A Comparative Overview of Success Factors for Sustainable and Digital Business Models

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***Abstract*— Digitalization and Sustainability are two global megatrends, that lead to a changing world. Companies are therefore adapting their business models towards these transformation necessities. To adapt successfully to these alterations, it is important to know the success factors of both the business model types. However, there is a lack of a comparative overview of both the success factors for the included business model types, such as sustainable and digital. A literature review was conducted to investigate the similarities between these two types. As a result, success factors of digital and sustainable business models have been identified through the literature review, including factors that are mentioned for both business model types and factors that are found exclusively for one type of business model. The factors can be tested and evaluated afterward in living labs. Knowledge about these factors can support entrepreneurs in the development or innovation process of their sustainable and digital business models. This paper deals with adaption, for example, what success factors are found for companies to adapt their business models. Here, topics from the Adaptive Conference are addressed, such as adaptive economic applications.**

Keywords-business model; digital business model; sustainable business model; success factors; business model innovation.

I. INTRODUCTION

A. Motivation and Research Problem

The world is changing! The consequences of those changes are already visible. For example, it can be assumed with a high degree of probability that strong temperature anomalies are linked to global warming [1]. Megatrends are developments on a worldwide scale that persist for several decades and also lead to a changing world [2]. Digitalization and Sustainability are two of these global megatrends [3] [4].

Companies are already partially adapting their business models towards these transformation needs. For example, business models are adapted to new opportunities of offline and online IT, while there is also an adaption pressure because of challenging sustainability topics [5] [6]. To achieve a targeted and low-risk business model adoption, it is important to know the exclusive and common success factors of sustainable business models and digital business models.

Several factors can be found in the literature for exclusively mentioned digital business models or e-business models. For example, existing work that deals with the key success factors with a focus on platform-driven models [7]. In addition, criteria of success were identified for e-marketplace models in the B2B domain [8].

In addition, there are already several success factors in the literature for exclusive mention of sustainable or circular business models. For instance, existing work is about the criteria for the success of circulating business models [9]. Furthermore, it is possible to find results in the domain of creating sustainable digital business models and conventional business models, which focus on the tensions in model creation [10]. However, there is no comparative review showing the success factors for both business model types spanning several domains. This work addresses this research gap.

If overlapping success factors for digital and sustainable business models and factors, that are exclusively mentioned for one business model type, can be identified, entrepreneurs of the business models are able to adapt and further develop or implement their business models under consideration of those factors.

The aim of this paper is therefore to present a comparative overview of the success factors of both, sustainable and digital business models.

In the scope of the paper, the following research questions are addressed:

RQ 1. Which success factors of digital and/or sustainable business models can be identified?
RQ 2. Which success factors of question 1 are mentioned exclusively to one type of business model?
RQ 3. Which of the success factors defined in question 1 apply to both business model types, the sustainable and digital ones?

B. State-of-the-Art and Definitions

To compare digital and sustainable business models it is necessary to mention scientific work that already combines the two business model types.

For instance, there is already research in the direction of digital and sustainable business models that addresses the question of how sustainability can be merged with the digital business model [11]. The work describes that digital technologies not only focus on more efficient production processes but also that sustainability can even be a central element of digital business models [11]. For this kind of digital and sustainable business model, several archetypes can be identified [11].

Another example that combines digital and sustainable business models deals with the success factors for start-ups in the business-to-business domain [10]. Thereby internal factors like how the technologies are used or external factors like funding can be mentioned [10].

Besides the research in the direction of both business model types, there is also research that addresses only one of the mentioned business model types. An example deals with the sustainable business model type and the identification and ordering of those models [12]. Thereby several categories for the usage of this business model type, like "energy" or "fashion", can be mentioned [12].

Furthermore, there is research in the field of digital business models. For instance, one example deals with the conceptualization of research fields of digital business models, concept ordering, and categorization [13]. There is already research that addresses both business model types and research in the field of only one business model type. However, there is no comparative overview that focuses on the success factors for several application domains.

Before the method is described, explanations or definitions of the relevant terms like "business model", "success factors", "digital business model" and "sustainable business models" that are used in this work are important to clarify. Having a look at the business model literature, it should be mentioned that there are several definitions of this term. These different definitions can also be classified into different types, like a type for patterns of organizational parts, a type for more abstract schemes, and a type for specific smaller parts [14]. In addition, definitions of sustainable and digital business models can be found. One definition describes for example *"sustainable business models as a simplified representation of the elements, the interrelation between these elements, and the interactions with its stakeholders that an organizational unit uses to create, deliver, capture, and exchange sustainable value for, and in collaboration with, a broad range of stakeholders*" [15]. This review is based on this definition because it includes the already mentioned important sustainability topic and is a wide description to receive a broad topic overview in this review. Due to the close similarities business models that are described in the sustainable context, like circular business models and agriculture business models are also covered by this definition in this review.

To give one suggestion for the digital business model one definition is "*Enhanced resource optimization, characterized by intangibility, businesses' uniqueness, and core values, centering around experience, platform, and content*" [16]. To receive a wide scope of the literature a description that focuses less on resource optimization was chosen: "*A business model is digital if changes in digital technologies trigger fundamental changes in the way business is carried out and revenues are generated.*"[17]. Due to the close similarities business models that are described in the digital context, like AI technology-based, e-business, and digital platform-based business models are also covered by this definition in this review.

There are also several "success factor" definitions. To give one example, that was also used in the scope of this article, due to its broad thematic range: "success factors" are for instance "the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization" [18].

C. Structure

This work is structured as follows: In Section I, this work is introduced, including the Motivation, Problem Relevance, and State of the Art. Section II deals with the methodology used. In Section III the results of this literature review are described. Section IV deals with the conclusion and the discussion.

II. METHODOLOGY

The conducted literature review was based on the "Guidelines for Performing Systematic Literature Reviews in Software Engineering"[19] because it is suitable with small adjustments for the domain of business models, especially digital business models. The whole methodology is explained in this section. These guidelines were already used several times in scientific papers [20][21]. The mentioned work focuses on extensive guidelines for researchers in the software engineering domain [19]. With the help of these guidelines, success factors were identified. Subsequently, we identified the overlapping factors for the two types of business models. For this literature review, a PRISMA checklist was created in addition, in order to make sure that the review included important topics, like the used criteria [22].

The main aim of this literature review is to create a general overview of the success factors for sustainable and digital business models focused on several application domains. The literature review was conducted in four steps, which are shown in Figure 1 as dark blue boxes. The first step is finding suitable literature with specific search entries.

Figure 1. Steps Literature Review

This was followed by the source selection in a way that sources were selected, that were connected to the research questions. The output of the source selection was used as

input for the sorting process. Afterward, the evaluation process for the sorted success factors was conducted.

A. Search for Scientific Sources

The goal of the first step was to find scientific publications in the mentioned area. In order to find the references, different search input was used, which is shown in Table 1, including the keywords, the search entries, and the access dates. Searches were conducted on four comprehensive search engines to get a broad range of literature: Google Scholar, MDPI Search Platform, Science Direct, IEEE and JSTOR [23][24]. To receive a broad literature span it was searched for any type of publications. The search entries were accessed between 29/08/2024 and 04/03/2025. The keywords were formulated in the English Language to cover a broad range of potential publications. Circular (economy) business models were also included because they can be found several times in the literature and are also cited as examples of sustainable business models [12].

TABLE I. SEARCH INPUT

Keywords:		
• digital business model success factors • success factors circular economy business models • sustainable business model success factors • e-business model success factors		
Platform: Google Scholar	**Entries:** Any Time, Sort by relevance, Any type, for each keyword	**Access Dates:** 29.08.2024 - 13.09.2024
Platform: MDPI Search Platform	**Entries:** 1996-2024, Sort by relevance, Any type, for each keyword	**Access Dates:** 29.08.2024 - 13.09.2024
Platform: Science Direct	**Entries:** Any Time, Sort by relevance, Any type, for each keyword	**Access Dates:** 29.08.2024 - 13.09.2024
Platform: JSTOR	**Entries:** Any Time, Sort by relevance, Any type, for 2 keywords	**Access Dates:** 29.08.2024 - 13.09.2024
Platform: IEEE	**Entries:** 1996-2024, Sort by relevance, Any type, for 2 keywords	**Access Dates:** 02.02.2025- 04.03.2025

Due to the similarity of the findings, we searched for success factors, success components; success indicators; and competitive advantage factors. Furthermore, due to similarities e-Business, electronic business, AI-based, and platform-based business models are included. To get a broad literature span, more than 100 publications were selected: The 10 most relevant for each keyword of the search engines Google Scholar, MDPI Search Platform, Science Direct, and the 10 most relevant for 2 keywords of the platform JSTOR and IEEE. The result of the search process was more than 100 publications, 160 in total. The complete list of the 160 publications is available but would exceed the number of pages of this article.

B. Source Selection

After the collection of the 160 publications, the filtering process started according to specific criteria. Thereby the publications were excluded, that did not fulfill the following criteria (Here the authors have decided):

- *Addresses one of the three research questions (after reading the title and abstract)*
- *English language;*
- *Common format: Like pdf-format*
- *Publications: Books or papers (article type)*

During the next step, publications that did not address one of the research questions were not considered further, after reading the whole publications. Here the authors have decided. If the same paper was mentioned several times, the paper was only considered once.

To understand the whole source selection process in detail, it is important to know the number of publications that were considered and not considered. 160 publications were in the initial source selection process. 53 publications are not further considered after reading the abstract and title. After that, some publications are not further considered after reading the whole paper. The 9 final publications are shown in the right arrow of Figure 2. The success factors that were found in these papers were the input for the sorting procedure. The concrete numbers of publications are shown in Figure 2.

It is also important to understand the selection decisions in detail. Some publications were not considered further, because they did not address the research question.

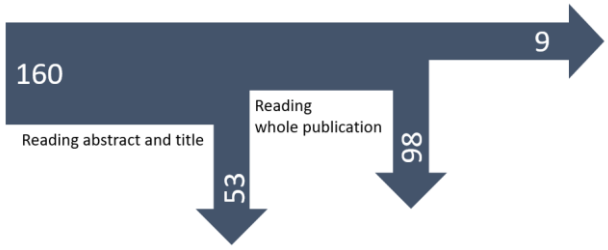

Figure 2. Source Selection Flow with Numbers of Publications

We would like to give some concrete examples, to clarify the meaning of the criteria “not addressing the research questions”: For instance, a publication was not considered after reading the title and the abstract, because neither in the abstract nor title, the term “business model” or a paraphrased description that the paper will lead in the direction of business models was found [25]. Therefore, the publication was not considered in the next step, because it did not address the research questions that focused on business models.

To clarify the criteria “not addressing the research questions”, it is important to give one example in more

detail: A publication was not considered after reading the abstract and title, because neither in the abstract nor title, the term "success factors" or a paraphrased description that the paper will lead in the direction of success factors was identified here [26]. That is the reason, why the publication was not considered in the next step because it did not address the research questions that focused on success factors models.

The chosen publications address the important parts of the research questions, like business models, success factors, and the mentioned business model types. It is mentioned directly as a term or in a paraphrased description. After the described selection process, the success factory of the final chosen publication was the input for the sorting procedure.

C. Sorting Procedure and Evaluation

Table II includes the sustainable business model success factors in bolt letters in the first column. Table III contains the digital business model success factors in bolt letters in the first column. The second column in both tables contains the references to the publications from which the success factors were taken.

If similar factors for digital and sustainable business models were found, they were labeled with the same red, italic letter. Here, factors with similar content direction were labeled with the same letter. Just to give an example the factor "people and culture" and the factor "Innovative culture" address a similar direction, because there is a focus on the topic of culture. That is why those factors and other similar factors were labeled with the letter A [9][27].

The methodology here is, therefore, based on conventional searching of the overlapping factors. To clarify the sorting results, they are also shown in Figure 3. The figure shows in the left, yellow area the success factors that are mentioned for sustainable business models. The right, blue area includes the success factors for digital business models. It was possible to categorize the factors mentioned exclusively for one type of business model and those applicable to both types. The results need practical evaluation for example in a living lab test, which is described in the discussion section.

III. RESULTS

In this section, the results of the literature review are introduced according to the research question, that they are addressing.

RQ1: Which success factors of digital and/or sustainable business models can be identified

The review clarifies, that it is possible to find success factors for digital and/or sustainable business models. These factors are shown in Figure 3. The success factors that were found are for example: A "Desired social and environmental vision" is needed: This factor was for example mentioned for companies in the social context that want to realize circular economy principles [28].

It is noticeable that the success factors are not positioned in only one thematic direction; it is more a broad range of topics that are mentioned. There are, for example, factors from the economic field, such as "finance" or "leadership", factors from the technical field, like "technology" or "mastery of technology" and other fields.

There are also factors that can be assigned to the software engineering domain, such as "Easiness to use the e-business products and services" [29]. The factors that were found and especially the factors fields that were mentioned several times can be evaluated in more detail in living lab tests in the future.

RQ2: Which success factors of question 1 are mentioned exclusively in one type of business model?

Figure 3 presents the factors that are mentioned exclusively for sustainable business model types in the left, yellow area. Exclusively means in this context, that these factors are mentioned in publications that focus only on one of the business model types, and the other one is not mentioned. For example, "easiness to use" was one of the mentioned success factors for digital business models. This factor can be found to be a success factor in the e-business field [29].

Here it is noticeable that the factors that are mentioned exclusively for sustainable business models are also not only positioned in one thematic direction. There are, for example, factors in the product field, like "Product design" and "Product-Service Systems", but also in the stakeholder field, like "Stakeholder perspective" or "internal employees as key partners". It is also noticeable that there are several factors in the field of stakeholder topics.

In addition, it is noteworthy that the factors that were found for digital business models also do not focus on only one thematic field. There are, for example, factors in the direction of decision-making, like "Risk-taking decision maker", and on the economic field, like "competitive pressure". The success factors that were mentioned can be evaluated in more detail in living lab tests in the future.

RQ3: Which of the success factors defined in question 1 apply to both business model types, for sustainable and digital?

TABLE II. SUCCESS FACTORS FOR SUSTAINABLE BUSINESS MODELS

Factor	Reference	*Overlapping Factor with the other Business Model Type*
Product design	[9]	
Product-service systems	[9]	
People & culture	[9]	*A: People and Culture*
Implementation	[9]	

process		
Transparency	[9]	
Technology	[9]	*B: Technology*
Ecosystem	[9]	
Customers	[9]	*C: Customers*
Government	[9]	*D: Government*
Desired social and environment vision	[28]	
Value proposition	[28], [30]	*H: value focus*
Alignment of organization to the strategy and acceleration of change through executive leadership implication	[28]	*E: Leadership*
Financial sustainable perspective	[28]	*F: Finance perspective*
Stakeholders perspective	[28]	
Internal process perspective	[28]	
Resources perspective	[28]	
Offering and complementary services	[31]	
Internal employees as key partners and key resources	[31]	
Financing sources	[31]	*F: Finance perspective*
Actions of reorganization	[31]	
Awareness of customer segmentation	[31]	*C: Customers*
Environmental concern	[32]	
Knowledge	[32]	*G: Knowledge*
Logistics/proximity	[32]	
Partnerships	[32]	
Subsidies/participation in development projects	[32]	*F: Finance perspective*
Civil society and consumer requirements	[32]	*C: Customers*
Availability of resources	[32]	
Innovation	[33]	
Value delivery	[30]	*H: value focus*
Value creation	[30]	*H: value focus*

TABLE III. SUCCESS FACTORS FOR DIGITAL BUSINESS MODELS

Factor	Reference	*Over-lapping Factor with the other Business Model Type*
Secured transactions between the company and its customer	[29]	*C: Customers*
Management's commitment to the e- business development	[29]	*E: Leadership*
Easiness to use the e-business products and services	[29]	
Value creation	[34]	*H: value focus*
Value delivery	[34]	*H: value focus*
Value capture dimensions	[34]	*H: value focus*
E promotion and sensitization of digital transformation	[34]	
Suitable platform architecture and strategic	[34]	

judgement of platform providers		
Promotion of a startups culture	[34]	*A: People and Culture*
Risk-taking of decision maker	[27]	
Field experience	[27]	
Technical knowledge	[27]	*G: Knowledge*
Strategic decision	[27]	
Government support	[27]	*D: Government*
Competitive pressure	[27]	
Related regulations	[27]	
AI technology maturity	[27]	*B: Technology*
Mastery of technology	[27]	
Financial investment	[27]	*F: Finance perspective*
Technology quality	[27]	*B: Technology*
Patent protection	[27]	
Reward and recognition	[27]	
Innovative culture	[27]	*A: People and Culture*
Dynamic capability	[27]	

The overlapping area in the middle of Figure 3 includes overlaying factors of the two business model types. Furthermore, they are also shown in red letters in Tables 3 and 4. To give an example of one of these factors:
"People & Culture": This factor was mentioned, for example, for enterprises that transform from a linear to a circular business model. This contains for example topics like agility and mindset transformation [9].

The factors that are mentioned for both business model types are also from different thematic fields, like for example Leadership, Finance Perspective, and Government. The factors that were found and especially the factors fields that were mentioned several times can also be evaluated in more detail in living lab tests in the future.

Table 3 clarifies the success factors for sustainable business models. The first column of the table contains the success factors that were mentioned for sustainable business models in the selected articles. The references of those articles are shown in the second column. The third column included the factors that overlap with the success factors of the digital business model type.

Table 4 includes the success factors for digital business models. The first column of the table contains the success factors that were mentioned for digital business models in the selected articles. The references of those articles are shown in the second column. The third column includes the factors that overlap with the success factors of the sustainable business model type.

For the quantitative evaluation part, it was counted how often the overlapping general factors were found. The result was as follows: People and Culture (3), Technology (3), Customers (4), Government (2), Leadership (2), Finance perspective (4), Value focus (6), and Knowledge (2).

To understand the success factors, it is also important to know the processes, works, or areas in which they occur and in which they can be adapted. Not all of them can be described in depth here, but to explain the topic for one factor in more detail: In [28], criteria are proposed for social enterprises that pursue the goal of applying CE practices. The criteria do not altogether belong to one specific process but to several company topics. For example, financial, resource-related, or strategic aspects are considered. [28]

IV. CONCLUSION AND DISCUSSION

The main findings of this paper are the success factors that were found. Here factors were found that were mentioned for only one of the business model types, for example only for sustainable or only for digital. In addition, factors were found, that were mentioned for both business model types, digital and sustainable. The core of this paper consists of a literature review that was carried out to clarify which success factors can be found for digital and sustainable business models and whether these are factors that are exclusively only suitable for one type of business model or for both business model types.

It was possible to find success factors in the literature in general, for example, "Transparency" [9]. It was also possible to find factors that were only mentioned for one specific business model type. Exclusive digital business model factors were mentioned, for instance, "Mastery of technology" and exclusively sustainable business model factors, like "Product-service systems" [9][27].

Furthermore, success factors were found that can be applied to both types of business models, for instance, factors that include the topic “culture” are sorted into the general factor “People and Culture” [9][27].

different sustainable and digital business models. A living lab is in this context a test area that is used to test new and innovative models under realistic conditions [35].

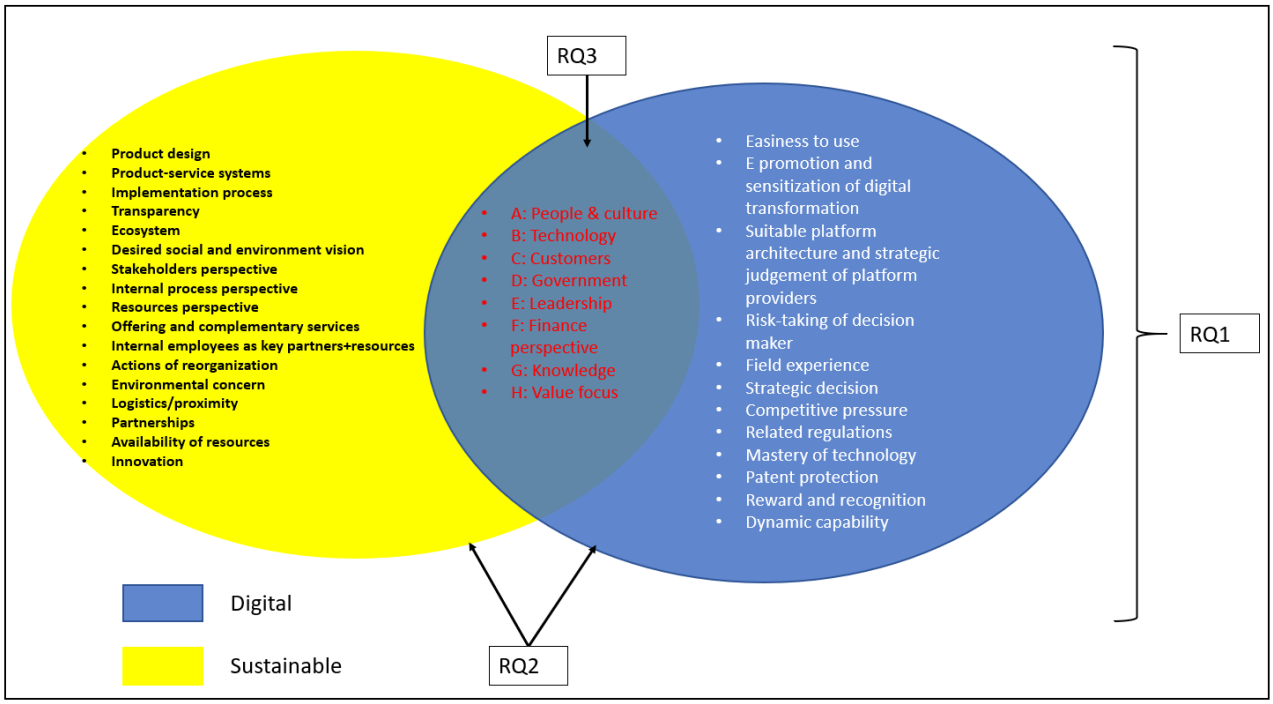

Figure 3. Business Model Success Factors Overview

In total 8 general overlapping factors were found: People and Culture, Technology, Customers, Government, Leadership, Finance perspective, Value focus, and Knowledge. In further literature studies, additional information can be included in the analysis, such as company size, company location, success definition or abstraction level of the success factors, and more publications in the future.

In addition, it is possible to focus on how the factors affect each other. Therefore, the question arises whether the factors can also be related to other business model types. This could be investigated in further work.

One idea for improving the results would be to use more new technologies, for example, the decisions made by the authors could be replaced by decisions based on AI. Furthermore, the review could be repeated in the future if more sources on the topic have been published.

The provided information in this paper is for scientific and informational purposes only and does not constitute a recommendation for action. The next step is to evaluate a selection of these factors in living labs and simulations to see whether the positive effects of these success factors can also be observed in different practical scenarios and for

Here, the same business models could first be tested without consideration of specific success factors and afterward with consideration of those factors. The results can be used to test whether the factor has an effect. This kind of test could be repeated for different business models. In addition, the results of the living lab tests can support entrepreneurs by identifying success factors that they could consider during the design, innovation, or implementation processes of their own business models under consideration of the business model type.

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