	Document and share effective and ineffective practices.	VGD CCI I	VGD CCI	Grant recipients	✓			✓	
Customers	Expand consumer perception in your strategy and product design.	CCI VGD	CCI VGD, Customers	Economy			✓		
	Consider a broader approach to adopting the concept of user-driven innovations (e.g., not gamers matter only!).	VGD	VGD, Customers	Economy		✓			
Innovations	Increase innovativeness across different dimensions, including behavioural, product, and process innovativeness (not product innovativeness matters only).	VGD	VGD	Customers Economy		✓		✓	✓
Products	Use inclusive and accessible game development (DEI) - be neutral, ensure that DEI rules are not implemented solely by force, and do not follow diversity washing practices ³⁶ .	VGD	VGD Customers	Society			✓	✓	✓

36 A similar recommendation was formulated based on the preliminary stakeholder workshop organized by Breda University of Applied Sciences and Tampere University within WP2 and described in D2.2 Workshop Report (Bagnall et al., 2024 – chapters 4 and 6). Incorporation of DEI within video games industry is also emphasized in other EU-funded projects (e.g. Understanding the value ..., 2023).





Focus	Recommendation	Target audience	Beneficiaries		Research source				
			Direct	Indirect	SLR	Survey	IDI	DTthon	FGI
Societal development									
Awareness building	Promote games as a solid part of European cultural heritage and digital cultural sovereignty ³⁷ .	PM	VGD	Culture	✓		✓	✓	✓
	Raise awareness and undertake informational activities to promote the cultural and educational role of games ³⁸ .	PM	Society	VGD CCI			✓		✓
	Undertake actions to strengthen the socially positive image of games (not only social campaigns, but also scientific research and analyses).	PM	Society	VGD			✓	✓	✓
Development of industry support									
Awareness building	Raise managerial & business awareness, e.g. regarding open approach, relational approach, sources of innovativeness, ecosystem approach.	PM	VGD CCI	Economy	✓	✓	✓	✓	
	Support of practitioners in building mutual awareness of specificities and needs, consistent communication, and possibilities for achieving creative synergy.	PM	VGD CCI	Economy			✓	✓	✓
	Promote and pay attention to methodological transparency and rigour in industry reporting ³⁹ .	PM	VGD CCI	Economy	✓	✓	✓		
	Promote inclusive and accessible cultural experiences (it is essential to have a broad understanding of marginalisation, not only in terms of gender or origin, but also, for example, economic factors).	PM	Society	CCI VGD	✓				

37 A similar recommendation was formulated based on the preliminary stakeholder workshop organised by Wrocław University of Economics and Business within WP2 and described in D2.2 Workshop Report (Bagnall et al., 2024 – chapter 3).

It's also worth highlighting that research conducted as part of the EU project entitled 'European inventory of societal values of culture as a basis for inclusive cultural policies in the globalizing world' (carried out between 2020 and 2023) showed that video games are relatively rarely perceived as belonging to the realm of culture at all (Purhonen et al., 2023).

38 A similar recommendation was formulated based on the preliminary stakeholder workshop organised by University of Vienna within WP2 and described in D2.2 Workshop Report (Bagnall et al., 2024 – chapter 5).

39 Our desk research highlighted the need for reliable, valid, and credible research on the video game industry (Klimas et al., 2024), as many existing industry reports lack methodological rigour and cannot be considered fully reliable (Kościewicz et al., 2025). However, this observation is not ours alone - as other researchers point out, there is a pressing need to improve data collection and provide robust insights into the European video game industry to support evidence-based policy interventions (Understanding the Value..., 2023).





Focus	Recommendation	Target audience	Beneficiaries		Research source				
			Direct	Indirect	SLR	Survey	IDI	DTthon	FGI
Infrastructure development	Create an online space to initiate contact/matchmaking.	PM	VGD CCI	Economy			✓	✓	✓
	Establish dissemination & exchange of information, training & support for cross-industry collaboration.	PM	VGD CCI	Economy			✓	✓	
	Develop or at least support online platforms, onsite initiatives (e.g., hubs, clusters), and templates for cross-sector networking implementation.	PM	VGD CCI	Economy	✓			✓	
	Create platforms for cooperation, tool repositories, databases, and IP systems – provide ready-made contract templates, documentation, and a library of success & failure case studies.	PM	VGD CCI	Economy			✓	✓	
	Support/Create space or place for cooperation, joint research with provided resources (public / co-public hubs), including infrastructure and organisational (human expert) support	PM	VGD CCI	Economy, Society	✓		✓	✓	✓
	Appoint and make cooperation ambassadors accessible, and designate cross-industry project facilitators.	PM	VGD CCI	Economy				✓	✓
Funding - scope & beneficiaries	Support games and game applications in a culture focused on European/national cultural heritage. Preserve games as cultural heritage.	PM	VGD CCI	Culture	✓		✓		
	Adapt funding frameworks to VGI asymmetries (e.g., design funding schemes tailored for small and emerging studios as well as indie) ⁴⁰ .	PM	VGD	Customers Economy			✓	✓	✓
	Fund creativity-embedded formats: residencies, bootcamps, creative labs, design thinking marathons.	PM	VGD CCI	Economy				✓	
	Promotion of utilising co-innovation relationships with the institutional microenvironment and with industries focused on cultural expansion.	PM	VGD	VGD CCI		✓			
	Encourage investment in transmedia-ready intellectual properties.	PM	VGD CCI	Customers Economy	✓				

40 It is worth noting that a similar recommendation was formulated as a result of another EU-funded research project focusing on the competitiveness of the gaming industry, clearly indicating the legitimacy of implementing targeted grant programs concentrating on scaling up emerging and small game developers (Understanding the value ..., 2023). Moreover, similar recommendation was formulated based on the preliminary stakeholder workshop organized by Wrocław University of Economics and Business within WP2 and described in D2.2 Workshop Report (Bagnall et al., 2024 – chapter 3).





Funding - institutional changes	Adopt a participatory and open approach to policy & funding programmes design (e.g., invite experienced practitioners).	PM	Founder	VGD CCI	✓		✓		
	Simplify documentation – reduce bureaucracy and the number of decision-makers. Ensure decision-makers are familiar with (video game /cultural & creative) industry specificity.	PM	VGD CCI	Founder				✓	
	Implement the requirement to report (in open access) the progress of publicly funded projects, including successes, failures, lessons learnt, document templates, etc.	PM	VGD CCI	Founder				✓	
Law & regulations - systemic approach	Institutionalise VGD–CCI cooperation in public policy.	PM	VGD CCI	Economy	✓	✓	✓		
	Intensify actions aimed at facilitating access to digital and non-digital culture, including game heritage, e.g., based on open licenses.	PM	VGD CCI	Society			✓	✓	
Focus	Recommendation	Target audience	Beneficiaries		Research source				
			Direct	Indirect	SLR	Survey	IDI	DTthon	FGI
Law & regulations – filling gaps	Improve and harmonise legal frameworks related to ownership and IP licensing regulations for creative reuse.	PM	VGD CCI	Economy	✓				✓
	Implement coherent and future-oriented AI policies, recommendations, creative but ethical reuse rules, does & don'ts, etc.	PM	VGD CCI	Economy	✓			✓	✓
	Develop a comprehensive EU-wide approach to video games preservation ⁴¹ .	PM	VGD	Culture Society	✓			✓	✓
	Introduce sound tax reliefs coherent across Europe.	PM	VGD	Economy	✓			✓	✓
Law & regulations - improvements	Increase clarity and transparency of regulations, including definitions of basic issues such as European game or video game developer. Deregulate.	PM	VGD CCI	Economy				✓	✓
	Simplify laws and regulations in terms of language.	PM	VGD CCI	Economy				✓	✓
	Improve the speed of legislation and required adjustments	PM	VGD CCI	Economy				✓	✓

Note: PM – policymakers, VGD – video game developers, CCI – cultural and creative industries. The recommendations are not prioritised as prioritisation would require dedicated research investigation.

⁴¹ Noteworthy, recommendations aimed at intensifying efforts toward better culture preservation have already been strongly emphasized by other researchers (ILUCIDARE, 2022). In their opinion, using games as a means of enhancing cultural preservation can be seen as a form of heritage-driven innovation - specifically, the 'assimilation of innovation' type - which, according to the findings of the ILUCIDARE project, may become one of the driving force behind the development of European culture.





Looking at the thematic scope, the recommendations may appear diverse and somewhat fragmented, but in large part they relate to **industry support** (with suggestions covering awareness, funding, infrastructure, law, and regulations) as well as organisational **development**, mainly in the context of strategic cooperation (both intra-ecosystem and cross-industry) and innovation.

It is also worth noting that the **spectrum of beneficiaries** - especially indirect ones - of implementing these recommendations is quite broad. It includes not only specific sectors, but also **society, the economy, and culture** more generally.

In our view, considering the identified recommendations - particularly those closely tied to strategic cooperation - and perhaps even just being aware of them, can contribute to strengthening the potential not only of the video games industry, but also of other CCI. In the longer term, this may translate into broader economic, cultural, and social development, as the growth of the video games industry is not neutral with respect to broader socio-economic development, as evidenced by our desk research and IDIs.





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APPENDICES

A. Survey questionnaire⁴²

Introduction

Project title: GAMEHEARTS (HORIZON-CL2-2023-HERITAGE-01-06. Grant No. 101132543)
Contact person: Principal investigator of the Polish research team under GameHearts: Prof. Patrycja Klimas – Department of Advanced Research in Management; mail: patrycja.klimas@ue.wroc.pl.

Empirical context (project description, aims, research stages)

GAMEHEARTS will seek to maximise the value of the European videogame industry ecosystem (hereafter, EVGIE) within the broader social context of the creative and cultural industries (hereafter, CCI). This will consider the importance of the EVGIE in contributing to economic growth, job creation, physical and mental well-being, and social and cultural cohesion by particularly focusing on how a stronger and closer working relationship between the traditional and emergent cultural sectors can work better to create more inclusive and socially responsible cultural experiences. The consortium will offer policy recommendations and roadmaps setting out how the EVGIE can and should develop and where it could act as a driver for sustained innovation and economic growth. It will utilise an evidence-based approach that focuses not just on videogame development but rather adopts a holistic ecosystem approach, utilising both established and more innovative methodologies to consider the competitiveness and development of the EVGIE and how videogame know-how and technologies could drive innovation in the wider CCI. In doing so, GAMEHEARTS will develop ‘ludic experiences’ to explore possibilities of more inclusive, engaging, and empowering cultural experiences.

The European Games Developer Federation (EGDF) and Video Games Europe (VGE) support the project.

The European Commission finances the GameHearts project under the HORIZON-CL2-2023-HERITAGE-01-06 (grant no. 101132543).

Aims & Objectives

- (1) **Verification** of findings from Polish VGIE showing that co-creative innovation relationships maintained between VGI and entertainment entities on the innovativeness of VGD is positive and significant.
- (2) **Expansion** of previous research by exploration of the impacts made by innovation-oriented co-creative relationships with organizations from CCI, including mainly our three industry contexts (music, sport, and museum).
- (3) **Exploration** of impacts of co-creative innovation relationships maintained between EVGIE and CCI on organisational innovativeness of game developers (e.g., on 3 dimensions of innovativeness as identified in the research of Polish VGDs: product, people, process innovativeness).

⁴² It should be noted that in the questionnaire, there is an additional set of questions (Part III) used to measure innovations of VGD. As explained in the main body of the report, in this report, we do not present the results related to innovations. Nevertheless, we paid great attention to presenting the questionnaire in the full, original form.





Survey Scope

Research subject: the use of co-creation relationships in innovation by game developers and leveraging their organisational innovativeness. The study intends to understand **subjective opinions** without asking for quantitative data. Total **anonymity and ethical standards** will be ensured.

PART I Co-Creation Relationships

Co-creation relationships are all types of strategically relevant connections between game developers and those around them maintained and used to jointly implement the process of creating (new) value. In other words, co-creation relationships involve the participation of external actors (people or organisations) in creating, modifying, improving, or developing value proposition/s.

Value co-creation can be focused on a wide range of issues e.g. knowledge, marketing, logistics, human resources, R&D, innovation, etc.

Ecosystem – complex system of organizations, institutions, and individual entities that influence the enterprise, its customers, and suppliers and, in wider perspective, influence the society and the economy. Given the relational approach perspective, it is assumed that each ecosystem consists of a unique set of actors and the relationships between them. Ecosystems naturally evolve over time, and each participant in the ecosystem undertakes to play a specific role or even multiple roles within it however varied in terms of engagement and the level of activity. [Klimas, 2019: 40]

On a scale of 1-7, where 1 is strongly disagree and 7 is strongly agree, please consider the following statements												
1	2	3	4	5	6	7						
STRONGLY DISAGREE	DISAGREE	SOMEWHAT DISAGREE	NEITHER AGREE NOR DISAGREE (I don't know)	SOMEWHAT AGREE	AGREE	STRONGLY AGREE						
Within the VIDEO GAME INDUSTRY ECOSYSTEM, your firm uses co-creation relationships (focused on value co-creation) with ...												
1	... other game developers.					1	2	3	4	5	6	7
2	... game publishers.					1	2	3	4	5	6	7
3	... game distributors					1	2	3	4	5	6	7
4	... producers of equipment (hardware) necessary for the use of games (including computers, consoles, mobile devices, etc.).					1	2	3	4	5	6	7
5	... manufacturers of equipment optionally used for games (including controllers, pads, joysticks, headphones, microphones, etc.).					1	2	3	4	5	6	7
6	... NGOs (including foundations, associations)					1	2	3	4	5	6	7
7	... universities					1	2	3	4	5	6	7
8	... government and policymakers (at local, national, European, global level)					1	2	3	4	5	6	7
9	... research institutions and consulting companies					1	2	3	4	5	6	7
10	... public institutions					1	2	3	4	5	6	7





On a scale of 1-7, where 1 is strongly disagree and 7 is strongly agree, please consider the following statements

	1 STRONGLY DISAGREE	2 DISAGREE	3 SOMEWHAT DISAGREE	4 NEITHER AGREE NOR DISAGREE (I don't know)	5 SOMEWHAT AGREE	6 AGREE	7 STRONGLY AGREE					
11	... incubators and accelerators					1	2	3	4	5	6	7
12	... lobbying organizations					1	2	3	4	5	6	7
13	... investors, including business angles					1	2	3	4	5	6	7
14	... gaming media					1	2	3	4	5	6	7
15	... casual players and/or their communities					1	2	3	4	5	6	7
16	... gamers & hardcore gamers and/or their communities					1	2	3	4	5	6	7
17	... professional e-sport gamers and/or their communities					1	2	3	4	5	6	7
18	... testers and/or their communities					1	2	3	4	5	6	7
19	... modders and/or their communities					1	2	3	4	5	6	7
20	... hackers and/or their communities					1	2	3	4	5	6	7
21	... influencers and/or their communities					1	2	3	4	5	6	7
22	... independent reviewers and/or their communities					1	2	3	4	5	6	7
23	... clients not being gamers (e.g. parents)					1	2	3	4	5	6	7

Within the CULTURAL AND CREATIVE INDUSTRIES (excluding VGI), your firm uses co-creation relationships (focused on value co-creation) with organizations from ...

	1 STRONGLY DISAGREE	2 DISAGREE	3 SOMEWHAT DISAGREE	4 NEITHER AGREE NOR DISAGREE (I don't know)	5 SOMEWHAT AGREE	6 AGREE	7 STRONGLY AGREE					
1	... architecture					1	2	3	4	5	6	7
2	... archives					1	2	3	4	5	6	7
3	... libraries					1	2	3	4	5	6	7
4	... museums					1	2	3	4	5	6	7
5	... artistic crafts					1	2	3	4	5	6	7
6	... audiovisual (including film, television and multimedia)					1	2	3	4	5	6	7
7	... intangible and tangible cultural heritage					1	2	3	4	5	6	7
8	... design (including fashion design)					1	2	3	4	5	6	7
9	... festivals					1	2	3	4	5	6	7
10	... music					1	2	3	4	5	6	7





11	... literature	1	2	3	4	5	6	7
12	... performing arts (including theatre and dance)	1	2	3	4	5	6	7
13	... books and publishing	1	2	3	4	5	6	7
14	... radio	1	2	3	4	5	6	7
15	... visual arts	1	2	3	4	5	6	7

PART II Co-Innovation Relationships

Co-innovation relationships are all strategically relevant connections between game developers and those around them maintained and used to jointly implement the process of creating innovations (new or significantly modified products). In other words, co-innovation relationships involve the participation of external actors (people or organisations) in creating, modifying, improving, or developing new games.

Co-creation of innovations is a specific type of value co-creation focused (only) on innovation-related and jointly generated outcomes.

On a scale of 1-7, where 1 is strongly disagrees and 7 is strongly agrees, please consider the following statements								
1	2	3	4	5	6	7		
STRONGLY DISAGREE	DISAGREE	SOMEWHAT DISAGREE	NEITHER AGREE NOR DISAGREE (I don't know)	SOMEWHAT AGREE	AGREE	STRONGLY AGREE		
Within the VIDEO GAME INDUSTRY ECOSYSTEM, your firm uses co-innovation relationships (focused on co-creation of innovations) with ...								
1	... other game developers.	1	2	3	4	5	6	7
2	... game publishers.	1	2	3	4	5	6	7
3	... game distributors	1	2	3	4	5	6	7
4	... producers of equipment (hardware) necessary for the use of games (including computers, consoles, mobile devices, etc.).	1	2	3	4	5	6	7
5	... manufacturers of equipment optionally used for games (including controllers, pads, joysticks, headphones, microphones, etc.).	1	2	3	4	5	6	7
6	... NGOs (including foundations, associations)	1	2	3	4	5	6	7
7	... universities	1	2	3	4	5	6	7
8	... government and policymakers (at local, national, European, global level)	1	2	3	4	5	6	7
9	... research institutions and consulting companies	1	2	3	4	5	6	7
10	... public institutions	1	2	3	4	5	6	7
11	... incubators and accelerators	1	2	3	4	5	6	7
12	... lobbying organisations	1	2	3	4	5	6	7





On a scale of 1-7, where 1 is strongly disagrees and 7 is strongly agrees, please consider the following statements											
1	2	3	4	5	6	7					
STRONGLY DISAGREE	DISAGREE	SOMEWHAT DISAGREE	NEITHER AGREE NOR DISAGREE (I don't know)	SOMEWHAT AGREE	AGREE	STRONGLY AGREE					
13	... investors, including business angles				1	2	3	4	5	6	7
14	... gaming media				1	2	3	4	5	6	7
15	... casual players and/or their communities				1	2	3	4	5	6	7
16	... gamers & hardcore gamers and/or their communities				1	2	3	4	5	6	7
17	... professional e-sport gamers and/or their communities				1	2	3	4	5	6	7
18	... testers and/or their communities				1	2	3	4	5	6	7
19	... modders and/or their communities				1	2	3	4	5	6	7
20	... hackers and/or their communities				1	2	3	4	5	6	7
21	... influencers and/or their communities				1	2	3	4	5	6	7
22	... independent reviewers and/or their communities				1	2	3	4	5	6	7
23	... clients not being gamers (e.g. parents)				1	2	3	4	5	6	7

Within the CULTURAL AND CREATIVE INDUSTRIES (excluding VGI), your firm uses co-innovation relationships (focused on co-creating innovations) with organizations from ...											
1	2	3	4	5	6	7					
STRONGLY DISAGREE	DISAGREE	SOMEWHAT DISAGREE	NEITHER AGREE NOR DISAGREE (I don't know)	SOMEWHAT AGREE	AGREE	STRONGLY AGREE					
1	... architecture				1	2	3	4	5	6	7
2	... archives				1	2	3	4	5	6	7
3	... libraries				1	2	3	4	5	6	7
4	... museums				1	2	3	4	5	6	7
5	... artistic crafts				1	2	3	4	5	6	7
6	... audiovisual (including film, television and multimedia)				1	2	3	4	5	6	7
7	... intangible and tangible cultural heritage				1	2	3	4	5	6	7
8	... design (including fashion design)				1	2	3	4	5	6	7
9	... festivals				1	2	3	4	5	6	7
10	... music				1	2	3	4	5	6	7
11	... literature				1	2	3	4	5	6	7





12	... performing arts (including theatre and dance)	1	2	3	4	5	6	7
13	... books and publishing	1	2	3	4	5	6	7
14	... radio	1	2	3	4	5	6	7
15	... visual arts	1	2	3	4	5	6	7

Please indicate what (if any) your firm exploits co-innovation relationships within the VIDEO GAME INDUSTRY ECOSYSTEM at particular stages of co-innovation processes											
1 DEFINITELY NO	2 NO	3 TO SOME EXTENT NO	4 NEITHER YES NOR NO (I don't know)	5 TO SOME EXTENT YES	6 YES	7 DEFINITELY YES					
1	Co-creation: concept creation, idea generation, resource support				1	2	3	4	5	6	7
2	Co-development: product development, product prototyping, product testing				1	2	3	4	5	6	7
3	Co-deployment: product presentation, market launch				1	2	3	4	5	6	7
4	Co-delivery: marketization, commercialisation				1	2	3	4	5	6	7
5	Co-dissemination: post-launch promotion, market uptake, after-sale support and improvements, monitoring of competitors' reactions and customers' opinion				1	2	3	4	5	6	7
Please indicate what (if any) your firm exploits co-innovation relationships within the CULTURE AND CREATIVE INDUSTRIES (excluding VGI) at particular stages of co-innovation processes											
1	Co-creation: concept creation, idea generation, resource support				1	2	3	4	5	6	7
2	Co-development: product development, product prototyping, product testing				1	2	3	4	5	6	7
3	Co-deployment: product presentation, market launch				1	2	3	4	5	6	7
4	Co-delivery: marketisation, commercialisation				1	2	3	4	5	6	7
5	Co-dissemination: post-launch promotion, market uptake, after-sale support and improvements, monitoring of competitors' reactions and customers' opinion				1	2	3	4	5	6	7



PART III Innovations

Definition

Innovation - implementation of a new or significantly changed product or process.

- A product is a good or a service.
- Process includes production or delivery, organisation and marketing processes.
- Implementation means that product or process is made available to potential users.

On a scale of 1-7, where 1 is strongly disagrees and 7 is strongly agrees, please consider the following statements. Please take a 2-year perspective.													
	1 STRONGLY DISAGREE	2 DISAGREE	3 SOMEWHAT DISAGREE	4 NEITHER AGREE NOR DISAGREE (I don't know)	5 SOMEWHAT AGREE	6 AGREE	7 STRONGLY AGREE						
TECHNOLOGICAL INNOVATIONS													
Regarding technology, your organization implemented new or significantly changed products, services or processes in the form of:													
1	New game production tools (e.g. game engines, in-game analytics).						1	2	3	4	5	6	7
2	New distribution tools and services (e.g. porting tools, novel payment tools like cryptos, advertisement tools).						1	2	3	4	5	6	7
3	New trust and safety solutions (e.g. cyber security solutions and anti-cheat tools).						1	2	3	4	5	6	7
4	New communication tools (e.g. chat tools and chat moderation tools).						1	2	3	4	5	6	7
BUSINESS INNOVATIONS													
Regarding business and business models of games, your organization implemented new or significantly changed products, services or processes in the form of:													
5	New in-game monetization and business models (e.g. NFT and Play&Earn, advertisement models).						1	2	3	4	5	6	7
6	New distribution models and solutions (e.g. cross platform distribution).						1	2	3	4	5	6	7
7	New partnerships (e.g. IP, R&D, lobbying, funding, marketing, etc.).						1	2	3	4	5	6	7
8	New production solutions (e.g. co-development, outsourcing solutions).						1	2	3	4	5	6	7
9	New community management practices and models (e.g. crowdsourcing, creator models).						1	2	3	4	5	6	7
CONTENT INNOVATIONS													
Regarding the artistic content in games, your organization implemented new or significantly changed products, services or processes in the form of:													
10	New genres.						1	2	3	4	5	6	7
11	New gameplay mechanics.						1	2	3	4	5	6	7
12	New storytelling models.						1	2	3	4	5	6	7
13	New game legalization solutions.						1	2	3	4	5	6	7



PART IV Organisational Innovativeness

Definition

Organisational innovativeness - the overall ability of an organisation to innovate.

This is demonstrated by the firm's capacity to introduce new or significantly improved products and processes and even create new markets. This is achieved by combining a suitable strategic orientation with innovative behaviours and processes.

On a scale of 1-7, where 1 is strongly disagrees and 7 is strongly agrees, please consider the following statements												
	1 STRONGLY DISAGREE	2 DISAGREE	3 SOMEWHAT DISAGREE	4 NEITHER AGREE NOR DISAGREE (I don't know)	5 SOMEWHAT AGREE	6 AGREE	7 STRONGLY AGREE					
1	We get a lot of support from managers/board of directors if we want to try new ways of doing things.					1	2	3	4	5	6	7
2	In our company, we tolerate individuals who do things differently.					1	2	3	4	5	6	7
3	We are willing to try new ways of doing things and seek unusual, novel solutions.					1	2	3	4	5	6	7
4	We encourage people to think and behave in original and novel ways.					1	2	3	4	5	6	7
5	Compared to our competitors, our company has introduced more innovative products and services during the past two years.					1	2	3	4	5	6	7
6	In new product and service introductions, our company is often first-to-market.					1	2	3	4	5	6	7
7	Our new products and services are often perceived as very novel by customers.					1	2	3	4	5	6	7
8	Our company has a higher success rate in new products and service launches than our competitors.					1	2	3	4	5	6	7
9	We are constantly improving our business processes.					1	2	3	4	5	6	7
10	Our company has developed many new management approaches for the past two years.					1	2	3	4	5	6	7
11	When we cannot solve a problem using conventional methods, we improvise using new methods.					1	2	3	4	5	6	7
12	Our company changes production methods at a great speed in comparison with our competitors.					1	2	3	4	5	6	7
13	Our products' most recent marketing program is revolutionary compared to our competitors.					1	2	3	4	5	6	7
14	Our recent new products and services include substantial changes from our previous products and services.					1	2	3	4	5	6	7
15	Our company is often at the cutting edge of technology in new product and service introductions.					1	2	3	4	5	6	7
16	Our company's new products and services often take us over new competitors.					1	2	3	4	5	6	7



On a scale of 1-7, where 1 is strongly disagrees and 7 is strongly agrees, please consider the following statements												
	1 STRONGLY DISAGREE	2 DISAGREE	3 SOMEWHAT DISAGREE	4 NEITHER AGREE NOR DISAGREE (I don't know)	5 SOMEWHAT AGREE	6 AGREE	7 STRONGLY AGREE					
17	Our firm's R&D or product development resources are adequate to handle the development needs of new products and services.					1	2	3	4	5	6	7
18	Key executives of the firm are willing to take risks to seize and explore 'chancy' growth opportunities.					1	2	3	4	5	6	7
19	Senior executives constantly seek unusual, novel solutions to problems via the use of 'idea person' (those continuously generating creative concepts, novel solutions, original insights, etc.).					1	2	3	4	5	6	7
20	When we see new ways of doing things, we are first to adopt them.					1	2	3	4	5	6	7





PART IV Survey metrics

Please describe your firm in the following aspects

1. **Size** (please mark "X")

Self-employment	Micro (up to 9 employees)	Small (10-49 employees)	Medium (50-249 employees)	Large (pow. 249 employees)

2. **Year in which it was established:**

3. **Number of games released:**

4. **Country of headquarters:**

5. **Core business** (please mark "X")

Game developer	Game publisher	Game distributor	Supplier of hardware products complementary to games	Supplier of other complementary products and services	Other (what kind of?)

6. **Core segment** (please mark "X")

- a) PC Games
- b) Mobile Games
- c) Console Games
- d) AR/VR/MR Games
- e) Browser Games

PC Games	Mobile Games	Console Games	AR/VR/MR Games	Browser Games

7. **Is your company considered as indie?** Yes / No

Please describe yourself in the following aspects

1. **Your position in the firm**

- a) a representative of the management / owner / board member / director of the department - a person oriented in terms of the overall tasks and contacts undertaken by the company.
- b) an employee directly involved in the process of creating or developing the game(s), i.e. an employee who mainly does the creative work involved in developing or improving the game(s).
- c) Other (please specify)

2. **Regarding this survey**

1 DEFINITELY NO	2 NO	3 TO SOME EXTENT NO	4 NEITHER YES NOR NO (I don't know)	5 TO SOME EXTENT YES	6 YES	7 DEFINITELY YES				
I am confident in my answers to the questions asked				1	2	3	4	5	6	7
This study addressed areas that I have knowledge of				1	2	3	4	5	6	7
Considering the scope of the study, I believe that I am competent to participate in the study				1	2	3	4	5	6	7
My role/position in the company allowed me to answer the questions accurately				1	2	3	4	5	6	7





Your/Your firm’s further engagement in GameHearts research

1. **Would you be interested in participating in the design thinking marathon (3 day of design thinking marathon focusing on VGD-CCI cooperation)? If so, please choose the location**
 - a) No
 - b) Yes: Wroclaw, Poland (February 2025)
 - c) Yes: Warsaw (March 2025)
 - d) Yes: Katowice (April 2025)
 - e) Yes: London (April/May 2025)

Please add your e-mail address so that we can provide any information regarding the DTthons

.....

2. **Would you be interested in having the possibility to provide Your strategic recommendations to national and European policymakers/institutions regarding the development of the gaming industry and/or CCI, which we will analyse and use in reporting?**

- a) No
- b) Yes - please add your e-mail address so that we can provide any additional information

.....

3. **Name of the company only not to duplicate the study in one entity**

.....

4. **Optional email address to send the survey results and other outcomes from the GameHearts project:**

.....





B. Detailed calculations related to quantitative analyses

B.1. Statistical procedure for measurement scale purification

1. Preliminary correlation matrix analysis.

Our initial analysis relies on between-items correlation analysis, where we included the whole set of initial items that were preliminary defined for the measurement scale. There were three goals of this preliminary analysis. First, we explored the structure of the correlation matrix and determined the groups of items that are correlated enough within the group and are less correlated with items belonging to other groups. These extracted groups merge items, which load on the potential constructs of the measurement scale. Following Tian et al. (2001), we picked up correlation coefficients of at least 0.5. Second, we excluded from the further analysis items that were uncorrelated with all items (having correlation coefficients of no more than 0.2). Third, we excluded from the further analysis items that were correlated only with one item (correlation coefficients of at least 0.5) and uncorrelated with the rest of the items (correlation coefficients less than 0.2). As a result of this stage, we had a trimmed set of initial items, initially grouped, which we proceeded with by Explanatory Factorial Analysis EFA.

2. EFA analysis

2.1. Examination of EFA assumptions

We started with the examination of the EFA assumptions. We calculated the coefficient of Kaiser-Mayer-Olkin (KMO) and Bartlett's Test of Sphericity to check whether factor analysis can be performed. The KMO index ranges from 0 to 1, with at least 0.50 considered suitable for factor analysis (Tabachnick & Fidell, 2013). Bartlett's Test of Sphericity should be significant ($p < 0.05$) for factor analysis to be suitable (Tabachnick & Fidell, 2013).

2.2. Determining the numbers of factors

To determine the number of possible factors resulting from EFA, we used the Guttman – Kaiser criterion of eigenvalue equal to at least 1 (Guttman, 1954; Kaiser, 1960) and Cattell's scree test (Cattell, 1966). We performed further analysis based on the number of factors determined at this stage. We also compared the result of this stage to the result gained at the end of stage 1. We proceed to the next steps when these results converge.

2.3. Items selection

Having the number of extracted factors, we again apply EFA analysis to decide on the item's loading factors. We estimated the EFA model based on the Generalized Least Squares (GLS) factor loadings estimation method and Promax rotation with $Kappa = 4$.





GLS is based on the same assumptions as Maximum Likelihood ML, and its results are equivalent to ML when the sample size is large (Schermelleh-Engel et al., 2003). Promax rotation, a type of oblique rotation, is recommended when the assumption of independent factors is unrealistic and latent factors are correlated (Richman, 1986), as it is in our case. When analysing the loadings of factors yield from EFA, we set the cutoff point of at least 0.6 loading magnitude, taking into account the consequences of the relationship between the loadings magnitude and the fit measures of SEM investigated by Shevlin and Miles (1998), i.e., the higher the loadings, the better CFA model fits the data.

3. Confirmatory Factorial Analysis CFA

3.1. Examining the sample multivariate distribution.

We examined the shape of the multivariate distribution to determine the method that is adequate for the estimation of CFA parameters. We rely on Mardia's multivariate kurtosis (Marida, 1970). Its expected value is $p(p+2)$, where p equals no. of estimated parameters. We conducted the test on a one-factor CFA model with all items selected at the end of the previous step. We compared the expected value of multivariate kurtosis and the sample multivariate kurtosis following Cain et al. (2017) to indicate whether we have a nonnormal multivariable distribution in our sample. This was the case in all our data sets. Having a nonnormal multivariate distribution, we rely on one of the estimation methods from the family of Weighted Least Squares (WLS) in the next step.

3.2. CFA model estimation and validation

As the multivariate distribution in all examined data sets derives from a normal distribution and displays high kurtosis, we choose the Asymptotically Distribution-Free ADF method (one of the WLS family) for CFA parameters estimations. ADF can be applied to nonnormal multivariate data distribution in well-specified models when the sample size is large and the kurtosis is very high (Olsson et al., 2000). In these circumstances, it yields improved theoretical fit in terms of parameter estimates compared to ML and GLS methods.

We analysed the results of the CFA in a variety of ways. First, we looked at the estimated parameters and required all of them to be statistically significant at the level of $\alpha = 0.05$. Next, we looked at the standardized CFA parameters and eliminated all items with factor loadings below 0.6 (Shevlin & Miles, 1998). We decided to leave items with standardized factor loading slightly below this value only when the deletion of the items with lower



loadings reduced Cronbach's alpha, composed reliability, and goodness-of-fit measures for both CFA and EFA models. Lower loadings are then acceptable (Hair et al., 2011). We also analysed the standardized residuals covariances matrix and eliminated items generating generally significant errors following the recommendations of (McDonald et al., 2002). To assess the CFA model fit, we used the suggested by Hu and Bentler (1999) the following indices combination: Nonnormed Fit Index (NNFI) introduced by Bentler and Bonett (1980), Comparative Fit Index (CFI) of Bentler (1990), Standardized Root Mean Square Residual (SRMR) introduced by Bentler (1995), and Root Mean Square Error of Approximation (RMSEA) of Steiger (1990). We added to this set the CMIN/df index of (Jöreskog, 1969). Following the recommendation of (Schermele-Engel et al., 2003), we sustain that the CFA model meets good standards of fit when $NNFI \geq 0.95$, $CFI \geq 0.95$, $SRMR \leq 0.1$, and $RMSEA \leq 0.08$. The CMIN/df index with an acceptable value of 5 or less (Marsh & Hocevar, 1985) indicates a good model fit. As reported in many studies, fit indices are sensitive to different estimation methods (Sun 2005), and therefore, we allow for less respective, acceptable goodness of fit indices ($NNFI$ and $CFI \geq 0.9$). Finally, if the above measures were unsatisfactory, we analysed modification indices and expected parameter change values for within-construct error covariances, looking for misspecification within the latent factor following the recommendations of McDonald et al. (2002). We rarely decided to add the additional path to the SEM structure. We did it if modification indices indicated quite large and not included so far in the model within-construct correlations between errors.

4. Matching the EFA and CFA results

We used CFA to test the structure of the data set extracted by EFA. If the scale is reliable and valid, the results of CFA and EFA coincide, as demonstrated in the paper of Patil et al. (2008). If the results of CFA and EFA were convergent, none of the items would have been deleted from the further analysis.



B.2. A stepwise procedure for estimation final composite SEM model

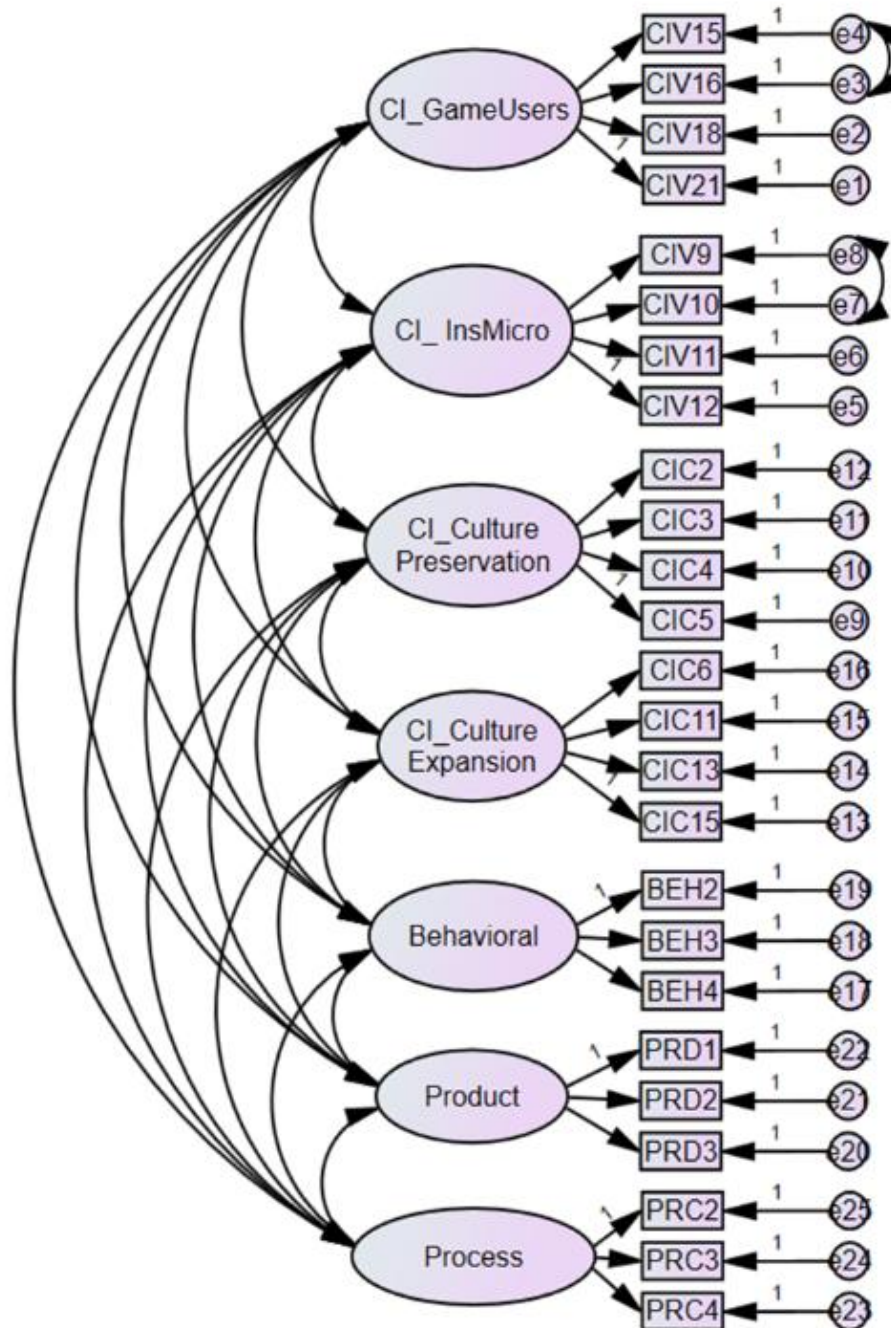


Figure 1. First-order measurement model (CMIN/df = 2.994; NNFI = 0.754; CFI = 0.793, RMSEA = 0.40; SRMR = 0.447; all standardized parameters > 0.5)

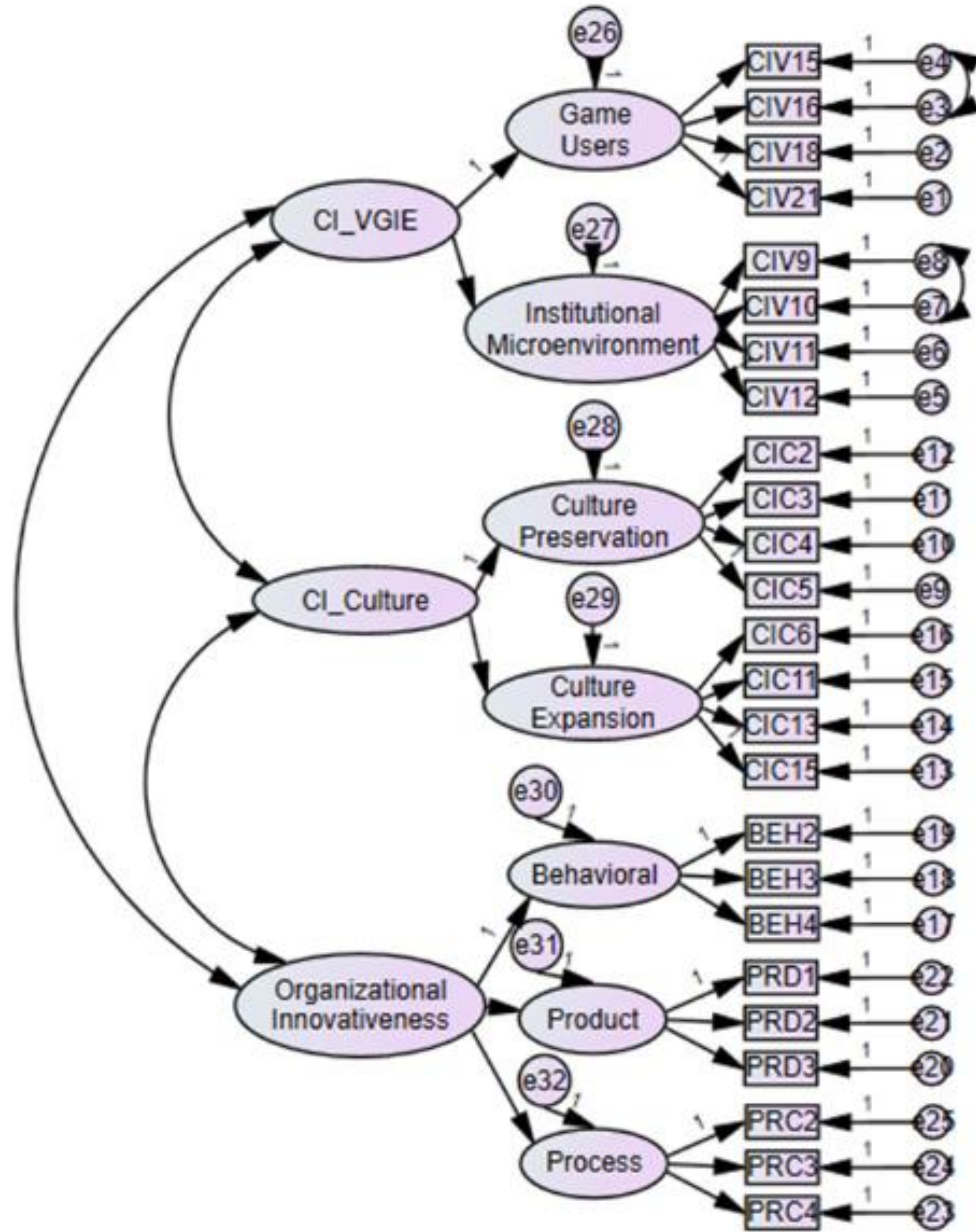


Figure 2. Second-order measurement model (CMIN/df = 4.018; NNFI = 0.784; CFI = 0.811, RMSEA = 0.49; SRMR = 0.847; all standardized parameters > 0.5)

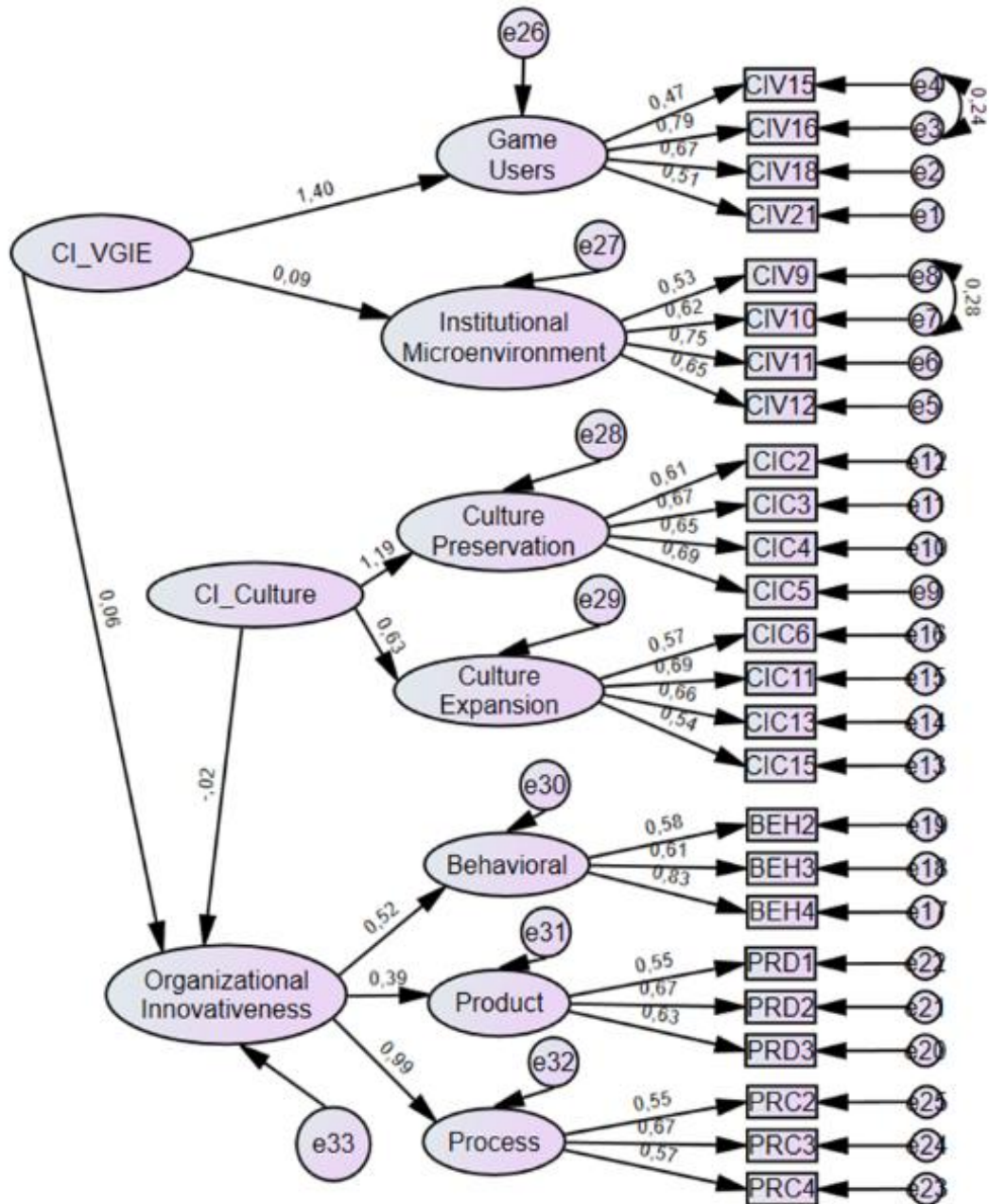


Figure 3. Composite SEM model based on second-order measurement model (the standardized parameters have improper values – negative and above 1; the model is misspecified)

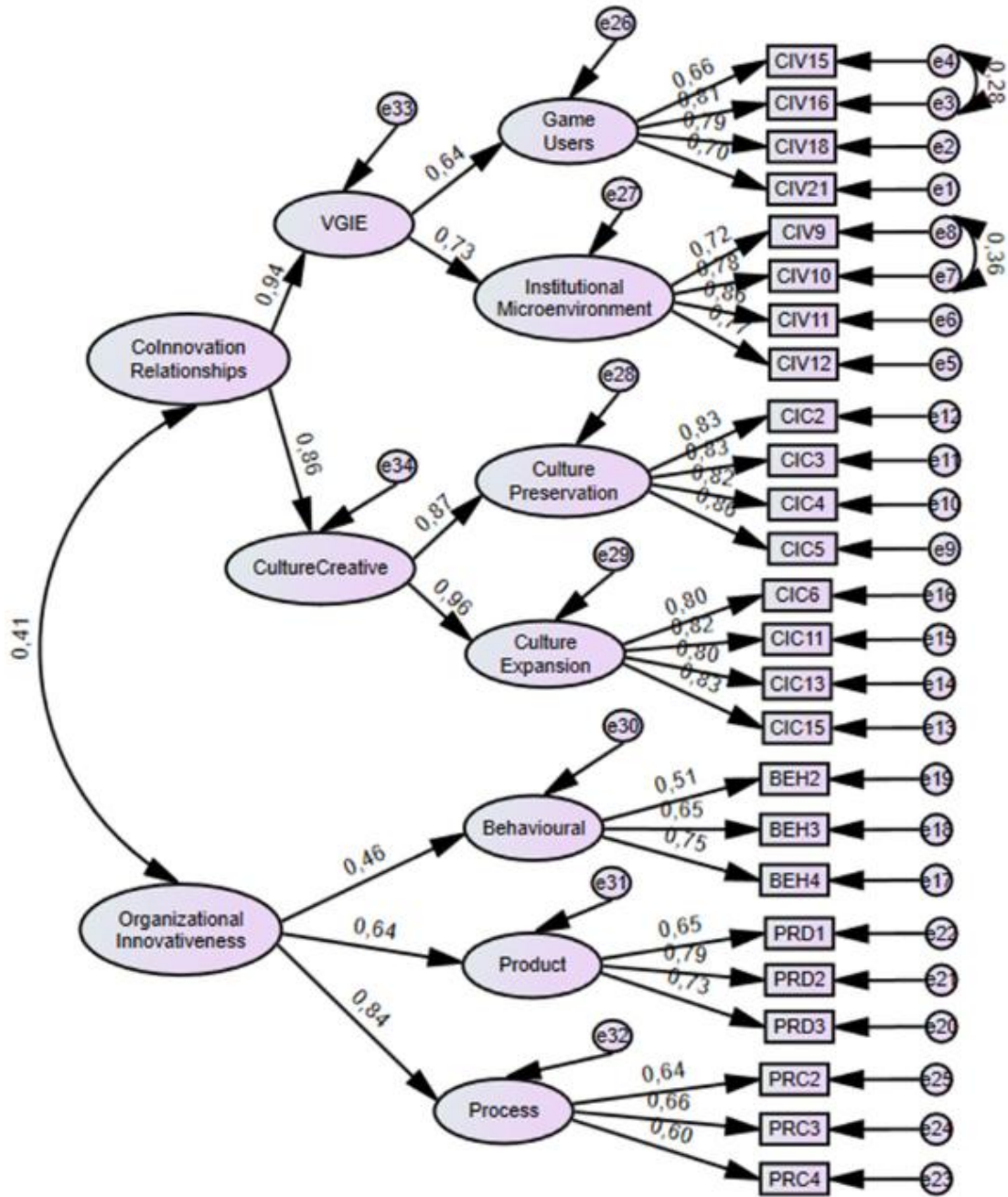


Figure 4. Third-order measurement model (CMIN/df = 4.118; NNFI = 0.777; CFI = 0.804, RMSEA = 0.05; SRMR = 0.090; all standardized parameters > 0.5).



Table 1. Sample correlation coefficients

item	PRC2	PRC3	PRC4	PRD1	PRD2	PRD3	BEH2	BEH3	BEH4	CIC6	CIC11	CIC13	CIC15	CIC2	CIC3	CIC4	CIC5	CIV9	CIV10	CIV11	CIV12	CIV15	CIV16	CIV18	CIV21	
PRC2	1,00																									
PRC3	0,35	1,00																								
PRC4	0,36	0,38	1,00																							
PRD1	0,21	0,14	0,17	1,00																						
PRD2	0,18	0,10	0,21	0,41	1,00																					
PRD3	0,18	0,21	0,17	0,35	0,43	1,00																				
BEH2	0,11	0,26	0,09	0,02	-0,06	0,12	1,00																			
BEH3	0,19	0,27	0,16	0,11	0,00	0,12	0,40	1,00																		
BEH4	0,19	0,32	0,15	0,05	-0,04	0,17	0,56	0,56	1,00																	
CIC6	0,05	-0,03	0,04	0,17	0,04	0,04	-0,08	-0,03	-0,05	1,00																
CIC11	0,08	-0,01	0,05	0,12	0,07	0,06	-0,07	-0,01	-0,01	0,55	1,00															
CIC13	0,05	-0,04	0,05	0,10	0,05	-0,02	-0,07	-0,07	-0,05	0,52	0,63	1,00														
CIC15	0,15	0,01	0,08	0,10	0,11	0,04	-0,12	-0,06	-0,04	0,54	0,55	0,52	1,00													
CIC2	0,07	-0,01	0,08	0,14	0,14	0,13	-0,18	-0,11	-0,09	0,43	0,42	0,43	0,44	1,00												
CIC3	0,06	-0,05	0,02	0,11	0,07	0,05	-0,13	-0,09	-0,08	0,42	0,44	0,46	0,43	0,55	1,00											
CIC4	0,03	-0,02	0,01	0,06	0,08	0,05	-0,08	-0,08	-0,03	0,46	0,48	0,46	0,48	0,50	0,57	1,00										
CIC5	0,08	-0,05	0,07	0,17	0,13	0,08	-0,12	-0,04	-0,04	0,52	0,52	0,50	0,52	0,57	0,58	0,55	1,00									
CIV9	0,06	-0,03	-0,01	0,07	0,03	0,04	0,00	0,01	0,02	0,25	0,30	0,29	0,31	0,25	0,27	0,29	0,29	1,00								
CIV10	0,11	0,02	0,09	0,13	0,08	0,08	-0,04	0,00	-0,02	0,28	0,30	0,31	0,34	0,25	0,28	0,31	0,27	0,61	1,00							
CIV11	0,12	0,03	0,11	0,16	0,16	0,14	-0,05	0,02	0,03	0,29	0,26	0,29	0,36	0,29	0,31	0,30	0,30	0,51	0,60	1,00						
CIV12	0,05	-0,04	-0,02	0,09	0,08	0,03	-0,09	-0,09	-0,05	0,30	0,33	0,35	0,36	0,26	0,33	0,32	0,30	0,51	0,55	0,62	1,00					
CIV15	0,10	0,00	0,00	0,03	0,03	0,01	0,06	0,08	0,07	0,28	0,23	0,22	0,26	0,10	0,12	0,13	0,18	0,19	0,16	0,23	0,21	1,00				
CIV16	0,06	-0,02	0,03	0,06	0,10	0,09	0,10	0,08	0,14	0,22	0,16	0,18	0,20	0,15	0,14	0,11	0,16	0,19	0,15	0,19	0,16	0,55	1,00			
CIV18	0,08	-0,01	-0,01	0,06	0,05	0,02	0,01	0,01	0,04	0,30	0,26	0,23	0,25	0,20	0,18	0,18	0,25	0,26	0,19	0,28	0,25	0,44	0,58	1,00		
CIV21	0,13	0,05	0,02	0,02	0,04	0,04	0,10	0,13	0,15	0,28	0,26	0,23	0,26	0,13	0,14	0,17	0,20	0,21	0,20	0,27	0,24	0,40	0,48	0,46	1,00	





Table 2. Estimated correlation coefficients between items (estimations made with composite SEM third-order model)

item	PRC2	PRC3	PRC4	PRD1	PRD2	PRD3	BEH2	BEH3	BEH4	CIC6	CIC11	CIC13	CIC15	CIC2	CIC3	CIC4	CIC5	CIV9	CIV10	CIV11	CIV12	CIV15	CIV16	CIV18	CIV21	
PRC2	1,00																									
PRC3	0,42	1,00																								
PRC4	0,39	0,40	1,00																							
PRD1	0,22	0,23	0,21	1,00																						
PRD2	0,27	0,28	0,26	0,52	1,00																					
PRD3	0,25	0,26	0,24	0,48	0,58	1,00																				
BEH2	0,13	0,13	0,12	0,10	0,12	0,11	1,00																			
BEH3	0,16	0,16	0,15	0,12	0,15	0,14	0,33	1,00																		
BEH4	0,19	0,19	0,17	0,14	0,18	0,16	0,38	0,49	1,00																	
CIC6	0,15	0,15	0,14	0,11	0,14	0,13	0,06	0,08	0,09	1,00																
CIC11	0,15	0,15	0,14	0,11	0,14	0,13	0,06	0,08	0,09	0,66	1,00															
CIC13	0,15	0,15	0,14	0,11	0,14	0,13	0,06	0,08	0,09	0,64	0,65	1,00														
CIC15	0,15	0,15	0,14	0,12	0,14	0,13	0,06	0,08	0,10	0,66	0,67	0,66	1,00													
CIC2	0,14	0,14	0,13	0,11	0,13	0,12	0,06	0,08	0,09	0,55	0,56	0,55	0,57	1,00												
CIC3	0,14	0,14	0,13	0,10	0,13	0,12	0,06	0,07	0,09	0,55	0,56	0,55	0,57	0,69	1,00											
CIC4	0,13	0,14	0,13	0,10	0,13	0,12	0,06	0,07	0,09	0,55	0,55	0,54	0,56	0,68	0,68	1,00										
CIC5	0,14	0,14	0,13	0,11	0,13	0,12	0,06	0,08	0,09	0,57	0,58	0,57	0,59	0,72	0,71	0,70	1,00									
CIV9	0,11	0,11	0,10	0,08	0,10	0,10	0,05	0,06	0,07	0,33	0,33	0,33	0,34	0,31	0,31	0,30	0,32	1,00								
CIV10	0,12	0,12	0,11	0,09	0,11	0,10	0,05	0,07	0,08	0,36	0,36	0,35	0,36	0,33	0,33	0,33	0,34	0,72	1,00							
CIV11	0,13	0,13	0,12	0,10	0,12	0,11	0,06	0,07	0,08	0,39	0,40	0,39	0,40	0,37	0,37	0,36	0,38	0,62	0,67	1,00						
CIV12	0,12	0,12	0,11	0,09	0,11	0,10	0,05	0,06	0,08	0,35	0,36	0,35	0,36	0,33	0,33	0,32	0,34	0,56	0,60	0,67	1,00					
CIV15	0,09	0,09	0,08	0,07	0,08	0,08	0,04	0,05	0,06	0,26	0,26	0,26	0,27	0,24	0,24	0,24	0,25	0,22	0,24	0,27	0,24	1,00				
CIV16	0,11	0,11	0,10	0,08	0,10	0,09	0,05	0,06	0,07	0,32	0,33	0,32	0,33	0,30	0,30	0,30	0,31	0,27	0,30	0,33	0,29	0,66	1,00			
CIV18	0,10	0,11	0,10	0,08	0,10	0,09	0,05	0,06	0,07	0,31	0,32	0,31	0,32	0,29	0,29	0,29	0,30	0,27	0,29	0,32	0,28	0,52	0,64	1,00		
CIV21	0,09	0,09	0,09	0,07	0,09	0,08	0,04	0,05	0,06	0,27	0,28	0,27	0,28	0,26	0,26	0,25	0,27	0,23	0,25	0,28	0,25	0,46	0,57	0,55	1,00	





Table 3. Errors (i.e. differences between sample correlations and estimated correlations)

item	PRC2	PRC3	PRC4	PRD1	PRD2	PRD3	BEH2	BEH3	BEH4	CIC6	CIC11	CIC13	CIC15	CIC2	CIC3	CIC4	CIC5	CIV9	CIV10	CIV11	CIV12	CIV15	CIV16	CIV18	CIV21
PRC2																									
PRC3	-0.08																								
PRC4	-0.03	-0.02																							
PRD1	-0.02	-0.09	-0.04																						
PRD2	-0.10	-0.18	-0.05	-0.11																					
PRD3	-0.07	-0.05	-0.06	-0.12	-0.15																				
BEH2	-0.02	0.13	-0.03	-0.08	-0.17	0.01																			
BEH3	0.03	0.10	0.01	-0.01	-0.15	-0.02	0.07																		
BEH4	0.01	0.13	-0.02	-0.10	-0.22	0.01	0.17	0.07																	
CIC6	-0.09	-0.18	-0.10	0.05	-0.10	-0.09	-0.15	-0.11	-0.14																
CIC11	-0.06	-0.16	-0.09	0.01	-0.07	-0.07	-0.13	-0.09	-0.10	-0.10															
CIC13	-0.09	-0.19	-0.08	-0.01	-0.08	-0.14	-0.13	-0.15	-0.14	-0.12	-0.02														
CIC15	0.00	-0.14	-0.06	-0.01	-0.03	-0.10	-0.18	-0.14	-0.14	-0.13	-0.13	-0.14													
CIC2	-0.07	-0.15	-0.04	0.03	0.01	0.01	-0.24	-0.19	-0.18	-0.12	-0.14	-0.12	-0.13												
CIC3	-0.07	-0.19	-0.11	0.01	-0.06	-0.07	-0.18	-0.17	-0.17	-0.14	-0.12	-0.09	-0.14	-0.14											
CIC4	-0.11	-0.16	-0.12	-0.05	-0.05	-0.07	-0.14	-0.15	-0.12	-0.08	-0.08	-0.08	-0.08	-0.18	-0.10										
CIC5	-0.06	-0.19	-0.07	0.06	-0.01	-0.04	-0.18	-0.12	-0.13	-0.05	-0.07	-0.07	-0.07	-0.14	-0.14	-0.16									
CIV9	-0.05	-0.15	-0.11	-0.02	-0.08	-0.05	-0.04	-0.05	-0.05	-0.08	-0.04	-0.04	-0.03	-0.06	-0.03	-0.02	-0.03								
CIV10	-0.01	-0.10	-0.02	0.04	-0.03	-0.03	-0.09	-0.07	-0.10	-0.08	-0.06	-0.04	-0.02	-0.08	-0.05	-0.02	-0.07	-0.11							
CIV11	-0.01	-0.11	-0.01	0.06	0.03	0.03	-0.10	-0.06	-0.06	-0.11	-0.14	-0.10	-0.04	-0.08	-0.06	-0.07	-0.08	-0.11	-0.08						
CIV12	-0.07	-0.16	-0.13	0.00	-0.03	-0.08	-0.14	-0.15	-0.12	-0.05	-0.03	0.00	0.00	-0.07	0.00	0.00	-0.04	-0.04	-0.05	-0.05					
CIV15	0.01	-0.09	-0.09	-0.03	-0.06	-0.06	0.02	0.03	0.01	0.02	-0.03	-0.04	-0.01	-0.14	-0.13	-0.11	-0.08	-0.03	-0.09	-0.04	-0.03				
CIV16	-0.05	-0.13	-0.07	-0.03	0.00	-0.01	0.06	0.02	0.08	-0.10	-0.16	-0.14	-0.13	-0.15	-0.16	-0.18	-0.15	-0.08	-0.14	-0.14	-0.13	-0.11			
CIV18	-0.03	-0.12	-0.11	-0.02	-0.04	-0.07	-0.03	-0.05	-0.02	-0.01	-0.06	-0.08	-0.07	-0.09	-0.11	-0.11	-0.06	-0.01	-0.09	-0.04	-0.03	-0.08	-0.06		
CIV21	0.04	-0.04	-0.07	-0.05	-0.05	-0.04	0.06	0.08	0.09	0.00	-0.01	-0.05	-0.02	-0.13	-0.11	-0.08	-0.07	-0.02	-0.05	-0.02	-0.01	-0.06	-0.09	-0.09	

Note: marked errors are greater than 0.1 in absolute value





C. Scenario guides for In-depth Direct Interviews

Project title: GAMEHEARTS (HORIZON-CL2-2023-HERITAGE-01-06. Grant No. 101132543)

Introduction & formal issues

Time: ca. 2.5 mins

- Introduction of the Interviewer [*Name, home organization*]
- Brief introduction of the project and research objective [*GameHearts / WP3*]
- Explanation of why the specific entity/person was chosen for the study [*recruitment criteria*]
- Assurance of Confidentiality and Voluntary Participation [*reminder*]
- Assurance that the respondent's information will remain confidential and that participation is voluntary Participation [*reminder*]
- Information on Meeting Recording and Use of the Recording [*reminder*]
- Informing the respondent about the format (In-Depth Interview / online IDI), the scope and the expected duration of the interview [*X minutes*]
- Informing the interviewee about the possibility of sending information about published results of the project, including the interviewing process.
- Providing explanations for any questions or concerns the respondent may have

Informant's characteristic

Time: ca. 5 mins **[shortly – no in-depth discussion, just a warm up]**

Before we proceed to the main part of the interview, I would like to get to know you better.:

1. Can you describe your career path so far (places of work, positions held) in the EVGIE/CCI context?
2. Could you tell me a bit about the organization you currently work for (including size - number of employees, structure, market, market position)? How long have you been working at your current organization?
3. What is your official job title? How long have you been in this position?
4. Do you have any experience with video games / video game industry / video game industry ecosystem *[excluding organizations from VGIE]*

Field #1: The role of EVGIE *[EVGIE only]*

Time: ca. 15 mins

- 1.1. In your opinion, what are the major roles EVGIE plays in economies and societies? How do these roles differ from other industries?
- 1.2. How do you understand the ECONOMIC ROLE of EVGIE? What constitutes such a role?
 - *How does EVGIE contribute economically (e.g. to economic growth, job creation)? In what sense?*
- 1.3. How do you understand the SOCIAL ROLE of EVGIE? What constitutes such a role?
 - *How does EVGIE contribute socially (e.g. to physical and mental well-being and social cohesion including development of inclusiveness) ? In what sense?*
- 1.4. How do you understand the CULTURAL ROLE of EVGIE? What constitutes such a role?
 - *How does EVGIE contribute culturally (e.g. to cultural cohesion, promotion/protection of national/European heritage)? In what sense?*
- 1.5. How do you understand the TECHNOLOGICAL ROLE of EVGIE? What constitutes such a role?
 - *How does EVGIE contribute technologically (e.g. to technological advancement at the global scale)? In what sense?*



**Field #2: Institutional settings [EVGIE only]****Time:** ca. 10 mins

Let's now talk about the institutional environment that is important for the EVGIE

- 2.1. How do the national, EU, other European, and wider social policies impact the diverse (economic, social, cultural) roles of EVGIE?
- 2.2. What works, and what does not work in existing policies in terms of roles that EVGIE play?

Field #3: Cross-industry cooperation within CCI**Time:** ca. 20 mins

3.1. Given your and your organization's experience, can you recall one example of cross-industry cooperation practices within CCI?

- *What was the scope of cooperation?*
- *Which sectors of CCI were involved in that cooperation?*
- *Why did this example come to your mind?*
- *What were the Drivers / Motives / Success factors could you identify?*
- *How was/ is this cooperation performed, implemented, organized, coordinated, etc.?*
- *What were/are the outcomes of that cooperation?*
- *What were/are the values of that cooperation?*
- *What were/are the challenges / barriers / hampers / obstacles / risks / failure factors you could identify?*

3.2. How to make collaboration between EVGIE and CCI more beneficial?

3.3. With which or within which sectors of CCI would you like to cooperate and why?

Field#4: Inclusivity**Time:** ca. 10 mins

Now, we will move on to the next part of the interview, considering the inclusivity theme.

- 4.1. How, in your opinion, would it be possible to increase the accessibility to culture, heritage, live music, and sports by society?
 - *How could cooperation between EVGIE and CCI be used to afford these purposes?*
- 4.2. How, in your opinion, inclusiveness is addressed or ensured in video games?
- 4.3. How, in your opinion, would it be possible to develop the games to be more inclusive? **[EVGIE only]**

Field#5: Improvement paths**Time:** ca. 15 mins**[EVGIE only]**5.1. In the interview context, what could be the strategic **recommendations to the organizations from EVGIE to boost their development?**

- *What is most important? What should be given special attention, and what should be the primary focus? What are the so-called best practices in this context – what should be done and what should be avoided?*





- 5.2. What could be the strategic recommendations **to the organizations from EVGIE to enhance cooperation with other CCI** industries and increase mutual benefits & boost the synergy effect?
- 5.3. What could be the **strategic recommendations to the policymakers** to enhance:
- *the ECONOMIC ROLE of EVGIE (in contributing to economic growth, job creation, etc.?).*
 - *the SOCIAL ROLE of EVGIE (in favouring physical and mental well-being and social cohesion (incl. development of inclusiveness), etc.?).*
 - *the CULTURAL ROLE of EVGIE (in favouring cultural cohesion and promotion (and protection) of national and European heritage, etc.?).*
 - *the TECHNOLOGICAL ROLE of EVGIE (in favouring technological advancement at the global scale, etc.?).*

[CCI only]

- 5.1. In the interview context, what could be the **strategic recommendations to the organizations from CCI to boost their development?**
- *What is most important? What should be given special attention, and what should be the primary focus? What are the so-called best practices in this context – what should be done and what should be avoided?*
- 5.2. What could be the **strategic recommendations to the other sectors from CCI to enhance cooperation with EVGIE**, and increase mutual benefits & boost the synergy effect?
- 5.3. What could be the **strategic recommendations to the policymakers** to enhance:
- *the ECONOMIC ROLE of EVGIE (in contributing to economic growth, job creation, etc.?).*
 - *the SOCIAL ROLE of EVGIE (in favouring physical and mental well-being and social cohesion (incl. development of inclusiveness), etc.?).*
 - *the CULTURAL ROLE of EVGIE (in favouring cultural cohesion and promotion (and protection) of national and European heritage, etc.?).*
 - *the TECHNOLOGICAL ROLE of EVGIE (in favouring technological advancement at the global scale, etc.?).*

Summary and Conclusion

Time: ca. 2.5 mins

These are all the questions unless you'd like to add or supplement anything? Perhaps there's something we haven't covered during the interview that you feel is important in the context of our conversation? Do you have any additional suggestions, comments, or thoughts you'd like to share? If so, we can discuss them now. *[If yes, inquire further, ask for elaboration]*

Thank you very much for participating in the study and for supporting us with your knowledge and experience.



D. Scenario guide for vFGI

Operational issues

- **Time and place:** 10.06.2025 and 12.06.2025, 10.00-11.30, MS Teams
- **Number of interviewees:** 5 in each interview
- **Facilitation:** Monika Hajdas
- **Language:** ENG / PL

Prework

A few days before the interview, participants receive an invitation with (1) a link to **Mural**, where they can find **five research concepts** and (2) a **feedback form** containing categories that will be discussed during an interview.

In the invitation, participants should be instructed to familiarise themselves with the concepts and briefly reflect on them before the meeting, as during the interview, they will be asked to express their opinions and share ideas, according to the structure of the feedback form. The invitation should state that such prework takes approximately 15 minutes and is required for a fruitful and efficient discussion during the meeting. The invitation should also inform the participants that during the interview, each will be given about 2 minutes per concept to share their feedback and then an additional 3 minutes to bring new insights.

Introduction

Check-in and brief introduction (10 mins)

Presenting the GH project in an **elevator pitch** format (3 mins)

Project title: GAMEHEARTS (HORIZON-CL2-2023-HERITAGE-01-06. Grant No. 101132543)

Contact person: Principal investigator of the Polish research team under GameHearts: Prof. Patrycja Klimas – Department of Advanced Research in Management; mail: patrycja.klimas@ue.wroc.pl.

Presenting the goal and the rules of the interviews, including time-constrained speeches (2 mins)

Introduction of the participants – short **ice breaker** activity (5 mins)

Interview

Part 1: Testing the research concepts (60 min.)

1. The first insight we got during this project is called **PROFANUM** (*share the screen with this slide*), and by that we mean that some perceive gaming as an inferior, low culture activity, sometimes shameful or even harmful, which limits the possibility for the industry's growth. The strategic challenges resulting from these insights are: How can we change the perception of VGI and eliminate the 'social stigma' to make cooperation with 'respected' industries (CCI, education) more natural? How to create an image of VG so that VGI is a desirable collaboration partner for CCI?





- What do you think about this?
- What are the strengths behind this thinking?
- What are the weaknesses?
- What seems unclear? Vague?
- What suggestions, ideas or recommendations would you like to add to this topic?

Each participant is given 2 minutes to share their thoughts.

The facilitator writes down the key points on a Mural.

2. The second insight we got during this project is called **MADE IN EUROPE** (*share the screen with this slide*), and by that we mean that growing share of Chinese entities in the European game industry raises a lot of questions about the long-term effects (including both benefits and consequences) of this trend. On the one hand, the inflow of serious capital can help strengthen European game studios struggling with market challenges, by protecting jobs, getting funding for investments, supporting market penetration or even market development. On the other hand, Chinese companies might start shaping games' cultural, social, and cognitive content in ways that don't necessarily align with European values like freedom of speech, democracy, independence, or inclusivity. This insight has led us to formulate the following strategic challenges: How can we secure the existing and future digital cultural heritage of VGI in the face of Chinese expansion? How can we encourage players to value and choose 'made in Europe' games?

- What do you think about this?
- What are the strengths behind this insight?
- What are the weaknesses?
- What seems unclear? Vague?
- What suggestions, ideas or recommendations would you like to add to this topic?

Each participant is given 2 minutes to share their thoughts.

The facilitator writes down the key points on a Mural.

3. The third insight we got during this project is called **DIVERSITY WASHING** (*share the screen with this slide*), and by that we mean that the inclusiveness in VGI seems over-endorsed and artificially imposed in games, which brings negative connotations or even fatigue to players. Thus, contrary to the primary goal of promoting diverse roles of games, it brings boycotting and may ultimately even negatively impact individual assessments. Finally, compared to the greenwashing phenomenon, inclusiveness may also be used to artificially gain credit, leading to diversity washing in games. This insight has led us to formulate following strategic challenges: How to address inclusiveness to truly respond to societal needs in a way accepted by video games community? How much inclusiveness is needed (are there any reflections regarding the way to understand and measure the desired level?)

- What do you think about this?
- What are the strengths behind this insight?
- What are the weaknesses?





- What seems unclear? Vague?
- What suggestions, ideas or recommendations would you like to add to this topic?

*Each participant is given 2 minutes to share their thoughts.
The facilitator writes down the key points on a Mural.*

4. The fourth insight we got during this project is called **BABEL TOWER** (*share the screen with this slide*), and by that we mean that communication problems between gamedev and other cultural and creative sectors are complex and multidimensional. They include the use of highly specialized and often hermetic vocabularies, different preferences (or even complete divergence) in communication forms (e.g., written vs. verbal, formal vs. informal), channels (e.g., email vs. Discord), and even timeframes for communication (e.g., strictly within working hours vs. anytime when needed). Our research strongly indicates that cross-industry collaboration between VGI and CCI is not yet widely utilized, and one of the key barriers - both to initiating cooperation and to carrying it out effectively and fruitfully - is communication. This insight has led us to formulate following strategic challenge: How, when, and by whom should communication differences be addressed to maximize mutual understanding?

- What do you think about this?
- What are the strengths behind this insight?
- What are the weaknesses?
- What seems unclear? Vague?
- What suggestions, ideas or recommendations would you like to add to this topic?

*Each participant is given 2 minutes to share their thoughts.
The facilitator writes down the key points on a Mural.*

5. The final insight we got during this project is called **INNOVATION MIRAGE** (*share the screen with this slide*), and by that we mean that out of three types of innovations relevant for video game industry - technological (related to game technology), business (related to business models of games), and content (related to artistic content in games), VGI seems to focus on content innovations and the remaining two spheres remain 'blind spots'. This insight has led us to formulate following challenge: How can we make sense of these outcomes – should they be seen as positive or negative? How video game developers may develop 3-dimensional innovations (is it needed? is it possible?)

- What do you think about this?
- What are the strengths behind this insight?
- What are the weaknesses?
- What seems unclear? Vague?
- What suggestions, ideas or recommendations would you like to add to this topic?

*Each participant is given 2 minutes to share their thoughts.
The facilitator writes down the key points on a Mural.*

**Part 2: Exploring new insights (15 mins)**

Now let's look beyond these insights.

1. If the goal of the GH project is to foster collaboration between VGI and CCI – what are some other key issues that should be addressed? Is there something important we are missing in here?
2. What other factors may limit the possibilities of such collaboration?
3. And what might foster it?

Each participant is encouraged to share their thoughts (3 mins per person)

The facilitator writes down the key points on a Mural.

Closure

1. „Metaphorically speaking”: we have applied and shared some metaphors to better understand the insights from our study. Are there any other metaphors that come to your mind when you think about VGI and CCI collaboration?
2. Short summary of the interview and info on further steps (for example the first minute access to the final report)

Resources:

Participants have access to MS Teams, best if checked before the interview

Participants have access to Mural, best if checked before the interview





DISCLAIMER

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DECLARATION OF NOT USING GENERATIVE AI IN SCIENTIFIC AND CONCEPTUAL WRITING

We did not use generative artificial intelligence (AI) and AI-assisted technologies in the writing or subsequent stages of the research process. We used Chat GPT and Grammarly as technical tools for some proofreading (the main focus on checking grammar and improving transparency) and some translations as English is not our native language. Such kind of use AI tool fits the above declaration of not using generative AI in scientific and conceptual writing. After using Chat GPT/ Grammarly for proofreading/translation purposes, we reviewed and edited the content if needed and take full responsibility for the content of this report.

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