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Adapt or Die! - A Board Game to Support Dynamic Business Model Creation in Digital Darwinism

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Abstract. *Adapt or Die!* is an educational serious game developed to support the business model creation process in the era of Digital Darwinism by guiding players dynamically through the key building blocks of a digital business model while experiencing the need for adaption to the quickly changing environment. The artifact was developed with the design science research approach and gains from the positive effects of games to foster creativity, motivation and multifaceted thinking. The interaction and dynamic in the method itself better harmonize with the increasing market complexity. In parallel, the integrated educative content is adapted to specifics of digital business models. Future research includes the development and evaluation of a digitized version of the artifact.

Keywords: *Business Model Creation, Serious Game, Digital Darwinism, Game Design.*

1   Introduction

The rapidly progressing digital transformation forces entrepreneurs worldwide to redesign their business models (BMs) in order to cope with the highly complex environment and innovative technologies to survive in the market [1]. A lack of adaptability to an increasingly digitized world often results in being outcompeted by better adapted companies – a selection process comparable to biological evolution, therefore known as "Digital Darwinism" [2]. The given name of the presented game *Adapt or Die!* is an allusion to that evolutionary perspective on BM innovation [3]. The game-based design approach achieves a strong fit to the dynamics of increasingly digitally transforming ecosystems by better harmonizing the external environmental complexity with the complexity of the method itself [4]. Furthermore, *Adapt or Die!* serves as an educative game with the aim to support entrepreneurship students, researchers or practitioners in the BM design process by developing a common understanding of the value creation in digital ecosystems and the specifics of digital BMs' building blocks, while underlining the relevance of flexibility and adaptation [5]. The game might open novel avenues of thinking by offering a more engaging and inspirational tool for the ideation process and fosters learning about digital BMs.

2 Design of the Artifact

2.1 Design Science Research (DSR)

DSR proposes clear guidelines for understanding, executing, and evaluating the research [6]. Its goal is to ensure that artifacts are designed based on business needs and requirements (*relevance*), while being built upon applicable knowledge from grounded theories, frameworks and methods (*rigor*). Artifacts emerge iteratively from a design-oriented process. Given that perspective, the game arises from the study-derived business need for a dynamic instrument to help design BMs (*relevance*) that are more appropriate to the complexity and specific to digital ecosystems [5]. Principles of game design according to *Schell* [7] and *Salen & Zimmermann* [8] and the Digital Canvas' building blocks [9] provide the theoretical foundation (*rigor*). Several playtests with tissue testers [10] led to iterative evaluation and improvement of the artifact resulting in the prototype presented here, but show the need for further research as well – both aspects are explained in more detail in this research-in-progress article.

2.2 A Game-Based Approach

A game can be described as a „problem-solving activity, approached with a playful attitude" [7]. Serious games have another superordinate purpose than entertaining their players, e.g., revealing insights [11] or like in this case, to support the BM design process. Serious games can have a variety of positive impacts on their players by endeavoring a stimulating atmosphere to solve problems. For instance, the players are more motivated and creative, they keep interest and concentration, they immerse deeply into the topic and thus develop a better output, they are stronger emotionally affected and act therefore more authentically [11, 12]. Moreover, games are characterized by surprise and interaction and thus the dynamic is better adapted to current environmental dynamics than static alternatives. So-called "*business games*" [13] are increasingly establishing themselves, as shown in the literature-based framework of Breuer et al. [14] or in more than 20 case studies, where at least parts of BMs are developed by making use of game mechanics [13, 15]. The basic game design categories *story*, *mechanics*, *aesthetics, technology* and *chance* must be smartly interlinked in order to create a stimulating game experience [7]. Although the interest in business games in the field of entrepreneurship is rising recently [14], holistic concepts in the form of serious games that design entire BMs while taking into account specifics and building blocks adapted to the digitally transforming environment, are hard to find.

2.3 Game Requirements

Interviews with founders and surveys with entrepreneurship students in previous research [5] led to these requirements for the game design: a modular but dynamic structure, an iterative approach to conceptualize the BM along digital-specific building blocks, encouraging creativity and interaction, linking the BM to the general conditions

of the target market and react to the threat of Digital Darwinism [2] with the focus on adaptability as a survival factor.

2.4   Pattern-based Digital Business Models

The prototype is based on the scientifically proven foundation (*rigor*) that innovation follows an evolutionary process by combining existing patterns in a novel way [16]. *Gassmann et al.* were able to show that a modular system consisting of 55+ BM patterns is sufficient to map almost all existing BMs and to generate innovative BMs from them as well [17]. These include, in particular, mostly data-driven shared value creation from a network of actors, the shift from a product-centric to a service-centric logic, increasing customer-centricity as a market expectation, and organizational adaptability to the transforming environment. Those aspects are integrated into the building blocks for the design of digital business models in the Digital Canvas [9].

3   Introducing the Prototype

3.1   Game Design

The serious game *Adapt or Die!* teaches its players to design digital BMs and to keep in view different stakeholder perspectives and the relevance of adaptability in volatile environments. *Figure 1* shows the physical serious board game with its key play elements (action cards in the four categories quiz, creativity, external shocks and BM patterns, as well as stakeholder role cards and a canvas for digital BMs with its nine building blocks) – the game is planned to be fully digitized shortly.
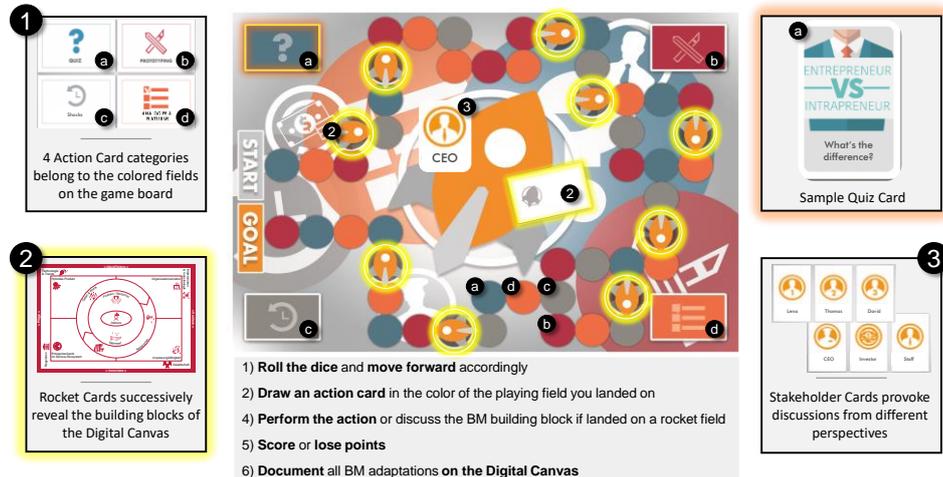

Figure 1. Overview of the Game Elements of *Adapt or Die!*

The four basic game design categories *story* (Digital Darwinism attacks the BM), *mechanics* (chance; interaction; mix of board and cards), *aesthetics* (optic, haptic) and *technology* (physical but planned to be digitized) – have been elaborated based on sound game design principles [7, 8] to create a positive player experience and thus a stimulating game. The game experience has been constantly improved within the DSR Process based on 12 tissue testers' feedback from initial playtests [10]. To name some examples, several players valued the "inspiring learning atmosphere", internalized the evolutionary, pattern-based process of BM creation and praised the vivid interaction, but criticized the overly convoluted ruleset, the difficulty of the quiz questions, and too little guidance in creating content for the BM elements - whereupon these aspects were improved in further iterations.

3.2 Game Play along the BM Building Blocks

Players start the game with a shared, initial BM idea and assume a specific stakeholder role for the course of the game (e.g., employee, customer, competitor). They move around the game board by rolling a dice and successively work out the fundamental building blocks of their BM, which cover general conditions, customers' problems/needs and added value, required resources, data, hybridization of the service offering, organizational structure, revenue mechanics and adaptability of the BM [9]. Their systematic elaboration is supported by successively fed-in accompanying questions. Ideally, these are answered from different stakeholder perspectives, so that synergies and conflicts of interest can be identified more easily before being noted on the canvas. Unexpected events (e.g., a lockdown) on the grey cards require discussing possible reactions to changing conditions in the BM. The blue fields test and expand the players' factual knowledge of BMs (e.g., explaining network effects). The orange cards initiate the pattern-based innovation of BMs following the example of the *Business Model Navigator* [17] and extend this approach with additional evolutionary patterns (e.g., by transferring biological concepts like niching to an economical context). Creativity-promoting challenges (e.g., illustrating the company's mission) foster ingenuity within the design process. The player who first reaches the target field on the board will have worked out all the basic building blocks of the BM after proving its robustness along the challenges, so that (s)he wins the game.

4 Implications and Further Research

4.1 Significance to Research and Practice

The emerging irritations in dynamic markets repeatedly require the adaptability of BMs. *Adapt or Die!* serves as a valuable stimulus to critically question the variability of the stakeholders` options for action in complexity. The game prototype represents an interactive method for students and practitioners to create digital BMs in a more

dynamic way. It serves as an inspirational source for creativity and inspiration and might facilitate the learning process on BM design. However, it will not replace the challenging and time-consuming process of BM creation, adaptation and implementation in reality. Instead, the research goal is to support its players to better understand the complexity of digital BMs and to become more sensitive to a shifting external environment when playing the game. From the perspective of BM research, the game offers an unconventional approach for BM design, while contributing to entrepreneurship education. Reacting to the law of *Ashby* [4] it counters external complexity meaningfully by equally great internal complexity, since the game itself fosters dynamic interweaving and adaptability as key factors to survive in the era of Digital Darwinism.

4.2 Future Research

The next step will be to digitize the Serious Game. In the first place, it is planned to randomly display the action cards digitally in an app according to the diced color and successively enrich the database content. A Java application will initially track down the BM patterns of the BM dealt with in the game by asking questions deductively in order to then stimulate new ideas for adaptation by expanding, exchanging or combining further patterns. The building blocks of the digital canvas will be displayed digitally while building up a digital BM Canvas visualization in the Java-application step by step to then summarize the final concept. The planned digitization will result in a location-independent game and enables a larger group of participants to play at the same time. Digitization allows to scale cost-effectively and to flexibly exchange or expand the challenges in a modular database. Furthermore, it enables the improvement of the game experience, for instance through visual enrichment by means of explanatory videos, and will digitally store ideas developed in the game to discuss, share and ideate them further online.

Within the DSR framework, the digitized game concept will need iterative evaluation and improvement derived from the results of further playtests. In this respect, target group specific (students vs. entrepreneurs) experiments and in-depth interviews could be conducted to improve the usability, game experience and learning. Consequently, *Adapt or Die!* might become an impetus for generating ideas for innovative BMs, but does not replace the immense efforts for robust innovative BMs' design with successful market implementation, since the game environment remains just an incomplete abstraction, capturing only partial aspects of the increasingly complex business environment.

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