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DEALING WITH UNCERTAINTY IN PROJECTS: WHAT PROJECT MANAGEMENT CAN LEARN FROM BUSINESS DEVELOPMENT

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Abstract

The paper reports a conceptual analysis of the management of uncertainty in the disciplines of business development and project management. And although these two disciplines share certain characteristics, they are considered, both in literature and in practice, different disciplines. The paper analyses the disciplines by looking at the process, the planning, uncertainty and risk and the measurement of success. Based on our analysis of these two disciplines, we conclude that they differ substantially in the perception and handling of uncertainty and how this is included in the overall process. We found that business development uses additional methods, for example scenario planning, to manage the uncertainty that is inherent to the business development process.

Keywords: *Project management, Risk management, Uncertainty, Business development, SCRUM.*
JEL code: *M1*

Introduction

Project management and business development have strong similarities. PMI defines a project as a "temporary endeavor undertaken to create a unique product, service or result" (Project Management Institute, 2013, p.3) and Blank defines the development of a new business as a "temporary organization in search for a scalable and repeatable business" (Blank and Dorf, 2012, p.xvii). Hence both can be seen as temporary and both have similar steps from initiation, planning, executing and closing. However, despite these similarities, business development and project management are considered as different disciplines in both research and practice.

One of the similarities between project management and business development is that both disciplines need to cope with uncertainty. Project is traditionally seen as structured activities aimed at realizing an in advance agreed objective. The uncertainties surrounding this objective, or the process of realizing it, are treated as risks and coped with in risk management processes which are a subset of project management (Perminova et al., 2008). However, with project being performed in an increasingly uncertain environment, the traditional project risk management methods and techniques are considered insufficient for coping with this increased uncertainty (Perminova et al., 2008; Cleden, 2012; Krane et al., 2014). Therefore, better methods and techniques are needed in order to manage today's level of uncertainty in projects. One of the disciplines that could provide new insights on how to cope with uncertainty is business development. When searching for, or developing, new products, services or business ventures, there is no certainty about the outcome of the process. Still, business development needs to make decisions in this process that is filled with uncertainties.

The study reported in this paper studied the way project management and business development cope with uncertainty in order to find methods or techniques that could be useful for project management?". The remainder of the paper is structured as follows. The next paragraph will discuss the disciplines of project management and business development along

the dimensions of 'process', 'planning methods', 'risk and uncertainty' and 'success'. The paragraph following this one will provide a comparison on the two disciplines in order to identify similarities and differences. In this paragraph we will also discuss SCRUM, as an approach to project management that has borrowed some concepts from business development. The final paragraph of the paper provides our conclusion and an outlook on further research.

The disciplines of project management and business development

This paragraph presents an overview of the disciplines project management and business development along the dimensions of 'process', 'planning methods', 'risk and uncertainty' and 'success'. This structure enables us to compare the two disciplines on the four dimensions in the paragraph following this one.

Project management

A project is defined by PMI as a "temporary endeavor undertaken to create a unique product, service or result" (Project Management Institute, 2013, p.3). Hence, project management is defined as "the application of knowledge, skills, tools and techniques to project activities in order to meet the project requirements" (Project Management Institute, 2013, p.5).

Project management process

A core-element of project management is stage-gate process (Kerzner, 2009). The stage-gate process was created because the traditional hierarchical command and control structures were not effective for temporary processes that imply a 'horizontal' work flow across organizational boundaries, such as projects. For this stage-gate process of project management, several standards have been developed that provide guidance on how to execute project management. A broadly used standard of project management processes is described in the Project Management Institute's project management body of knowledge (the PMBOK Guide). In this guide, five project management process groups are identified: initiation, planning, executing, monitoring & controlling and closing (Project Management Institute, 2013). Figure 1 presents these process groups.

Figure 1. **The project management process groups** (based on Project Management Institute, 2013).

The level of uncertainty for a project declines along the project process. Nevertheless uncertainty can be found in all stages. A project starts with an initial investigation into an idea (Zwikael and Smyrk, 2011). This phase is called conceptualization and aims to recognize the idea as a potential project and to define the idea as an investment opportunity. Hence the "conceptualization should be a short, simple and relatively spontaneous process" (Zwikael and Smyrk, 2011, p.138). One issue that arises is that often the output of the project is discussed in the conceptualization phase. The more important question is related to the outcome. "Why are we doing the project?" "Thinking of the 'why' will lay the foundation for a much more formal treatment of target outcomes." (Zwikael and Smyrk, 2011, p.139).

The project specification is often related to the development of a business case (for the project). The business case specifies if the expected outcome is worth the effort. Hence the business case must specify the target outcome of the project. "The target outcome will determine the outputs that are to be produced" (Zwikael and Smyrk, 2011, p.139) by the project. For the specification of the target outcome and the related outputs of the project it is necessary to specify scope, stakeholders, risks, issues, schedules, resources and governance for the project. These specifications will determine the effort necessary for the project. The definition of the target outcome will determine the worth of the project.

The developed business case is the foundation of the judgement whether to start the project or not. The judgement must answer the question "Do I believe that the project defined by the business case represents an appropriate investment?" (Zwikael and Smyrk, 2011, p.175). If the business case and hence the project specifications are accepted the project can shift further to the project planning where the detailed project plans are developed. If the business case is rejected no further afford will be spent on the initial project idea.

One potential issue in project management is that the output of the project is not utilized. Only by the utilization of the outputs of the project, the business case can be realized. The traditional perspective on projects, in which the project is a structured process that transforms inputs into outputs (Smyrk, 1995, p.2), often lacks this focus on the utilization the output. Without the utilization of the output the project cannot be beneficial for the underlying organization. Hence in the project, the transformation of input into outcomes (instead of output), should be considered. (Zwikael and Smyrk, 2011, p.23). The outcome of the project is "focusing on the end-effect generated as a consequence of the implementation of those outputs." (Zwikael and Smyrk, 2011, p.17), It logically focuses on the long term results and can be described as the purpose of the project. The purpose of a project is not only to develop a new product or service. The important question is. "Why do we produce this product or service?" and "What do we want to achieve with this product or service." The difference between the output and the outcome of a project is shown in Figure 2.

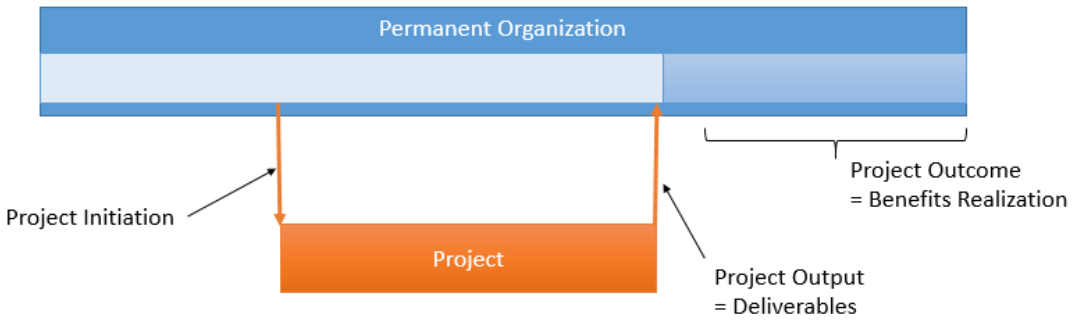

Figure 2: **Differentiation of output and outcome.**

Usually, the project manager is not responsible for the utilization of the output to generate the target outcome, as this logically takes place after the close down of the project. Hence the responsibility of the utilization is in other hands. But without integrating the project manager into the process of the utilization, the benefits of the output might not be realized.

Project planning

The execution of a project can be seen as a process. Hence there are tasks and activities that have to be done. Project planning describes "how that work is to be performed." (Zwikael and Smyrk, 2011, p.181). The areas of planning can be seen as the detailed description of the work, the environment in which the work should be performed and the underlying funding of the environment and work. A decent project planning can also be seen as a major success factor for projects, but "planning not necessary guarantees success" (Dvir et al., 2003, p.389). "Project managers who manage high-risk projects tend to make much more of an effort in performing the planning process" (Zwikael and Sadeh, 2007, p.760), but on the other hand "when uncertainty is significant planning is difficult and project plans are of somewhat limited value." (Zwikael and Smyrk, 2011, p.183) The output of the planning phase is the project plan. Together with the formulated business case it is the baseline for the implementation of the project. "Everything that is done on the project must be carried out in accordance with these documents." (Zwikael and Smyrk, 2011, p.184)

There are several areas where planning is necessary for a project. The areas not only contain the 'iron triangle' of scope, time and cost, but also the quality of the project, the communication, the human resources, the risks, the procurement and the stakeholder management. The PMBOK guide defines 10 'knowledge areas' and 23 planning processes to structure the actions that have to be done (Project Management Institute, 2013).

Key for the success of the project is to collect and define the requirements of the different stakeholders. The requirements that have to be collected must represent the following areas: business requirements, stakeholder requirements, solution requirements, transition requirements, project requirements, and quality requirements. With this defined scope the work breakdown schedule (WBS) can be created. The WBS represents the total scope in a hierarchical decomposition. Once the scope is defined, the activities to enable the realization must be defined. The activities are clustered in work packages. Hence, "the work packages are the quantitative and qualitative descriptions of the scope" (Gareis, 2005, p.211) and must be ordered to establish a sequence of work. After the resources and the time necessary for the performance of an activity is estimated the project schedule can be developed. The schedule defines when a specific activity should be started and at which point in time it should be finalized. It defines the overall timing of the project and includes also the overall project start and project end. The planned resource requirements enable to derive the estimated costs for each work package. The overall budget can be determined by the costs estimation. The total project budget determines the "funds necessary to execute the project." (Project Management Institute, 2013, p.209).

Uncertainty and risk in project management

One key aspect of project planning are the risks and their management. A risk is "an uncertain event or set of events that, should it occur, will have an effect on the achievement of objectives" (Office of Government Commerce, 2010). Risk is related to uncertain events and therefore often used synonymously to uncertainty. But there is a difference between uncertainty and risk. For a distinction between uncertainty and risk they are better described as "cause and consequences" (Perminova et al., 2008, p.74).

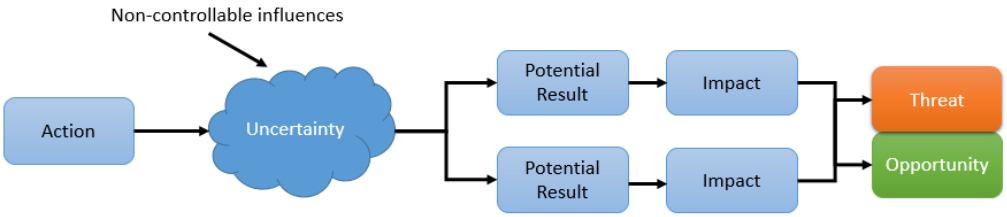

Figure 3: **Influence of uncertainty on projects.**

Figure 3 shows the influence of uncertainty on project risk, both opportunities and threats. The influences can be either from different sources or different types. Based on the sources, uncertainty in projects can be categorized into three categories: "Uncertainty from organizational complexity, uncertainty from environment and uncertainty form the individual project." (Martinsuo et al., 2014, p.734). Organizational uncertainty may be caused by uncertainty in resources (Engwall and Jerbrant, 2003), project governance (Müller et al., 2008) or changes in the organizational processes, structures, budget or strategy (Petit and Hobbs, 2010). Environmental sources for uncertainty can be seen in the technological environment (Petit, 2012) or changes in the overall market or supply chain (Petit and Hobbs, 2010). At the individual project level uncertainty deals with the uncertainty of the project planning and hence with uncertainty of scope, schedule and budget (Petit and Hobbs, 2010).

Besides the sources there are different types of uncertainty: technical, market, organizational and resource (Rice et al., 2008, p.55). Technical uncertainty "relates to the completeness and correctness of the underlying scientific knowledge." (Rice et al., 2008, p.55). The technical specification is question here. Is it possible to implement it? Another uncertainty comes from the market. Here it is asked if the customer is understood. Market uncertainty includes the uncertainty that the needs and wants of the customers are not clear. The third type of uncertainty is related to the organization. The organizational uncertainty describes the uncertainty that arises between the project and its included internal and external organizations. The fourth type deals with the uncertainty that lies within the resources. "Project teams continually struggled to attract the resources they required." (Rice et al., 2008, p.56) Resources are all resources a project needs for a successful performance. Examples for resources that can create uncertainty are competences, finance or infrastructure.

Creating something new always contains a portion of uncertainty and hence projects can be seen as risky. Risks in a project can be derived from all sources of uncertainty and therefore project risk can be included in all parts of the project starting from the scope, schedule and budget. But there is also a risk to achieve the projects objectives. Following the definition of PMI a risk can be seen not only negative like a threat but also positive. A positive risk is an opportunity that arises if the uncertain event happens. It has a positive impact on the project. Also risks can be categorized into two categories, the "risk in the project" and "the risk from the project." (Hillson, 2014, p.283). The major concerns of project management are about the risk in the project. How to handle individual risks within the project? The other question is more related to the underlying organization.

The different standards on project management and risk management, define project risk management in a sequence of different processes. These four project risk management processes are (Silvius, 2016):

(1) Identify risks (and opportunities)
(2) Analyze and assess risks (and opportunities)
(3) Develop risk response strategies and plan
(4) Implement the risk response plan and control the risks

As "it is not possible to address all risks with the same intensity" (Hillson, 2014, p.293), the process of analyzing and assessing risks is a crucial one in project risk management. The quantitative risk analysis typically assesses the identified risks on two dimensions, 'impact' and 'probability'. The impact describes the effect on the project objectives while the probability describes the likelihood that the effect arises. Figure 4 shows the resulting 'probability/impact matrix', that is the visualization of the project risk assessment.

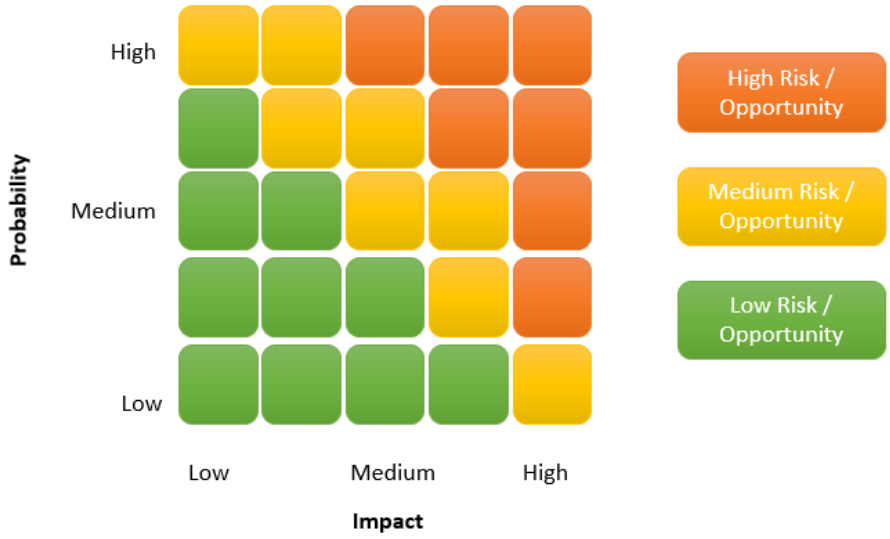

Figure 4: **Assessment of project risks.**

The quantitative risk assessment tries to "analyze the combined effect of risks on project outcomes." (Hillson, 2014, p.295). After the identification, categorization and analysis of the risks the next step is to plan responses for each of the risks. The strategy should be first developed for each individual risk and at the end summed up to an overall risk response strategy. Generally the responses can be categorized into four different strategies. Depending on the direction of the risk (negative or positive) the response strategies are, avoid/exploit, transfer/share, reduce/enhance and accept. After implementation of the risk response plan, the risks are being monitored during the project's execution and te risk response strategies managed. If the risk or opportunity is over, the review ensures that the taken actions have had the expected effect on the risk. As last step in the risk management process, after the finalization of the project the overall project risk management plan, the process of risk management and the risk responses in general should be reviewed.

It may be concluded that risk management is a major topic in project management that deals with the question of uncertainty in projects. "Risk arises from all sources of uncertainty." (Hillson, 2014, p.284). It can have positive or negative impact on the project and hence be either

a threat or an opportunity. In addition risk can be on the individual level of a task, activity or process or on the overall project level. The project management standards offer a sequence of processes as a framework for handling risks, but following these processes seems to be too little to be able to cover all sources of uncertainty.

Project and project management success

Projects are done because they are expected to have benefits for the organization or a stakeholder. A benefit can be defined as "an outcome of change which is perceived as positive by a stakeholder." (Bradley, 2010, p.23). The benefits should fill the value gap that is existing between the current situation and the target future situation (Kaplan and Norton, 2008; Serra and Kunc, 2015, p.55) hence benefit realization, starts with projects and ends with the achievement of business objectives. (Serra and Kunc, 2015, p.55).

To realize the benefits from a desired change an organization must establish a process for enabling it. Benefits realization management is "the process of organizing and managing so that potential benefits, arising from investment in change are actually achieved." (Bradley, 2010, p.29). Due to the fact that benefits realization management is a process it is not done only at one single point in time. Hence "benefits management is a process that runs throughout the project life cycle." (Jenner, 2009, p.10). The objectives of benefits realization management are to ensure that investment decisions are made on the basis of a robust and clear understanding of the potential benefits, to capture all forms of value created and to realize benefits and create value. (Jenner, 2009, p.11-12).

Overall project success is dependent on performance and success and a project can be defined as successful if "the project meets the technical performance specifications and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people on the project team, and key users or clientele of the project effort." (Baker et al., 2008). The overall project success is usually measured on two dimension, *project management success* and *project success* (Baccarini, 1999, p.25). *Project management success* focuses on the process of project management while the focus of *project success* is on the output and outcome of the project. The distinction is important because "how success is to be defined for a project is a necessary precursor to the establishment of appropriate methods for managing the project life cycle and for the selection of suitable measurement techniques." (Bryde, 2005, p.120).

The three components of the measurement of the *project management success* are (1) Meeting the baseline, (2) Process performance and (3) Stakeholder satisfaction. The success on the baseline can be measured against the golden triangle of the initial project plans – scope, budget and schedule. How good is the project against the planned schedule? How good is the project against the planned costs? Is there an overrun of the budget? The measurement of the scope can be done against the initial technical specifications. Is the provided functionality in line with the planned functionality? These criteria can be categorized as objective and direct. The measurement can be done between a planned and a performed value. The second component on what the process management is judged is the process performance. It measures "how efficient the project has been managed." (Baccarini, 1999, p.28). The third component stakeholder satisfaction measures how satisfied the stakeholder was with the process of project management. It hence deals with the process of project management and not with the output or outcome of the project.

The project success is measured on three components: (1) Achieving the project goal, (2) Realizing the project purpose and (3) Stakeholder satisfaction (Baccarini, 1999, p.29). The project goal measures if the project and its outcome meets the strategic objectives of the organization that benefits from the project. Second, the project purpose is successful if it satisfies the user's needs. The stakeholder satisfaction - in this case - is related to the results of the project and hence to the output or outcome. Different to the stakeholder satisfaction as measurement on project management the question here is if the stakeholders are satisfied with the end result of the project.

Baccarini (1999) describes that the two dimensions of measuring success are not always related to each other. Even if the process is perceived as a success the product can be a failure, and vice-versa. More critical for the underlying organization is if the output and the outcome of the project is a failure. This indicates that the company cannot realize the expected benefits.

The measurement of success is also a matter of timing. Different success criteria are measured different at different time intervals. The shortest dimension is 'project efficiency' (scope, budget and schedule). It measures "What factors are critical to project management success" (Cooke-Davies, 2002, p.185) and it can be assessed immediately but does not include any information on the long-run benefits. The 'impact on the customer' can be seen as the second dimension. It indicates the satisfaction of the customer with the deliverables of the project. As the customer will utilize the deliverables on a period of time this measurement can be seen as medium-term. The 'business success' dimension measures "the immediate and direct impact the project may have on the organization." (Shenhar et al., 2001, p.715). It hence measures the impact of the project on the medium to long term business results. As a fourth dimension 'preparing for the future' can be seen. The fourth dimension is important because "projects at the higher end of uncertainty dimension build new capabilities and create opportunities for the future." (Shenhar et al., 2001, p.713). It hence relates the project to the future business of the underlying organization and therefore it is based on the long-term time frame.

Business development

In this section, the discipline of business development is described. Similar as for project management, the description focuses the process of business development, with the focus on the initiation phase, the planning of a new business, uncertainty and risk in business development and the criteria for the success of business development.

Business development process

Business development is the discipline that aims to develop 'new business'. New business development distinguishes itself from the development of a product or a service, by searching for "a scalable, repeatable, profitable business model." (Blank and Dorf, 2012, p.xvii). Whereas classical product development is done in a sequential approach, "uninterrupted by changes or new ideas no matter how good they might be for the business." (Blank and Dorf, 2012, p.5), this approach is most likely to fail in the case of new business development because "both the customer and the product are unknown" (Blank and Dorf, 2012, p.8). The development of a new business must be more iterative to include the high level of uncertainty. Blank and Dorf (2012, p.22) propose a four step model at which each step is an iterative process. As the development of a new business should focus on customers the four steps are customer oriented. It all starts with 'customer discovery' where the visions are turned into business model hypotheses and

these hypotheses tested on the customer reactions. The second cycle is the 'customer validation' "which tests whether the resulting business model is repeatable and scalable." (Blank and Dorf, 2012, p.22). The third step is the 'customer creation' where the end-user demand is created and the sales started. At the end of the process the 'company building' is located. It focuses on the transformation of the temporary organization that was in search for the repeatable, scalable and profitable business to a permanent organization that "executes the validated business model." (Blank and Dorf, 2012). Figure 5 shows the four steps of Blanks Customer development process for business development. The first two phases focus on the search and hence on the initiation of the new business idea, the latter two on the execution and therefore on the establishment of the new business.

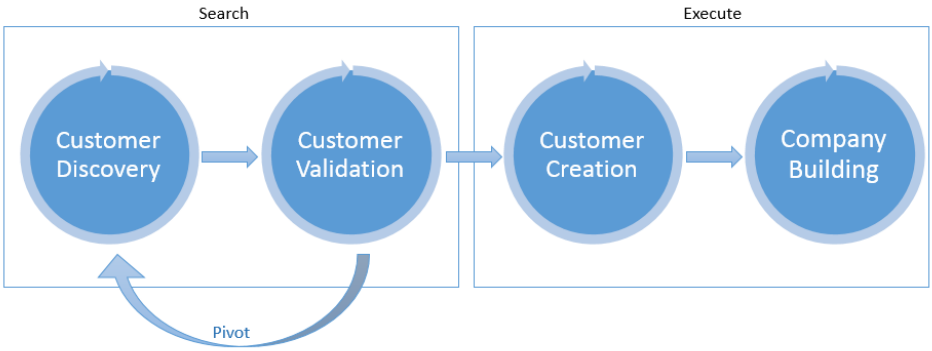

Figure 5: **The business development process**
Source: *Blank and Dorf, 2012, p.23*

Business plans are based on assumptions and hypothesis, but "hypothesis is just a fancy word for 'guess'" (Blank and Dorf, 2012, p.37). Key for the successful establishment of a new business is to turn the assumptions into facts. This can only be done by testing them. The testing of assumptions is done following an iterative cyclic approach. This approach starts with an initial hypotheses and the first draft of the business model. In this phase the vision of a new business is turned by assumptions into a business model. In the second phase experiments should test the 'problem' hypothesis. Is there really a problem or a need that can be solved by a new business? If the initial assumptions are wrong this is the first point where they can be adapted. If the assumptions are adapted the new assumptions must be tested again. After the problem is tested the solution must be tested. The goal is to ask if the value preposition will solve the problem. At this time "the goal is not to sell the product, but to validate how well you understood the problem in Phase 2." (Blank and Dorf, 2012,p.68). The fourth phase is to validate the results of the tests. It must be clear that the problem is understood, the problem can be solved by the value preposition and that there is a decent volume of customer base that is willing to pay for the new product or service. Only if the questions are verified the second phase of the business development can be started, otherwise the initial plans and assumption must be pivoted and adapted.

On the basis of the business model a business plan can be worked out in detail. "A business plan should justify and describe your business idea in a clear and adequate manner." (Schwetje and Vaseghi, 2007, p.1). It includes all relevant information of the new business. The business plan should include several other aspects like market analysis, organizational structure, management team, operational plans, critical milestones and funding. As in the early stage of a

business plan it contains a lot of assumptions, all the assumptions must be included in the plan. This enables to pivot the plan and model easier in the process of the establishment of the new business because "no business plan survives first contact with customers." (Blank and Dorf, 2012, p.35).

Uncertainty and risk in business development

Uncertainty and risk is one of the key topics in business development, as uncertainty can be seen as the justification for the profit of the new business. Hence uncertainty and different variation of uncertainties are important in business development and methods to cope with it exist. One of the tools to cope with uncertainty is "Scenario planning". At the beginning "scenarios have been used as tools for indirectly exploring the future of society and its institutions." (Bradfield et al., 2005, p.795) Hence the objective of scenario planning in business development is "to better prepare an organization for the future." (Garvin and Levesque, 2006, p.1). Scenario planning is not searching for the best fitting answer for a problem like strategic planning is doing, but for multiple possibilities. It hence "investigates in several uncertainties simultaneously." (Garvin and Levesque, 2006, p.1). The objective is to reduce the surprises of an incorrect assumption of the future by a broader planning of the business model and thinking about multiple futures.

Scenario planning is used in several areas. The areas can be categorized on two dimensions. First, the purpose of scenario planning can be divided either into a specific problem or an ongoing process. The second categorization is between the closing of a specific decision or the opening of an organization for future exploration. (Bradfield et al., 2005, p.806). Figure 6 shows the categorization of the scenario planning areas. By the combination of the two categorizations scenario planning can be clustered into four areas, "making sense of a particular puzzling situation, developing strategy, anticipation and adaptive organizational learning." (Bradfield et al., 2005, p.806)

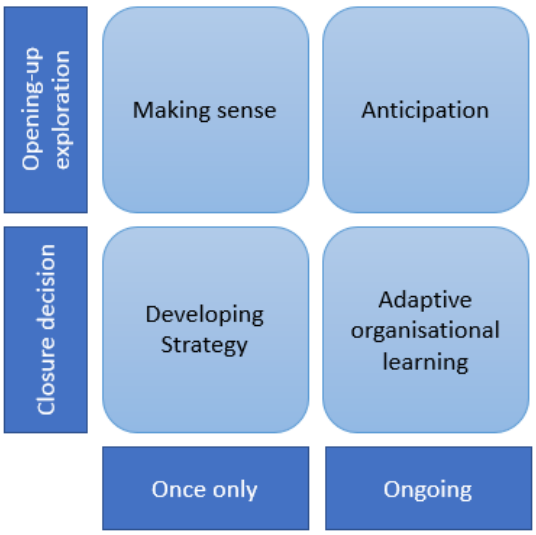

Figure 6: **Areas of scenario planning.**

The process of scenario planning starts with defining a key focal issue. This can either be a "significant, upcoming decision" (Garvin and Levesque, 2006, p.2) or "an issue that has

profound uncertainty but is particularly relevant to the business." (Cinquini et al., 2013, p.51). If a factor has an impact on the scenario it is a driving force. Hence this are themes that will affect the key focal issue. Sources for driving forces are "social systems, economics, political affairs and technology." (Garvin and Levesque, 2006, p.3). Due to a wild range of driving forces they must be simplified for a further analysis. The critical uncertainties are "the two most important variables" (Cinquini et al., 2013, p.52) for the issue. These two critical uncertainties should not correlate to each other and hence be classified as independent variables.

For each of the variables two counterpart definitions, each from an end of the possible range of values, are taken and the two dimensions intersect to each other. The result is a 2x2 matrix with four possible future scenarios. This matrix is the scenario framework. "The goal is to end up with a few, clearly contrasting environments." (Garvin and Levesque, 2006, p.3). These different futures are the scenarios that represent the alternative developments of the selected critical uncertainties and its interrelation to each other. After the definition of the scenarios each of the scenarios and its characteristic should be described in detail.

One of the key areas of scenario planning is that the hypothesis is tested against the key focal issue. Here each of the possible futures is applied on the organization and the issue and the impacts on the organization explored. This leads to the development of strategic options that can be taken to deal with a certain situation. At the end early warning signals must be identified. These signals indicate the "emergence of one scenario or another" (Garvin and Levesque, 2006, p.4) and hence if the world is "moving in a particular direction." (Garvin and Levesque, 2006, p.4). By this it is possible to optimize the business model in dependence on the given situation.

Success in business development

One of the issues is how the success and performance of a business development can be measured. "Performance measurement can be described as the acquisition and analysis of information about the actual attainment of company objectives and plans and about factors that may influence plan realization." (Kerssens-van Drongelen and Cooke, 1997, p.347). The measurement of success and performance is done on a performance metric and performance dimensions.

The performance metrics "provide a way of assessing the progress over time of specific activities, by quantifying key aspects of these activities." (Perkmann et al., 2011, p.207) Performance can be measured quantitatively and qualitatively. Based on the performance matrices, performance dimensions can be discovered. "Performance dimensions are evaluation criteria that identify those factors whose accomplishment is critical for success." (Chiesa and Frattini, 2009, p.20)

The performance measurements for the development of a new business differ from the once for an established and operating business. For established businesses the key success criteria are based on financial KPI's. For a new business "traditional financial measures may not be useful" (Frattini et al., 2006, p.432) and other indicators seem to be more relevant. Blank and Dorf (2012) suggest seven dimensions based on the business model to measure success. Each of the dimensions has one or more measurement indicators. The dimensions and metrics are:

- Value proposition: *What are product costs, market size, attainable market share, and customer impact of network effects?*
- Customer Relationship: *What are customer acquisition costs, prospect conversion rates, customer lifetime value, and customer switching costs?*
- Market Type: *What market is the business in?*

- Cost Structure: *What are the operating costs of the business?*
- Channel: *What are the costs of selling through the channel? Channel margin, promotion, shelf-space charges?*
- Revenue Streams: *What are the average selling price, total achievable revenue, and number of customer a year?*
- Burn Rate: *How much cash is the company "burning" (spending) a month? When will the company run out of cash?*

The measurements should be carried out for different time periods and compared over the process of the development of the business. The key question behind the numbers is not only if the business model is profitable, but also if it is scalable enough. If the numbers indicate that the probability to grow is not significant, it might be necessary to adopt or pivot the business model.

Project management and business development compared

One of the major research prepositions is that project management and business development have similarities. This paragraph compares the disciplines on project management and business development along the dimensions of 'process', 'planning methods', 'risk and uncertainty' and 'success' in order to analyze what the two disciplines have in common and what differences exist.

Comparison of characteristics

Process

One of the compared dimensions is the process the two disciplines follow. Both project management and business development aim to create and/or deliver something new. Compared to the literature of project management the 'newness' of what should be delivered is higher in business development than in project management. This 'newness' relates to the uncertainty at the start of the process. The objective of the business development is to search within this uncertainty for the new business. Hence the uncertainty must be reduced to one evolving future that is beneficial for the underlying organization. It can be seen that the assumptions made for the first business plan in the initiation phase will not hold till the end. A classical step-by-step approach will not be able to cover the level of uncertainty. Hence business development follows a cyclic approach. The objective of the cycle is to test the initial assumption on their correctness as fast as possible to become clearer about the area of development. The cyclic approach should be followed for all activities and assumptions over the business development process. The iterative steps are 'formulate the hypothesis', 'design experiments to test the hypothesis', 'test the hypothesis' and 'analyze the results by the insights got from the tests'. At the end the process starts at step one again. By this the uncertainty can be gradually removed and the initial hypotheses transformed to hard facts. The process is hence designed to remove uncertainty within the area of development. Lowering the level of uncertainty generates facts on which the new business can be based.

Planning

For both project management and business development, planning is a key component. However, the purpose and the approach differ. Planning for a project sets the baseline for the execution. "Everything that is done on the project must be carried out in accordance with these documents." (Zwikael and Smyrk, 2011, p.184). The assumption is that at the beginning of the project everything is clear. Hence the planning can follow a strict process starting with the

scope, the time and the budget and then all other areas, like risks and stakeholders. For project planning the assumption is that there will be no or only little deviations from the plan during the execution.

In business development, the overall mindset is different. Here the major assumption is that "no business plan survives first contact with customers" (Blank and Dorf, 2012, p.35). The business model is a living document based on the knowledge at this time of the business development. Minor and major changes of the business model and hence the business plan are normal for the area of business development. Therefore the plans, as seen in the processes, are also generated by a cyclic approach. From the initial plan with a lot of hypotheses the assumptions are turned into hard facts and hence the business plan changed.

One important tool for business development is scenario planning. Because it is not possible to forecast the future, plans and response strategies are made for different possible futures. Project management does not do this at all. The project planning assumes only one future, with some deviations that are handled as risks for which specific response strategies can be planned. The planning phase for a project is the basis for the performance of the project and deviations should be as little as possible to the plans. On the other hand for business development the plan is a living document that can be adopted along the full life-cycle of the business development to create a beneficial business for the organization.

Risk and uncertainty

One key difference between project management and business development is the perception of uncertainty. In project management literature uncertainty is often perceived as risk and hence as threat that should be avoided. On the other hand for business development uncertainty is an opportunity. Only in an uncertain situation a new business can be developed and hence more profit generated for the organization. The perception of uncertainty as an opportunity is relatively new in the literature of project management. But also in this concept the opportunity within the uncertainty will only help to be better than the planned values e.g. scope, time and budget but not pivot the project into a completely different direction.

Success

There are also differences in the measurement of performance and success. The major success criteria for the project management process is on the execution in accordance to the plans. It is a planned versus executed value analysis. Therefore the metric for measurement is around the golden triangle scope, time and budget and hence emphasis the process. It is done once, after the project is completed. The idea of measuring the overall process on a longer basis of the target outcome of a project and not only on the output is relatively new in literature. This indicates the need for a different point of view on project success.

The success and performance of business development is measured in two different ways. The new developed and established business can be measured, like any other business, by financial KPI's like 'return on investment' or 'sales'. This is done on a regularly basis, e.g. once a year. The performance of business development must be monitored over the whole process of the establishment of a new business. Here performance can be seen in the transformation of the initial assumptions into 'real' data. Next to this business development has financial KPI's that matter. The two most important are 'cash burn for period' and 'cash remaining'. (Blank and Dorf, 2012, p.445). This indicates two things. First, as 'per period' tells, the measurement of the performance and success is done on a regularly basis and not only once after the completion of

the process. Second 'cash burn for period' and 'cash remaining' indicate how much time is left to transform the business model into a sustainable, scalable and profitable business.

Compared to project management time and scope are very flexible in business development. The objective is not to deliver the initial business idea but to have a profitable business at the end. The emphasis is on the outcome.

Summary

Although both have similar topics and perceptions there can be seen major differences in the two disciplines. Table 1 shows the major differences in the compared areas between business development and project management.

Table 1

Summary of the comparison of project management and business development.

	Project Management	Business Development
Process	Linear	Cyclic, step-by-step
Planning	At the start	Re-planning over the life cycle
Risk and Uncertainty	Perceived as threat	Perceived as opportunity
Success	Measured on short-term dimensions Emphasis on the process and output	Measured on long-term dimensions Emphasis on outcome

Source: Authors' construction

The process of project management is a linear, step-by-step approach while business development follows a more cyclic approach. The planning for a project is done once, at the beginning of the project. On the other hand the plans for business development are living documents and hence re-planning is part of the overall process. Also the success is measured different. Project management success is measured once after the completion of the project and in accordance to the project plan. The measurement is on short-term dimensions. The emphasis is on the process. Business development is measured on the target outcome, the benefits the business is generating for the organization and hence on the long-term success of the business. In opposite to project management business development is also measured periodically. The comparison also highlights that the perception of uncertainty is different for the two disciplines. The common perception of uncertainty in project management is as a threat while for business development uncertainty includes the opportunity and hence is the source for the new business.

Outlook on scrum

One of the project management frameworks that uses elements of business development is SCRUM. SCRUM is an agile project management approach that is based on the operational model of Plan-Do-Check-Act (Gloger, 2010, p.196). Hence similar to business development the process is based on a cyclic approach.

Process

In SCRUM each of these PDCA Cycles is called a sprint. The overall product vision is tried to be developed by a continuous improvement of the solution. The improvements of the sprints are collected and prioritized in the product backlog. The product backlog is hence the list of functionality of the overall end product. Each of the sprints will have a planning phase in which the objectives for this sprint are set. A sprint is normally between 2 weeks and one

month. The planning must answer two major questions: "What has to be delivered in the upcoming spring?" and "How will the work be delivered?" (Sutherland and Schwaber, 2013, p.8). The result of the sprint planning is the sprint goal. It is the basis for the implementation of the sprint by the development team. At the end of a sprint a sprint review is held. At this stage it reviews what has been done in the sprint and what changes did occur in the overall product backlog or vision by the development that has been done in this sprint. "The result of the sprint review is a revised product backlog that defines the probable product backlog items for the next sprint" (Sutherland and Schwaber, 2013, p.11). Another element of the sprint cycle is the sprint retrospective. It is an opportunity for the scrum team for incremental improvements of the development process within the framework of SCRUM. Although improvements of the process are always possible "the sprint retrospective provides a formal opportunity" (Sutherland and Schwaber, 2013, p.12) for searching for improvements.

As described by Schwaber and Sutherland "SCRUM employs an iterative, incremental approach to optimize predictability and control risk" (Sutherland and Schwaber, 2013, p.3). As it is based on process control theory scrum focuses on the process. Comparing the process of scrum to the process of business development the two processes are similar. Both focus on a cyclic approach.

Planning

The SCRUM planning is done within the product vision. Within the product vision certain functionality should be provided. For each scrum sprint the functionality that should be implemented is defined and planned. The objective is an incremental improvement of the overall product to get closer and closer to the overall product vision. Hence also planning is done very often in the process of SCRUM. It emphasis a two way planning. On the one hand the overall product vision and the functionality is planned and on the other hand the next SCRUM sprint is planned in more detail.

Risk and uncertainty

There are two major ideas behind the short cycles of a SCRUM sprint, first to control the risk and second to optimize the predictability for future cycles. This indicates that there is a sense of uncertainty in the process but the perception of the uncertain is as risk and hence as a threat. What can also be seen is that the overall uncertainty within the process is not included in any plan, neither in the product vision nor in the plans for the sprint. The assumption is that by the incremental improvement the predictability of the future sprints and the development of the product vision is given.

Success

The success of scrum is based on delivering. Hence the success is measured on the process of the implementation. The major assumption is, that by the incremental improvement toward the product vision the long term objectives with the delivered product or service can be achieved. Hence the success criteria for SCRUM emphasis more on the output. The long term success in only assumed by the customer satisfaction by the end of the delivery period.

Summary

The process of SCRUM is structured in a cyclic way. This is similar to the process of business development. The motivation of the cyclic approach in business development can be seen in the testing of the different starting hypotheses. Within SCRUM the short cycles are used to reduce the risk in the future cycles of the development, hence the functionality of the cycles differs from each other. Uncertainty is also treated different. The short planning cycles try to

reduce the uncertainty in this development period and the following period. Overall scenarios for different futures are not prepared in the process of scrum.

Another difference can be seen in the success measurement. The underlying argumentation for SCRUM is that by the small development cycles a continuous improvement of the overall deliverable can be secured and hence the stakeholder will be satisfied with the output of the process. But similar to the other project management approaches the success criterion is set on the output of the process, hence they are short-term process driven. The overall – long-term – outcome that should be generated by the output of the process is not included in the measurement of the success of scrum. Table 2 shows the differences between traditional project management, SCRUM and business development.

Table 2

Summary of the comparison of project management and business development.

	Project Management	SCRUM	Business Development
Process	Linear	Cyclic-phases	Cyclic, step-by-step
Planning	At the start	Phase-wise-detailing, incremental	Re-planning over the life cycle
Risk and Uncertainty	Perceived as threat	Perceived as threat	Perceived as opportunity
Success	Measured on short-term dimensions Emphasis on the process and output	Measured on short-term dimensions Emphasis on output	Measured on long-term dimensions Emphasis on outcome

Source: Authors' construction

Conclusions

This paper reported a comparison of the disciplines of project management. The rationale of this comparison is the realization that these disciplines have strong similarities. Both are temporary, follow a structured process and are aimed at creating something new. However, despite these similarities, business development and project management are considered as different disciplines in both research and practice.

In our comparison, we described both disciplines along the dimensions of 'process', 'planning methods', 'risk and uncertainty' and 'success'. The comparison showed that in both disciplines, the dimension of uncertainty is an inseparable element. However, the disciplines differ in the way they handle uncertainty and the related risk/opportunity.

This difference in the handing of uncertainty influenced all of the four described dimensions: the process, the planning, the risk and uncertainty management and the success measurement. In project management literature uncertainty is often perceived as risk and hence as threat that should be avoided. In business development, uncertainty is considered an opportunity. It can be concluded that the perception and the handling of uncertainty is more developed in business development than in project management. The methods to handle uncertainty in project management are oriented towards finding the most probably scenario of the uncertainty, whereas business development handles uncertainty with methods, such as scenario analysis, that cover different possible outcomes of the uncertainty.

The project management of scrum uses some elements of business development but overall it can be seen that only using scrum is not sufficient enough to manage uncertainty in projects.

Based on our findings, we propose that further research is done in order to examine how scenario planning can be applied in project management, as a way to handle uncertainty.

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