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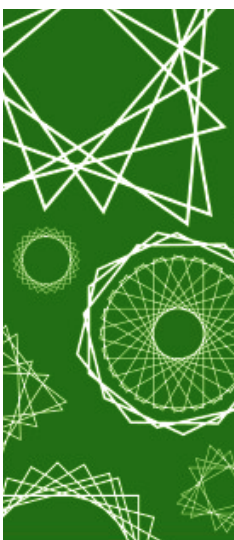

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Creativity Technique-based Appraisal of the Strategic Component of a Business Model

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Business models should be inspected before going to market. For this purpose several analytical methods are available. Another approach is to use creativity techniques to appraise specifically the strategic component of a business model. These may offer diverse possibilities to identify other business solutions far from conventional mindsets and experiences. Furthermore, this may stimulate the professional discourse among the team members and increase group awareness of complex scenarios, problems and solutions. This paper presents a use case of a creativity technique to check the alternatives of a pharmaceutical database software-based business model in a particular scenario with strong impacts on that business model.

1. Introduction

Various business model definitions have been elaborated to describe the business model of an organization [1], [2], [3]. Recent research has focussed on opening business models by incorporating external factors. Though a lot of research has been performed on how external factors can be integrated, the field on how to evaluate or appraise business models in a non-financial way have laid dormant. This contribution aims to close the gap by presenting a methodology which can be applied to appraise the strategic component of a business model. Further on, the methodology presented extends the reach of classical creativity techniques like brainstorming, where participants tend to repeat ideas already pursued in the past. The novelty of this contribution lies in its approach to how an appraisal is executed based on creativity techniques. A problem solving approach was developed and within this paper it is depicted how this approach can be applied to specific problem types. Moreover, an evaluation of this approach is conducted.

In previous analyses this problem solving approach (PoCCI) was applied in diverse application contexts e.g. a publishing company's competition analysis or data-centre knowledge

management framework [4]. Targeted accuracy and adequacy were given and major respective determinants were identified. It turned out that PoCCI is a useful tool for extracting relevant determinants.

For this, a concept of change capability is used. Change capability enables a system to handle impacts from its environment in a fast, efficient and autonomous manner [5]. The underlying assumption is that a business model needs strategic components, which should be able to cope with external impacts in manifold ways, to become a robust and reliable business model. This quality factor cannot be evaluated by business data but rather by the use of interdisciplinary insights.

Based on an explorative approach alternative solutions for the pharmaceutical database scenario have been generated with a given creativity technique. Thereafter, the alternatives have been evaluated and within this, the possible solution space is presented. In addition to the business model component appraisement, a further goal of this work is the enhancement of the applied creativity technique.

The paper is organized as follows. Section 2 provides an overview regarding business model fundamentals, evaluation, and reasons for failing. Section 3 comprises business models and creativity techniques. First, business model evaluation as a creative problem is outlined and, second, the underlying creativity technique (as well as some related background information) of the study is depicted. Section 4 presents the conducted case study. The conclusions are exemplified in Section 6.

2. Term and Conventional Evaluation of Business Models

Due to the focus on current business, the development of new business models is neglected, especially innovations to strategic components. Reasons vary from avoidance of exploring new business models because people are content with the current one, to seeing the new models as competitors, to organizations applying the wrong (financial) lens in assessing new business models, or, solely because ideas never make it from the whiteboard into the real world [6].

Various definitions of business models exist. One of the most frequently used is from Timmers [2], which is as follows:

- "An architecture for the service and information flows, including a description of the various business actors and their roles
- A description of the potential benefits for the various business actors
- A description of the sources of revenues."

This definition is based on the assumption that the value chain described by Porter [7] is deconstructed, and through the reconstruction by varying the elements (adding new, eliminating existing or exchanging), the business model can be described using the value chain concept. Another approach is presented by Petrovic et al. [8] and Wirtz [9], whose proposed models in essence consist of the following:

- A value model which describes the logic of what core service or products are delivered to the customer and other value-added services derived from the core competences.
- A resource model, which describes the logic of what elements are necessary for the transformation process, and how required quantities can be identified and procured.
- A production model, that describes the logic of how elements are combined in the transformation process.
- Customer relations models containing the logic of how to serve, reach and keep customers. It consists of the following sub-models: The distribution model explaining the logic behind the delivery process. The marketing model, containing the logic behind reaching and maintaining customers. The service model containing the logic behind serving the customer.
- A revenue model describing how, what, why, and when the company receives compensation in return for the products or services.
- A capital model describing the logic of how financial sourcing occurs to create an equity structure, and how financial resources are used over time.
- A market model describing the logic of choosing a relevant environment in which the business operates.
- A strategy model describing the long term strategy a company pursues.

Chesbrough and Rosenbloom [3] proposed a similar model which differs from [8] with the inclusion of the competitive forces described by Porter [10] and the orientation to the value chain [7]. Other definitions, for example Yip [11], also consider the distribution channel and the targeted customers. After the previous definitions, a differentiation between corporate strategy, business model and business processes appears to be necessary, since somehow the three concepts seem to interact closely. Osterwalder and Pigneur [12] propose the relationship of each one of the three concepts in relation to the other as depicted in Figure 1:

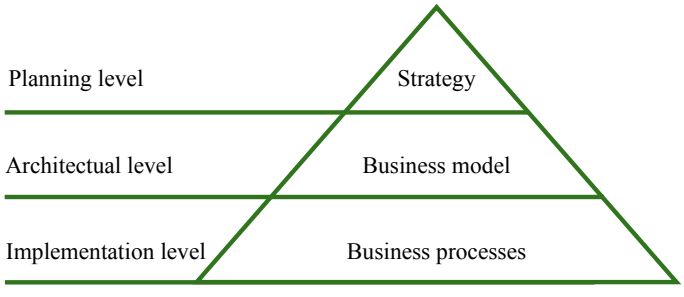

Figure 1. Business model

Figure 1 is in accordance with the differentiation of strategy by Porter [13], who sees a difference in strategic positioning and operational efficiency. Operational efficiency aims to obtain better results than competitors through a higher utilisation of internal factors – faster product development could be cited as an example. According to McAfee [14], the response time and adherence to schedules can indicate operational efficiency. Strategic positioning, however, aims to perform other activities or the same activities in a different way than the competitor. Figure 1 shows the relative position of the business model in comparison to other concepts. A company first defines its strategy. Based on the strategy, the business model is formulated and after that the characteristics and their values are defined. The last step consists in implementing the business model through the business processes of an ERP system provider. Evaluation of business models could be done through a SWOT analysis [15] or following a balanced scorecard approach [1]. Usually, the criteria of financial carrying capacity is at the focus of consideration. Investment control methods evaluate the configuration alternatives. Payments and payoffs are considered and consolidated to decision relevant key performance indicators. However, an evaluation of the strategic component (or parts of it) of a business model is not sufficiently feasible by key performance indicators, whereby the strategic components are fundamental sustainable parts of the strategy model (following [8], [9]) which is a fundamental component of the business model [13]. There are many soft factors which are difficult to operationalize and which can not be considered by solely numerical data. Taking into account this fact, new approaches need to be generated, tested and applied.

3. Creativity Techniques and Business Models

3.1 Business Model Appraisal as a Creativity Problem

Creativity techniques are methods that can be used to assist the process of finding ideas or solving problems. Through this, the creative power of an individual or a group will be supported. Furthermore, information behaviour will be encouraged [16]. Creativity techniques are helpful to alleviate mental blocks or to direct creativity. Ideas will be specifically produced and efficiently developed by means of cooperation and support within the team [17]. During the implementation, an equality of hierarchy exists. Synergies are created thanks to the involvement of participants from different functional areas.

For the selection of the right creativity technique, the recognition of a problem, its definition and its compatibility with the participants are crucial. Generally speaking, in the area of creativity, two types of thinking can be distinguished: the engineer and the artist. The engineer prefers to work in accordance to prescribed guidelines, tables or checklists. In contrast to this, the artist needs techniques with which he can work emotionally, artistically and chaotically [18]. It is essential to select a technique, which meets the specific requirements of the context and conditions.

This work sets the focus on the question of how the strategic component of a business model can be evaluated in a non-financial way. For this, the problem type of this kind of evaluation must first be identified. In the next step, a creativity technique as well as an appropriate evaluation method has to be chosen which fits to that problem type.

Geschka [19] defines eleven problem types (Table 1). Each type of problem may occur when dealing with business models.

As the focus is on the strategic component of a business model, this aspect has to be set in relation to a particular problem type. In the case of the present paper the addressed problem type is the development of a concept for an upcoming external requirement.

The strategic component of a business model has to cope with the company's ecosystems, which means, it has to offer solutions on how to protect itself against other competitors, their products and strategies as well as their business models. The company is looking for a way to achieve its company goal (having a successful business model) and wants to be prepared - the more ways available the merrier. We call this variety and diversity of ways "solution space", which is an indicator for the robustness of a business model. A business model that can cope with any change in its environment seems to be more practical than one that works solely under strict constraints. This is the starting-point to making the strategic component of a business model assessable.

Problem type	Description
Collecting ideas	Common approach; looking for alternatives to particular purpose
Defining a procedure	Looking for a way to reach a particular goal
Optimization problem	Making a product, concept or procedure better
Application problem	Looking for an application possibility of a new item
Causing behavioral change	Provoke somebody to change his behavior
Finding a name	Looking for a new name for product, company etc.
Creating a slogan	Looking for a slogan for a particular purpose
Drawing attention	Looking for an idea that surprises or draws attention
Finding a technical solution	A technical problem has to be solved in a new way
Developing a concept	Solving a complex problem that consits of many elements
Explanation problem	Looking for a new way to explain phenomens, events, or effects

Table 1: Potential Problem Types

How can the solution space be identified? Analytic approaches are deficient because they may identify impact factors, actors and threats but do not offer a systematic approach for generating solutions. The appropriateness of a solution is context-specific, but the understanding and awareness of the specific context requires knowledge that is bound to persons. This is due to the fact that the number and relevance of influential factors are unpredictable and their interdependencies are not calculable.

Indeed there are two main objectives when using creativity techniques for appraisement. First, they may offer the possibility to generate new ideas and solutions far away from conventional mindsets and experiences. And second, they may stimulate professional discourse among the team members and increase group awareness of complex scenarios, problems and solutions.

3.2 Applied Creativity Technique: PoCCI

3.2.1 Basics.

When considering design alternatives, the concept of design rationale [20], [21] depicts an non-neglectable underlying paradigm and is understood as a design equivalent to a behavioural repertoire consideration of a socio-technical system (e.g. organizations, in this contribution: the pharmaceutical use case cooperation). It can be described as the continuous searching, finding, and solving of problems as well as their documentation and comprises of: 1.) a historical and explicit documentation of the reasons for the choice of an artifact [22] 2.) a set of psychological claims which are embodied by an artifact [23] or 3.) a description of the design space [24], [25]. Within this framework, several analysis approaches can be applied, for instance, the semi-formal notion QOC (Questions, Options, and Criteria) for design space analysis [26]. The body of work pertaining to PoCCI is inspired by the concept of design rationale.

For ascertaining a system's capability to act as well as its relevant1 determinants – either system inherent or external factors – a consideration of the relationship between system and relevant environment is necessary. The Potsdam Change Capability Indication technique (PoCCI) is a behavioral pattern-based strategy analysis model and creativity technique. Its origins are change capability research and it considers the system, its relevant environment and how the relevant environment affects the system. On the basis of various pattern of action which are analogue to nature, new solution strategies will be developed by using behaviour patterns which are depicted on specially designed strategy cards. Therefore, requirements for the overall system can be derived from the identified options [27].

PoCCI's main goal is to disclose and dilate the behavioural repertoire of a system. This can be done by defining strategies for a concrete scenario. Otherwise, the principle-, predictable- and practised change capability and its determinants can be identified. Thereby, an ascertainment of the system's native capacity to act can be carried out. Furthermore, sensitization of participants and other stakeholders for concrete problems and for their behavioural repertoire as well as the illustration of problem relations and a high degree of synergetic effects are further classical benefits of this technique.

As mentioned before, the strategy development occurs via analogy. Based on generic strategy pattern cards, whereby each depict a different behaviour pattern, concrete solution strategies will be derived. These behaviour patterns are course schemes, ways of thinking or behaving with the result of a solution to a problem in a specific context [28]. They describe the core of a problem based solution in a way that this solution can be applied numerous times without applying any type more than once [29]. The behaviour patterns can be distinguished by their characteristics regarding the criteria: reality, system breadth, system structure, inducement of action, level of cognition, reversibility, endurance of status, accuracy, and phases of activity. According to the underlying classification system of these characteristics and their attributes, a maximal amount of 20.736 different behaviour patterns are possible. Due to practical manageability, non-relevancy in the practice of some patterns (some ignore single attributes), and marginal differences between them, a reduction to thirty-two behaviour patterns was executed [cf 5]. Table 2 gives an overview about the applied behaviour patterns. As a practical example from nature, we can contemplate a spider. The spider benumbs the resistance of its victim. The paralysis is a required condition for the spider to ensure its survivability. Analogue to the spiders paralysis, organizational systems can use the pattern of paralysis to identify or react to external requirements.

Abrasity	Migrability
Adaptability	Mobility
Adhesivity	Mutability
Automobility	Paralysity
Compressivity	Pretense
Connectivity	Productivity
Destructivity	Recombinability
Elasticity	Relocability
Ejectability	Seperability
Exemplariness	Stability
Flexibility	Stratificability
Fluidity	Suggestability
Fragility	Terribility
Granularity	Variability
Integrativity	Viscosity
Invertability	Visibility

Table 2: Applied Behaviour Patterns

1 A few words are in order about what we mean by relevant. The term comprises every component which is – in present or future – directly related, connected, or pertinent to the considered organization.

3.2.2 Process.

A first step towards the implementation (Fig. 2) of this technique is an approximate definition of the problem scenario. Therefore, a relevant problem has to be identified. A vaguely definition of all considerable and tangible aspects is required and should lead to a general understanding of the system, the relevant environment and how the relevant environment affects the system. Thereafter, a pre-test verifies the creativity technique as appropriate for the present problem scenario and necessary post adjustments could be executed. Within the next step the group of experts for the creativity phase need to be identified. It is crucial to identify experts and decision makers from problem relevant organizational divisions. This group should be technically as well as hierarchically heterogeneous and should cover the main problem-involved organizational parties. For scenario operationalization, a concrete definition and demarcation of all relevant components is required. A precise demarcation between the considered system, the relevant environment, and their respective components is needed. The crucial scenario point is the environmental effect on the system. The last step is the creativity workshop. Within this, the participants get a brief introduction to the problem scenario, the theoretical background and the application flow. The application flow proceeds as follows: The behaviour pattern cards will be blindly and randomly distributed. In turn, each participant turns over a behaviour pattern card and describes an analogical proposal which addresses the present scenario. The other participants can discuss, modify or reject this proposal. This will be done for each of the thirty-two behaviour pattern cards.

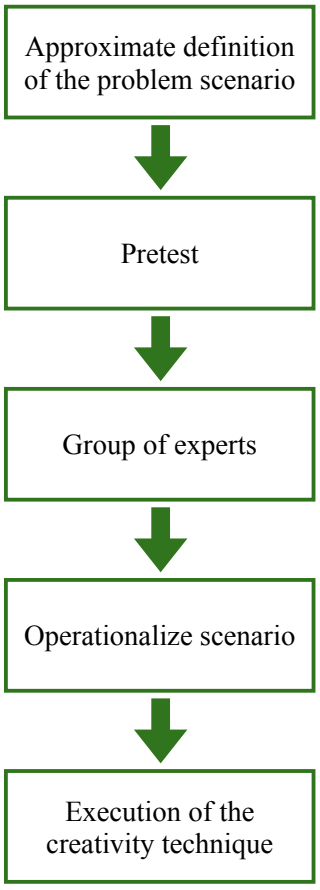

Figure 2. PoCCI process model

3.2.3 Evaluation.

There are two possible evaluation methods: the evaluation by means of the multi-criterial Analytic Hierarchy Process (AHP) [30] and the PoCCI inherent evaluation approach. PoCCI's evaluation is either done by the participants themselves or by decision makers, and enables a quick and simple evaluation and identification of a best solution strategy. An assessment is carried out through the following criteria: inapplicable, theoretically conceivable, organizationally appropriately possible, financially possible, availability, and realistic chances of success. Within the AHP the decision problem is structured in a hierarchy consisting of three levels (problem, criteria, alternatives). The identified solution strategies will be ranked via paired comparison and an AHP-optimized best solution strategy is identified. Depending on the research goal, preferences or framework conditions, both the AHP approach for decision-making as well as the PoCCI evaluation can be applied.

4. A Case Study from Software Business

4.1 Application Context

4.1.1 Initial Situation.

The safety of products, services and persons is a critical issue in the pharmaceutical environment. On the one hand, counterfeit medicines pose a growing threat [31]; on the other, a high level of quality assurance is required in relation to medicinal products. Drugs requiring refrigeration (i.e. cold chain drugs) must be stored at 2-8 °C [32].

Drug quality plays a key role in providing the general public with a universal system of safe health care. Processes throughout the value chain have a crucial influence on quality. For example, if cold chains are interrupted, bottles are damaged or sensitive medication is shaken during storage or transport, the use of these drugs can then have serious consequences [33].

Legislators have recognised the difficulties associated with the cold chain. Directive 2001/83/EC stipulates that by 2017 the traceability of each drug can be guaranteed. This refers to the complete documentation of pharmaceuticals beginning from production to its use on patients. The safety features for medicines contain the serial number, manufacturer, substance, quantity, and expiration date.

There are currently two technologies that are considered and discussed: Data Matrix and RFID [34]. The use case corporation developed a Track-&-Trace solution, which complies to the EU directive. It has several customers using the RFID solution, including one major German distributor and several pharmacies and R&D companies focused on oncology (cancer) and stem cell medication. Its serious competition lies in the Data Matrix community, which consists of numerous associations and lobbyists. They aim to provide an end-to-end infrastructure, in which a data matrix code inexpensively will be printed on drug packages and only verified at delivery. Additional expenses are incurred at subsequent stages such as pharmacies or hospitals, which need to verify each package individually. Moreover, there is a risk that an end-to-end infrastructure can

be used specifically for the intransparency of the value chain between production and delivery.

4.1.2 Group of Experts.

The group of experts consists of experts and decision makers from different organizational divisions concerned with the problem. Briefly described, the CEO of several corporations, who has lots of experiences in the international pharmaceutical industry. The CIO of the cooperation – as the team leader of the research and development projects, organizes the whole process of product development and designs and develops the software architectures as well. One participant is from the field of Software Development and Software Marketing as well as another who manages Business Development, especially in the context of German-Chinese cooperation, who also conceptualizes an international Database Project between China and Germany.

4.2 Application

4.2.1 Scenario Definition Phase.

The applied scenario has, as aforementioned, its origins in European Union regulatory changes regarding pharmaceutical products and its traceability. This change has a critical impact on the business model of almost every market participant.

The demarcation between the considered system (in this scenario, the relevant business model elements of the use case corporation based on the RFID-tracking strategic component), relevant environment and the environmental effect on the system are structured as follows (cf. Fig. 3): All relevant business model elements including software, hardware, infrastructure and services belong to the system. The relevant environment includes all legal institutions, lobbyists and competitors. The EU decision for the Data Matrix standard is the external effect on the system.

EU resolved determination on Data-Matrix standard
System: relevant business model elements: entire track & trace-system, RFID-based hardware and respective software, information data services, infrastructure, temperature sensors for cold chain monitoring
Relevant environment: legislation, legal institutions, political environment, lobbyists, associations, competitors
Effect: EU resolved determination on Data-Matrix standard

Figure 3. Scenario

Within the ideation phase - which lasts ninety minutes - forty-six different concrete solution strategies were derived from the behavioural pattern strategy cards. Due to time limitation, lack of concentration, which presumably is based on mental exhaustion, nine strategy cards were not applied. In the following, two applied patterns (Fig. 4) and their derived solution strategies will be presented as examples.

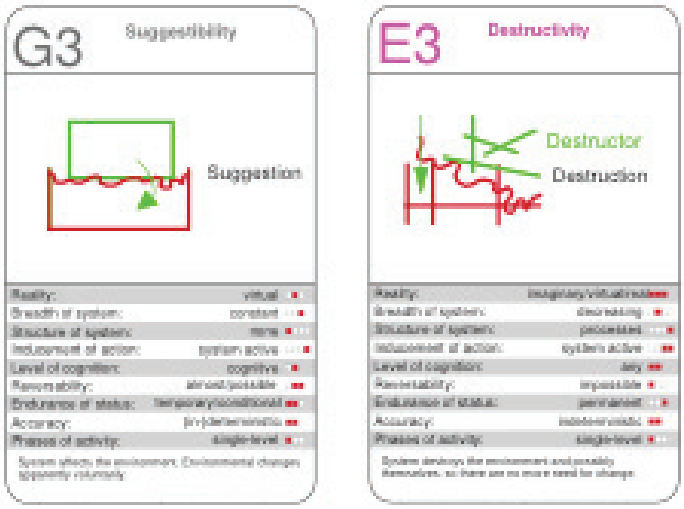

Figure 4. Strategy patterns

At first glance, it seems that a high level of abstraction is required for a purposeful application of these strategy cards. Therefore, the participant's path of thinking in each case briefly illustrated. But before, the pattern is shortly described. Suggestibility means that the system influences the environment: The environment shifts its own condition in the direction of the system's specific characteristics. Destructivity implies a damaging character of the system and if necessary even destroying itself, eliminating the necessity for change. The pattern of destructivity is an extreme example which will be illustrated due to the fact that even strategies cognitively classified previously as unfruitful are able to contribute to a relevant scenario and dilate the behavioural repertoire. Another relevant point is its appropriateness to the concrete scenario rather than question: Does it make sense? Additionally, other useful strategies can be derived from the cards.

As previously described, suggestibility is characterized by proactive behaviour. The system consciously influences the environment. So, the first assumption is the proactive behaviour of the system. The participants try to find solutions which leads to adaptation of the system. The environment should perceive the pressure to alter its conditions in an adequate manner in relation to the system. One example solution strategy is the sensitization of decision makers and other relevant actors to disadvantages of the Data Matrix

Suggestibility
Sensitization of deciders and other actors for disadvantages of Data Matrix
Retrospective initiation of a legal impact assessment process
Finding of a partner with implemented technology for a alliance
Public illustration of pros and cons - normative power of facts

Figure 5. Solution Strategy Suggestability

standard (Fig. 5). If this occurs quite noticeably and with reasonable arguments, the pressure to act for the EU would be rigorous.

Destructivity is characterized by proactive behaviour of both, the system and the environment. This means that the system and the environment are circumstantially connected in a close feedback loop. Due to this, there is the possibility that either the system or the environment is acting, and both a fast response time and response capability are necessary for dealing with these potential changes. Additionally, there are no limitations regarding survivability. Under these circumstances, almost anything can possibly impede the enforcement of the Data Matrix standard. One possible solution strategy could be market demolition without the consideration of the organization's own reputation (Fig. 6).

Destructivity
Terroristic behaviour. Demolish the market without consideration of own reputation
Anti-guerillia marketing for "wrong" technology
Legal disputes
Public fooling about the triviality of technical solution
Put counterfeits in the market
Initiation of a Data Matrix case of fraud

Figure 5. Solution Strategy Destructivity

4.2.3 Evaluation Phase.

Implementation experts evaluated the developed solution strategies in accordance to the PoCCI-evaluation. 46 solution strategies were generated from 23 different strategy cards (Fig. 6). Thus, not every single strategy card was applied. This is not necessarily required. Due to the fact that on average two ideas per card were originated, the variety as well as the multitude is sufficient to proof a serious assessment of the present problem. In case of a frequent application of PoCCI, it is recommendable to document the quantitative distribution of the ideas per strategy card as well as to observe it over time. This enables the moderator a new steering element. On the one hand, he is thus able to see which cards will coincidently or unconsciously left unapplied within the ideation phase. Through this, certain thinking- and solution patterns will permanently be neglected. To ensure a variety of content throughout several workshops, the moderator can purposely prefer some cards. On the other hand, the moderator recognizes which strategy cards are very productive. It can however appear that recurring thinking- and solution patterns occur. In this case, the designated cards should be eliminated from the strategy cards. In this case study, two strategy cards (Destructivity, Suggestability) build the origin of 22% of all generated solution strategies. For a single workshop, this depicts no noteworthy bias. However, the moderator has to intervene if the same dominance will be existent and observable in further workshops.

Applied strategy cards		23
Generated solution strategies		46
Generated strategies per pattern (average)		2
most yielding patterns	**#**	**Proportions of the total amount in %**
Destructivity	6	13 %
Suggestability	4	9 %

Figure 6. Quantitative Evaluation of the Methods' Performance Capability

Essential part of PoCCI is not solely the quantitative evaluation of the developed solutions. There is also a concurrent discussion about the solutions which have been brought in for explaining the analogy step from the abstract pattern to the concrete ideas to the respective participants. As expected in this case study, the group dynamic and discourse occurred within the ideation phase. Thereby, a specific role allocation arose. Especially employees who are less experienced with the technical and business-related prehistory of the enterprise introduced new stimuli in this "playful" and sheltered environment. In diverse parts of the discussion, the management got motivated to explain background information regarding the market and supplier situation, which are the basis for further solution approaches. The same applies to technically oriented solutions which have been substantiated by representatives of the development division and functioned as source of inspiration in the workshop. The idea collection consisted not solely of candidates for realistic business models (41%, cf Fig. 7), but also of theoretically conceivable but unpragmatic approaches (32%). However, these ideas have a benefit, too. On the one hand, they depict

by means of concrete examples the limitations of feasability. On the other hand, due to its documentation future conflict potential in business model development will be reduced if people outside the participants group will encourage comparable ideas. In this case, corresponding discussions as well as evaluation are conducted and demonstrable.

Evaluation criteria	Proportions of the total quantity in %
Inapplicable	0 %
Theoretically conceivable	32 %
Organizational appropriation possible	15 %
Financing possible	12 %
Availlable & realistic chances of success	41 %

Figure 7. Overall Evaluation of the Solution Strategies

4.3 Feedback Participants

The workshop on patterns of action of change capability was very helpful for the participating company, as they perceived the idea of a card based approach as innovative. At the outset, the practitioners had difficulty understanding the rules of this technique, but afterwards they managed to realize the advantages through its application. Every opinion generated another, and they were all tightly centered around the scenario which was set beforehand. The information on the cards was highly useful, since it functioned as a cue to give the participants some hints whenever brainstorming reached an impasse, thus increasing its efficiency. The information on the cards contained almost all the possible strategic choices, hence working as an outline. As a result, no point was left out during the discussion. Moreover, each card was discussed intensively upon being played, and within that debate, the consequences of each choice were carefully considered.

Some potential still remains for developing the method. Above all, the proper nouns of the concepts on some cards, even with the corresponding explanations, can be very difficult to understand. Additionally, although there are illustrations, it took some time to interpret the actual meaning of some of the cards. It would be helpful, if some simple examples were given on the cards for each concept - even if said examples are related to another specific branch of industry. In some cases, time was wasted on discussing the concept but not the business case itself. In brief, the card-based creativity technique is an effective approach to make decisions for adapting business models. With proper training, the decision-makers can use this approach quickly and efficiently.

5. Conclusion

The use of creativity techniques for user-centred product development is increasing. Modern development approaches such as design thinking represent a potentially successful method to institute the required interdisciplinarity. It is, however, not a creativity technique but rather an approach which involves and applies creativity techniques. Design thinking combines innovation with a user-centred design philosophy [35]. The combination of creativity and expertise is essential. Yet in their performance, even these are dependent upon the adequacy and diversity of creativity techniques. Design thinking has recognized this need for interdisciplinarity and creativity. Single discipline or only strictly formal procedures are not able to generate emerging and synergistic effects [36]. The benefit of the use of creativity techniques is not limited to product development. There is also the strong potential for appraising the quality of a product or business models if hard business data are not available or applicable.

Throughout the application of the PoCCI methodology, scenario based threats were identified. Moreover, ideas on how to defeat these threats were generated by following the strategy cards. These ideas were evaluated with the PoCCI inherent evaluation approach regarding their applicability within the business model. It turned out that the approach is applicable and valid to determine patterns of actions based on scenarios.

There are obviously some limitations of the illustrated approach. The number of conducted case studies is, at this point in time, far too small for general statements. Furthermore, a graphical illustration of the solution space, including a relationship to the amount of non-consciously considered alternatives, would be beneficial. Additionally, the understandability of the cards, especially regarding the pattern depiction should be improved, which would increase the applicability of this technique.

In the next step, the benefits of PoCCI for collaborative decision making when determining necessary changes for business models shall be determined. Moreover, a concept for improving the learning curve for people who come in contact with this technique for the first time should be developed. In relation to this, the development of some introductory explanatory cards with concrete examples should be conducted.

In conclusion, creativity techniques cannot replace analytic methods. However, they may add considerable benefit with the ability to consider person-bound knowledge, which in turn becomes more comprehensible to each team member.

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