



Wroclaw
**UNIVERSITY
OF ECONOMICS
AND BUSINESS**



CSPB

Business Process Simulation Center

Wroclaw University of Economics and Business

ABOUT CSPB

Business Process Simulation Center (CSPB) is an interactive computer lab for designing, modeling, visually simulating and improving business processes using the the best global business proces modeling software (BPMS) based on integrated process-flow designer and high-end audiovisual technology including 3D and VR for presenting process models. Facility and all devices installed in it, are fully controlled by the bulding management system (BMS) and access control system, thus meeting high safety and environmental protection requirements.

Business Process Simulation Center (CSPB) is an interactive computer lab used for:

design

modeling

visual simulation

improving business processes using the latest computer, audio-visual technologies (including integrated AV signal management systems and Virtual Reality - VR technology), and an integrated access control system and virtual reception area

ESTABLISHMENT OF THE CSPB

The CSPB was founded and is managed by **dr hab. Krzysztof Nowosielski, Professor of the WUEB**, a scientist and didactician passionate about the use of modern technology in educational processes. This facility was created by him, guided by the need to create a virtual business environment on the WUEB campus that would bring students closer to practice.

Business Process Simulation Center was **established in the 2020/2021 academic year**, enriching the campus of the WUEB with an innovative teaching and research facility. Its construction and launch were made possible with the support of EU funds.



dr hab. Krzysztof Nowosielski,
Professor of the WUEB

MAIN TASK OF CSPB

The CSPB's primary objective is to support education processes with the latest technologies, in all forms of study, as well as training and courses offered by the Wroclaw University of Economics and Business. The facility will also be used to conduct scientific research and implement projects for the University's business environment as an interactive simulation environment.

The benefits of the CSPB's activities are enjoyed not only by business partners and organizations outside the university, but also by the staff, organizational units, student research groups, and student organizations of the University. **The CSPB also offers wide opportunities for cooperation with the business sector**, supporting the exchange of knowledge and practical experience.



CSPB has been described as a unique venture in the country and even the world because of the technological solutions implemented!



SCAN ME!



CSPB ZONES

PROCESS DESIGN ZONE

Serves to create process models using **Business Process Modeling Software** class systems, visually simulate them in 3D, and conduct improvement and optimization work. CSPB uses the US-based FlexSim simulation design software in this area. The room includes a trainer's station and 12 class participant stations.

VR ZONE

The second zone (VR) allows for process walkthroughs and interactive participation in **virtual decision-making games (WGD)** in various roles. Six VR booths have been organized in this zone, where, after putting on special goggles, the participant can take an active part in the simulation.



AT CSPB YOU CAN



CREATE PROJECTS

create projects that transform the future of business



DEMONSTRATE

demonstrate business processes



CREATE MODELS

create models that help you understand how complex business processes work



IMPROVE

improve these processes to make them work even more efficiently and effectively

AWARDS RECEIVED BY THE CSPB



Simulation Ambassador Award in 2022
(granted by *Simulation Manager* magazine)



IT Wings in Administration
award for CSPB in 2023

Impact of the CSPB on the Business and Academic Environment

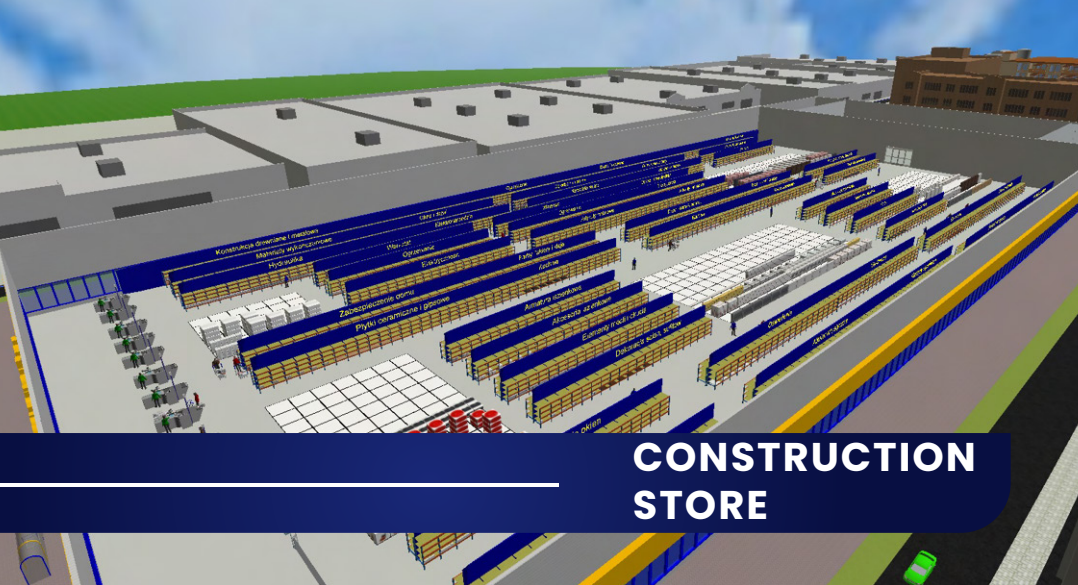
A notable example of the CSPB's impact is the **doctoral dissertation** of **dr inż. Jarosław Maćków**. The research was carried out using the **FlexSim simulation environment** as a tool to support business decision-making in the field of automation investments. The study focused on a real international company located near Wrocław. Simulation was applied to **analyze the company's situation before and after automation**, as well as to identify the factors defined as critical to the success of automation projects. By using the resources of the CSPB and the FlexSim software installed there, a model of an automated production line was developed. Approximately **5,000 implementation scenarios were simulated**, leading to practical recommendations for the company. One of the major achievements of this dissertation was the successful reproduction of real process conditions in the FlexSim environment, based on both parameterized and historical data.



Game Catalog

Implemented Games





CONSTRUCTION STORE

GAME DESCRIPTION

The player takes on **the role of a person managing a large-scale commercial facility - a construction store**. Each day the manager has at his disposal a certain pool of funds, which are used to maintain the facility's potential and to make purchases of goods.

At the beginning of each game, the manager sets the value of the parameters, during the game he **makes decisions on the number of employees on shift and their deployment in each position**, as well as decisions on the purchase of goods.

Co-authors of the game:



Dr hab. Krzysztof Nowosielski, prof. UEW



Dr inż. Ewa Walaszczyk

PURPOSE OF THE GAME

Achieving a certain level of parameter(s) controlled by the store manager, such as **the highest possible positive customer feedback** with the highest daily turnover/trade margin.



Dr hab. Anna Marciszewska, prof. UEW



Dr hab. Renata Brajer-Marczak, prof. UEW



Dr inż. Zdzisław Kes



Dr inż. Michał Nadolny



WHOLESALE GROCERIES

GAME DESCRIPTION

The player takes on the role of a transportation logistics manager at a grocery distribution company, whose task is to ensure the continuity of deliveries to its customers - a chain of grocery stores. The company has a logistics center (LC) where various grocery items are stored, as well as a transport fleet consisting of trucks with different maximum permissible load capacities. The model's other resources include various assortments of goods, warehouse maintenance workers, drivers, stores and their employees. The game runs in one-day cycles. Each day the manager receives a list containing new orders, as well as any unfulfilled orders (in whole or in part) from previous days. For fulfilling the order (delivering parcels of goods to the recipient), the company receives a profit, which is closely related to the order. The manager's task is to prepare bills of lading for both the warehouse service staff and the drivers, so as to provide his company with the maximum possible daily profit.



Author of the game:

Dr inż. Krzysztof Lutostawski

PURPOSE OF THE GAME

The primary goal is to **obtain the highest possible daily profit** for the manager of a distribution company as a result of delivering parcels of goods to a chain of stores, while the intermediate goal is to reduce the lead time (the time from receipt of an order to delivery of all goods from that order), which in turn is closely related to the level of customer service satisfaction.



PRODUCTION MANAGER

GAME DESCRIPTION

The player takes on the role of a **production manager responsible for assigning workers to individual positions**, taking into account their competence and current availability. The manager's task is to prepare the staffing before the start of the shift and to react flexibly to changes during the work, such as early dismissal of an employee or unforeseen events that disrupt the production process.

PURPOSE OF THE GAME

The goal of the game is to **effectively execute weekly production plans, covering different assortments, while making optimal use of available resources**. Participants must manage the production process in such a way as to achieve the set quality goals and ensure operational efficiency.



Author of the game:

Dr inż. Jarosław Maćków



VAT CAROUSEL

GAME DESCRIPTION

The game consists in imparting knowledge on the functioning of economic processes within the export/import of goods and services in the context of **optimizing the VAT collection process**. The goal of the participant of the game is to prevent cases of VAT extortion within the so-called VAT carousel. The player learns about the complex system of intra-Community supplies of goods and services with a special focus on the principles of financial, tax and customs settlements. In a defined environment, the player observes the physical transport of goods between contractors, the flow of financial documents in the form of VAT invoices, communication with tax offices in the form of periodic declarations, VAT rates for goods traded across borders, shipping documents enabling the application of the correct VAT rate, as well as insight into the JPK system and STIR payments.

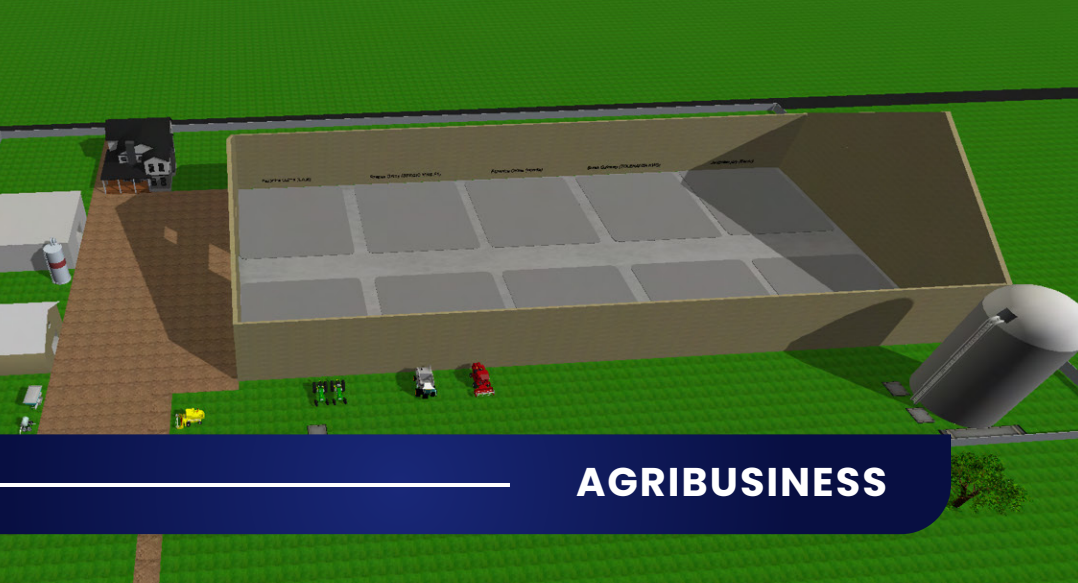
The concept of the game is to map in a simulation environment the actual process of export/import of goods within and outside the EU. **The goal of the game participant is to optimize the process in such a way as to minimize the risk of VAT extortion**. This optimization is done by means of sensitivity analysis, i.e. manipulation of the parameters of individual processes.

PURPOSE OF THE GAME

The aim of the game is to make participants aware of the crucial importance of integrating reporting and transaction monitoring systems for effective detection and prevention of VAT fraud.

Author of the game:

Dr Paweł Siarka



AGRIBUSINESS

GAME DESCRIPTION

The game is designed to reflect the processes carried out in the **agricultural economy**, taking into account selected decision-making problems and their economic effects. Logistics processes, implemented in the farm in terms of supply, storage and disposal, will also be important in the game. The player takes on the role of a **person managing a farm** (with an area of 20 hectares of agricultural land, divided into 20 one-hectare plots), whose goal is to properly prepare the farm field (tillage operations, pre-sowing fertilization), followed by the selection of varieties, selection and application of plant protection products and fertilizers. It is also necessary to decide when to harvest and sell the crops.



Author of the game:

**Dr hab. inż. Arkadiusz Piowar,
prof. UEW**



PURPOSE OF THE GAME

The aim of the game is to **map the organizational and production processes in the field of crop production** (a choice of four crops or crop rotation - winter rapeseed, winter wheat, sugar beet, spring barley), on a farm located in the Lower Silesian voivodeship with established natural conditions (soil quality class, etc.), the size of the farm area and the infrastructure owned (agricultural equipment, warehouses, etc.). An important element of the game is to take into account the fact that a farm is a specific economic entity. From the point of view of the objectives of the game, the uncertainty of farming is important, determined by the influence of

many economic, natural factors. This variability is taken into account in the modeling, which allows students to better understand the technical and organizational complexity of real processes in the agricultural economy (also the needs with regard to the knowledge and skills necessary for effective operations, including the connection of agricultural production with other elements from the agribusiness area - the range of available fertilizers, plant protection products, etc.).





URBAN LOGISTICS

GAME DESCRIPTION

The player **makes decisions about the type of transportation used in, for example, courier shipments.** Decisions are made from the perspective of costs incurred, customer satisfaction achieved and the environmental impact generated in the perspective of the mode of transportation chosen.

PURPOSE OF THE GAME

The game is designed to make students aware of **how managerial decisions made in a specific environment affect key monitoring indicators.** The impact of these decisions on the environment is also an important aspect addressed in the game.



Author of the game:

**Dr hab. inż. Maja Kiba-Janiak,
prof. UEW**



SERVICE MANAGEMENT

GAME DESCRIPTION

The game simulates the **management of a service department, with the participant taking on the role of a manager** responsible for optimizing operational processes. The goal of the game is to increase the throughput of the service process through proper management of resources, reorganization of workstations and streamlining the flow of materials and information.

The player has the ability to modify key parameters, such as the organization of the team's work, the structure of the department, the execution time of individual operations and the method of transporting and storing components. The decisions made affect the efficiency of the entire process, and effective optimization leads to improved operational performance.



PURPOSE OF THE GAME

The game focuses on the management of the service process, with the main objective being to optimize it in such a way as to increase throughput while maintaining certain constraints. The participant, playing the role of a manager, has to **make decisions on the organization of work, allocation of resources and improvement of operational flow.**



Author of the game:

**Dr hab. Grzegorz Jokił,
prof. UEW**





INTERNATIONAL BUSINESS

GAME DESCRIPTION

The game simulates the process of managing the production, logistics and **international expansion of a company operating in the photovoltaic industry**. Participants, divided into teams, control the development of their companies and make strategic decisions on the selection of target markets, brand building and optimization of operational processes. The game allows participants to develop analytical skills, make strategic decisions and optimize production and export processes, providing a realistic experience of managing a company in international markets.

PURPOSE OF THE GAME

The goal of the game is to **optimize internal production and logistics processes**, develop an optimal export strategy, and develop a photovoltaic panel manufacturing company.



Co-author of the game:
Dr Karolina Łopacińska



Co-author of the game:
Dr Paweł Brusito



THE CITY STRATEGIST

GAME DESCRIPTION

The game simulates the **management of a city facing the challenges of an aging population and an exodus of residents**. The player takes on the role of a decision-maker whose task is to **increase the settlement attractiveness of the city through strategic investments** and appropriate management of available resources. The player must balance between different areas of development, taking into account both the needs of residents and available resources. An effective strategy will help stem the population outflow, attract new residents and develop the city in the long term.

PURPOSE OF THE GAME

The goal of the game is to increase the settlement attractiveness of the city in such a way as to at least maintain its initial population. A key challenge for the player is also to **change the age structure of the population** by increasing the proportion of people of working age.



Author of the game:
Dr hab. Przemysław Wolczek, prof. UEW





MERCHANDISING

GAME DESCRIPTION

In this game, participants assume one of three roles. As the **Store Manager**, the player is responsible for designing the store layout, creating the shop window display, and selecting the range of products to sell, along with their placement on the shelves to achieve optimal results. As a **Sales Representative**, the player must choose the best placement for a selected product brand within the store and effectively utilize point-of-sale (POS) tools to maximize sales. In the Virtual Reality zone, the player takes on the role of the **Customer**, who enters the virtual store to purchase specific categories of products in VR mode.

PURPOSE OF THE GAME

The purpose of the game is to illustrate the decision-making process involved in merchandising activities conducted by the Store Manager or Sales Representative. Players can evaluate the outcomes by observing

changes in key performance indicators (KPIs) or customer behavior in the Virtual Reality setting.

The game is available in both Polish and English versions, along with a Virtual Reality presentation.



Author of the game:

**Dr hab. Anetta Pukas,
prof. UEW**



WHOLESALE MANAGEMENT

GAME DESCRIPTION

The player takes on the role of the manager of an entity that is a toy distributor. **The task is to make decisions on inventory purchases, payment terms and discounts to customers**, which translates into inventory, trade receivables and operating liabilities, i.e. working capital requirements. The player must take into account the fixed costs of operating a wholesale business and handling sources of financing.

PURPOSE OF THE GAME

Achieving a certain level of parameter(s) controlled by the wholesaler's financial manager, e.g., operating profit with established liquidity conditions or a set level of cash flow with a minimum margin.



Author of the game:

**Dr hab. Marek Pauka,
prof. UEW**





HR

GAME DESCRIPTION

The game simulates the process of **recruiting and managing a team of tele-recruiters**. The player takes on the role of a recruiter whose goal is to successfully hire and retain competent employees.

During the gameplay, the participant analyzes candidate applications, selects the best applications, conducts interviews and makes hiring decisions for a trial period. After a month, he evaluates the effectiveness of the new employees, measures the satisfaction level of the client contracting the services, and decides on further action - re-recruiting or organizing training to improve the competence of the team.

PURPOSE OF THE GAME

Conduct recruitment and ensure the effectiveness of the process, as measured by a reduction in the level of employee turnover and an increase in the number of satisfied customers.



Co-author of the game:

Dr Agnieszka Żarczyńska-Dobiesz



Co-author of the game:

Dr Agata Pietroń-Pyszczek



NETWORK ORCHESTRATION

GAME DESCRIPTION

The game simulates the **management of an international production network**, in which the participant takes on the role of a person responsible for the effective planning and execution of customer orders. The player operates in an environment consisting of production facilities with different specialties, owned by different companies and located around the world. His task is to find the optimal production chain that meets the technical, cost, time and quantity requirements specified in each order. At more advanced levels of difficulty, the game can introduce random events such as breakdowns, delays or changes in resource availability, requiring the player to dynamically reconfigure production processes.

PURPOSE OF THE GAME

The goal of the game is to **optimally select and use the available resources in such a way that as many orders as possible are correctly started and completed**. The outcome of

the game can be judged by the number, value or quantity of units of goods processed in a certain number of cycles or time. The player must make strategic decisions regarding inventory management, process synchronization and optimization of logistics operations to maximize the efficiency of order execution and achieve the best possible operational results.



Co-authors of the game:

**Dr Anna H. Jankowiak,
prof. UEW**

**Dr Szymon Mazurek,
prof. UEW**



MARKETS

GAME DESCRIPTION

The player takes on the role of either a buyer or a seller in a specific market. Depending on the role, their task is to buy or sell a particular good. The good in the market has defined characteristics, to which the buyer has certain preferences. The seller can modify the properties of the good they produce and sell, depending on their plans and the market situation.

Additionally, each buyer resides in a different location within a geographically defined market. Each seller also has their sales point located within the geographical space. Buyers make decisions according to their preferences and choose those sellers who offer them the highest utility. Sellers differentiate their products so that their product is the most desirable to buyers.



Author of the game:

Dr Mikołaj Klimczak

PURPOSE OF THE GAME

The goal of the game for both buyers and sellers is to **maximize net benefits**. For buyers, this means utility minus the cost of consumption. For sellers, it refers to revenues from sales minus production costs and other expenses, including those related to product differentiation.



INCLUSIVE EDUCATION

GAME DESCRIPTION

The game uses VR technology to **allow participants to experience different types of disabilities**. At the start of the gameplay, players are given tasks to complete under conditions limited by a specific disability, such as visual impairment, mobility challenges (e.g., using a wheelchair), or hearing loss.

PURPOSE OF THE GAME

The goal of the game is to **raise awareness and empathy through hands-on experience of the challenges faced daily by people with disabilities**. Participants learn to identify barriers and adapt solutions in a way that supports the principles of universal design and accessibility.

Indirect goals include: fostering and developing social awareness, increasing the attractiveness of educational programs, and complementing theoretical knowledge in areas such as universal design, analysis of social

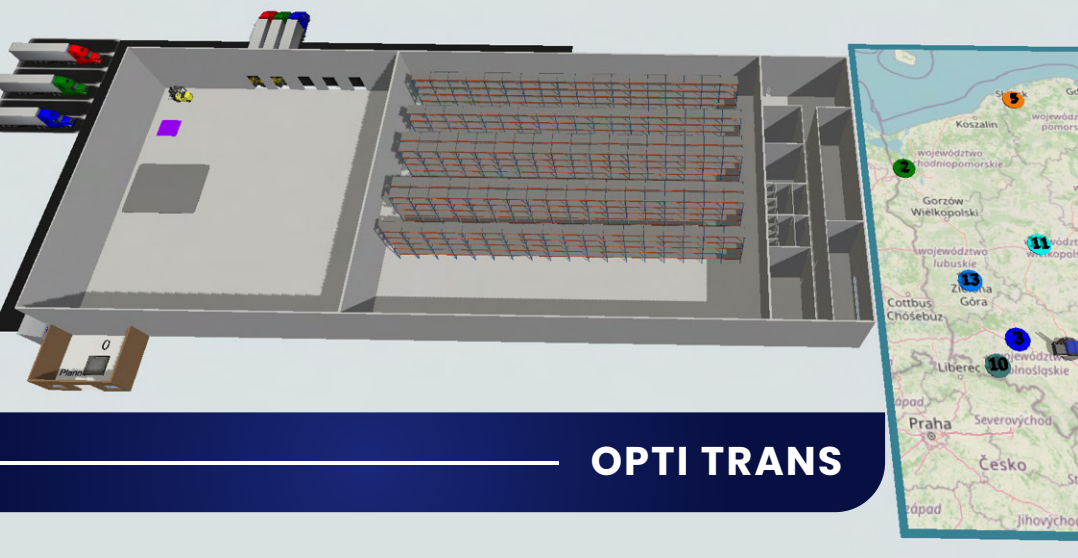
support systems, and disability support policies.



Author of the game:

Dr Ewa Szostak, prof. UEW





OPTI TRANS

GAME DESCRIPTION

The game simulates **transportation management in a logistics company**, with the participant taking on the **role of a manager responsible for planning truck routes**.

The objective of the game is to develop optimal routes in accordance with the Hamiltonian Cycle – each truck must visit all customers exactly once and return to the base. The player selects the number of cities and available vehicles, then plans the routes to minimize the total distance traveled.



Author of the game:

**Dr hab. Grzegorz Jokieli,
prof. UEW**

PURPOSE OF THE GAME

The main goal is to **optimize the routes** in such a way as to find the shortest total length of all routes, which is reflected in the financial performance achieved within the game.



Shape Future, Learn Differently





Game Catalog

Games in the Design Phase





ACCOUNTING

GAME DESCRIPTION

The game simulates the **financial and accounting management of an enterprise, with the participant playing the role of an employee in the finance and accounting department.** The player makes key decisions on resources, financing sources and accounting policies. His task is to implement processes related to



Co-authors of the game:

Dr Piotr Luty

Dr Piotr Wanicki

Dr Katarzyna Piotrkowska

Dr Angelika Kaczmarczyk

production, provision of services or trade, while carrying out the relevant business operations.

All activities must be properly documented and included in financial statements. The game provides practical support for learning Accounting/Accounting Basics, helping participants to better understand the mechanisms of financial recording and reporting.

PURPOSE OF THE GAME

The participant pursues production, service or commercial goals by making financial decisions in accordance with accounting principles. The game shows the impact of these decisions on financial statements and the relationship between resources, sources of financing, and the timing of costs and revenues.

The game **helps to understand the practical application of accounting principles and their relevance to the financial management of an enterprise.**



SME MANAGEMENT

GAME DESCRIPTION

The game simulates running a small business, in which the participant takes on the role of a business owner and makes key business decisions.

The game is played in monthly rounds, and the player manages financial resources by choosing an industry, location and form of taxation. He decides on hiring employees, purchasing equipment, managing inventory and investments, as well as monitoring fixed and variable costs, paying taxes and Social Security contributions.

Once a quarter, he analyzes economic forecasts, adjusts his strategy to changes in the market, and decides on the further development of the company. Success in the game depends on skillful financial management, cost optimization and adaptation to market conditions.

PURPOSE OF THE GAME

Simulation of **the effects of decisions made by entrepreneurs – owners of SMEs, in an uncertain economic environment,** in a diverse geographical or political space. Analysis of the financial consequences of the tax decisions made.



Author of the game:

Dr hab. Urszula Markowska-Przybyła, prof. UEW





INCLUSIVE DESIGN

GAME DESCRIPTION

The goal of the game is **realized through the process of designing, testing and modifying the space**. At the beginning, players design the space, choosing components and setting parameters such as the width of the streets, the placement of individual elements or the length of traffic lights. This is followed by a simulation in which different groups of people, including people with disabilities, try to navigate the designed space. Players observe the results and make



Author of the game:

Dr inż. Agata Pluta

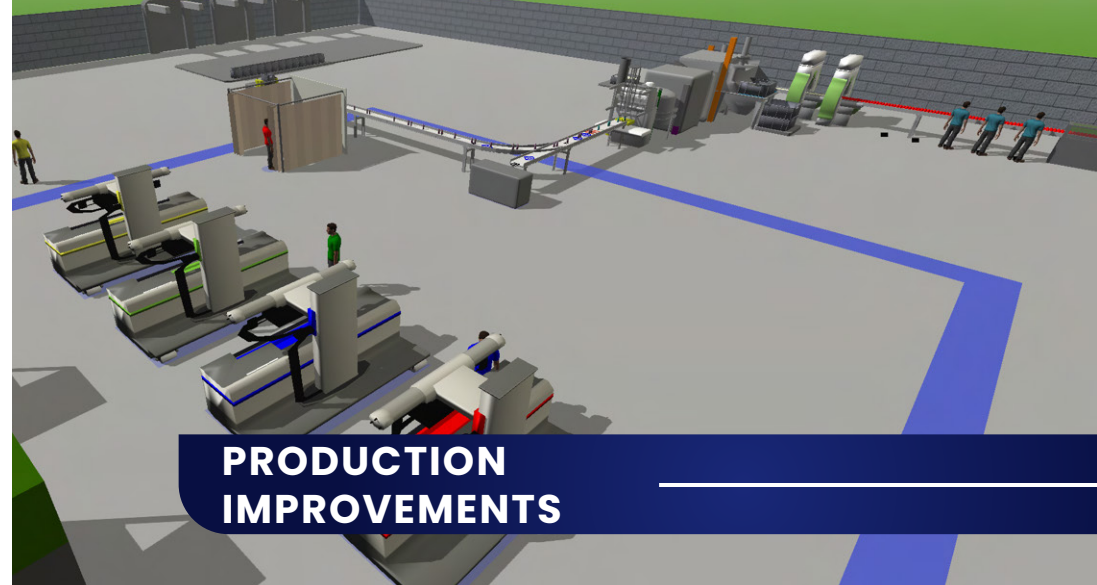
adjustments to the design based on the data obtained.

The VR part allows players to experience the space from the perspective of people with disabilities, which allows them to better understand and evaluate the design. This process is repeated until satisfactory results are achieved.

PURPOSE OF THE GAME

The purpose of the simulation part is to **design an urban space and test it by people with different conditions** (different walking speeds).

The goal of the VR part is to experience the space from the point of view of people with selected disabilities. Based on the experience gained, students will be able to design a given space in accordance with the idea of universal design and inclusive policies.



PRODUCTION IMPROVEMENTS

GAME DESCRIPTION

The game simulates the **analysis and optimization of production processes related to juice production**.

The participant plans measurements and evaluates phenomena occurring in the process, identifying problem areas using statistical tools. The goal of the game is to minimize losses, inputs and waste according to the Lean Management approach, improve quality through Six Sigma and optimize production volumes to maximize profit.



Author of the game:

Dr inż. Ewa Walaszczyk

PURPOSE OF THE GAME

The model focuses on analyzing and interpreting process data, helping to understand the key mechanisms for evaluating and **improving manufacturing processes**.





MERCHANDISING PLUS

GAME DESCRIPTION

The Merchandising Plus game is being **supplemented with elements to facilitate the use of VR and is being formatted for the English language version**. Adjustments are also being made for new product branches and store locations in the mall.

The VR part allows players to experience the space from the perspective of people with disabilities, which allows them to better understand and evaluate the design. This process is repeated until satisfactory results are achieved.



Author of the game:

**Dr hab. Anetta Pukas,
prof. UEW**

PURPOSE OF THE GAME

The purpose of the game is to **present the decision-making process for merchandising activities carried out by a Store Manager or Sales Representative and to present the results achieved based on the decisions made**.



TRAILER PRODUCTION

GAME DESCRIPTION

The game **reflects the actual production line of three types of trailers manufactured at Wielton**. The game teaches how to balance working time, workloads of employees at workstations. It shows what takt time is and how important its balancing plays in the efficiency of production schedules.

PURPOSE OF THE GAME

The game **simulates the management of trailer production, and the participant's goal is to maximize profit by producing as many units as possible in a week**.

The player makes decisions on production organization, resource management and process optimization to increase productivity. Efficient use of available resources and minimizing losses and downtime are key.

The gameplay develops skills in operational planning, process optimization and decision-making that affect the profitability of production.



Author of the game:

**Dr hab. inż. Maja Kiba-Janiak,
prof. UEW**



Game Catalog

Games in the testing phase



QC MANAGEMENT

GAME DESCRIPTION

The player takes on the role of a quality manager in a manufacturing company. The quality manager's task is to make decisions based on process results, such as quality indicators and control cards and histograms.

The scope of decisions made by the quality manager includes:

1. Controlling the production process (starting and stopping the process, quality control, controlling the process, dealing with nonconforming products)
2. Releasing or stopping batches of products
3. Improving the production process.

PURPOSE OF THE GAME

The game simulates **quality management in manufacturing**, and the participant's goal is to optimize quality indicators while minimizing quality costs and reducing lead times. The gameplay develops skills in data analysis, operational decision-making and strategic quality management in the enterprise



Author of the game:

Dr Tomasz Brzozowski



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