

Future Textile Enterprise – Interactive sustainability compass - a gamified view of the value chain as a decision-making aid for environmental challenges

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ABSTRACT

The bachelor's thesis "*FUTURE TEXTILE ENTERPRISE*" introduces a gamified simulation game to simplify this complexity and inspire more sustainable practices among the whole textile universe. The game explores the textile value chain, helping participants identify sustainable strategies and their impacts on the Sustainable Development Goals (SDGs). A compass-like game board visualizes key actors and action fields, structured into six interconnected "galaxies." This design reduces complexity, reveals hidden connections, and encourages strategic thinking.

A workshop format will test the game with academics and students experienced in the textile sector and open to gamified methods. Participants will engage in gameplay, decision-making, and scenario development, followed by reflective discussions. The workshop evaluates the game's ability to enhance understanding of sustainability, support problem-solving, and inspire actionable industry recommendations. Feedback from the workshop will validate the game's mechanics, usability, and educational value. Insights will refine the game for wider application in both academic and industry contexts. This approach highlights gamification's potential to foster transformative change in the textile industry, driving holistic learning and empowering sustainable decision-making along the entire value chain.

Keywords: Sustainability, Gamification, Decision-Making, Sustainable Development Goals, Interactive Learning, Transformative Change, Educational Innovation

WORKSHOP PROPOSAL

The textile industry and the need for sustainability through gamification

The textile industry represents one of the largest and most influential sectors in the global economy. However, the industry is also associated with significant ecological and societal challenges. As environmental concerns and social inequalities become more pressing, the perception of sustainability as a complex and opaque concept often impedes the development and implementation of concrete solutions. This is particularly the case in an industry as extensive and interdependent as textiles, where

stakeholders at all levels of the value chain encounter difficulties in reaching consensus on pragmatic strategies for sustainability.

The bachelor's thesis, entitled "*FUTURE TEXTILE ENTERPRISE*," presents an innovative game designed to address the aforementioned issues. By employing gamification, the objective is to mitigate the complexity of sustainability challenges and motivate employees and decision-makers in the textile sector to engage in more conscious and sustainable actions. This approach transforms abstract sustainability concepts into interactive, actionable, and engaging scenarios, thereby facilitating a more nuanced understanding of the roles and responsibilities associated with these concepts.

A holistic approach to sustainability

The project's objective is to advance sustainability in the global textile industry, which is confronted with a multitude of challenges, including resource depletion, labor exploitation, and waste generation. The interactive components of the thesis and the resulting game assist users in identifying the challenges associated with transparency within the value chain and in grasping the fundamental principles of sustainability. The responsibility for sustainable practices is embedded in the structures and decisions that pervade the entire value-creation process. The simulation format provides a novel avenue for action, enabling participants to harness their creativity in identifying prospective positive scenarios and formulating new narratives. The focus is not limited to textile product suppliers but also encompasses internal corporate structures and processes. The workshop illustrates that all participants in the textile industry, regardless of their position, have the potential to contribute to the promotion of sustainable practices. The incorporation of gamification facilitates a learning process that allows for a comprehensive understanding of the lifecycle of clothing. The incorporation of playful elements is designed to facilitate a transformative shift within the textile industry through the implementation of educational and training initiatives. In essence, the game represents a comprehensive approach to sustainability, integrating all pertinent aspects of textile production and value creation in an interactive and practical manner.

A journey to sustainability

The game, and thus the workshop, guides participants through a temporal journey, commencing in 2024, which elucidates the potential for sustainable transformation within the textile industry. The game board serves as a compass within the textile universe, representing the central element of the format. The game board, which comprises six galaxies, offers an overarching view of all action fields and actors involved. This approach not only simplifies the complexity of the value chain but also reveals hidden interconnections, thus enabling participants to identify sustainable decision-making opportunities.

A central element of the game is the physical representation of constellations, which illustrate potential future scenarios and their implications for the Sustainable Development Goals (SDGs). Participants are charged with the task of developing scenarios that will have a beneficial impact on these goals, striving to gain a deeper understanding of the ways in which they can exert the greatest influence on achieving them.

The practical application of the game in a workshop setting represents a crucial step in validating its theoretical foundations, functional effectiveness, and impact on the target audience. This setting allows for the collection of substantial feedback. The objective is to analyze and optimize the effectiveness of the individual game mechanisms and the overall structure.

Analyzing gameplay and beyond

The workshop employs a structured methodology for the evaluation of both the game mechanics and the interactions of the participants. The game is conducted with a target audience comprising individuals with the requisite expertise in the textile industry and a willingness to engage with gamified approaches, as well as an interest in exploring new developments in sustainability. Participants advance through the game's phases in a sequential manner.

The process commences with an introduction to the challenges. Subsequently, participants are required to make decisions based on the information and visualizations provided, which ultimately culminates in the presentation and discussion of their developed solutions. Active engagement with the game is designed to facilitate a deeper understanding of sustainability concepts and their impact on the textile sector. These experiences are then subjected to further discussion in moderated reflection sessions. The workshop assesses whether participants can comprehend the consequences of their decisions throughout the textile value chain, devise solutions autonomously, and formulate feasible recommendations for sustainability.

A customized approach for an academic audience

The workshop's target audience, which is primarily comprised of students and academics, is particularly well-suited for evaluating the game's efficacy. This group not only engages with the game but also critically examines the underlying theses and assesses the game's practical relevance. The workshop's central element is the interaction with academic participants. While engaged in gameplay, participants assume the roles of both players and critics, offering constructive feedback on the concept and suggesting potential avenues for enhancement.

The incorporation of scientific perspectives is of great value in reflecting on the theoretical foundations of the game and ensuring its suitability for academic settings.

Furthermore, focused discussions with participants can yield new insights, such as how to effectively convey sustainability topics or refine the gamification approach. The outcomes of the workshop will be documented and incorporated into the further development of the game. The game will be subject to continuous development with the objective of eventually becoming a useful and effective tool for the promotion and education of sustainable practices in the textile sector.

The workshop includes a comprehensive examination of the game's mechanics, with a particular emphasis on the introduction of the topic, decision-making processes, and the evaluation of proposed solutions. The investigation seeks to ascertain whether the information, visualizations, and mechanics provided genuinely assist participants in comprehending the intricacies of sustainability and developing long-term actionable strategies. Particular attention is paid to the influence of gamification elements on participants. Does the game prompt participants to engage more profoundly with the subject matter? Does it facilitate creative and innovative problem-solving? The combination of structured observations and participant feedback will facilitate the identification of the extent to which the game has been successful in achieving its stated objectives, while also enabling the identification of potential areas for improvement.

Moreover, the workshop provides a valuable opportunity to evaluate the game's usability and accessibility. Both the content and the design are evaluated in terms of clarity and appeal. The feedback from the target audience will inform adjustments to the game mechanics, the refinement of the content, and improvements in participant engagement.

Advancing the goals of the game

The investigation aims to ascertain whether the game effectively conveys complex information, imparts knowledge, and motivates participants to develop actionable solutions. Furthermore, the game will be evaluated in terms of its ability to engage an academic audience, and any necessary refinements will be identified with a view to adapting it for use in industry and education.

A successful trial with a relevant target group can confirm the game's potential as a tool for promoting sustainability. Concurrently, the data obtained will be instrumental in further refining the game and aligning it more closely with the needs of the industry and academia.

By conducting practical trials and involving subject matter experts, "*FUTURE TEXTILE ENTERPRISE*" can establish itself as an impactful instrument for fostering a positive transformation within the textile sector, supported by a collaborative workforce that can be utilized by all stakeholders to improve the textile universe.