

Master Thesis

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Effectuation at large corporations and bureaucracies



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Preface

This thesis is written as a completion of the Master of Science degree in Business Administration at the University of Twente. This thesis, concerning effectuation at large corporations and bureaucracies, is written based on scientific interest, but also to help Rabobank group investigate corporate effectuation. This case study is based on Rabobank and all data are also originating from Rabobank. This access and ability to collect data is based on an internship at Rabobank.

As later on will be discussed more in detail, the motive of this research is based on the interest in effectuation, which is partly proposed by my supervisor at the University of Twente. The model of effectuation is a quite important model on aspects of entrepreneurship, which in this way fits quite well at small companies or entrepreneurs. The questions however is how this model fits at large corporations such as Rabobank. Sarasvathy (2008), the researcher behind the model of effectuation, also stated this gap in literature.

Building upon this statement, this research is intended to find out how the logic of the model, the effectual logic, in a most effective way can be applied at large corporations and bureaucracies. By means of a case-study at Rabobank, as an example of these organization types, this question will be answered, just as a review on literature concerning (corporate) effectuation. Furthermore the method of research concerns interviewing various employees at Rabobank.

I want to thank several people who were (in)directly involved in this research. First of all I would like to thank my mentor at Rabobank, Jack Gielen, for his support and effort within this assignment. Furthermore I would like to thank all interviewees at Rabobank, who were very willing to help with this assignment. On the other hand I would like to thank my supervisor at the University of Twente, Jeroen Kraaijenbrink, just as my second supervisor, Rainer Harms. Finally I would like to thank all other employees of Rabobank involved in this research, just as co-students and teachers at the University of Twente.

Management summary

The logic of effectuation is a way of engaging customers and stakeholders in a type of entrepreneurial action. This logic of effectuation is already quite “popular” in literature, but there are still certain research suggestions such as how this logic of effectuation should be applied at large corporations and bureaucracies. Because of this suggestion made by Sarasvathy (2008), this research is written. The main question within this research is how the effectual logic should be applied within large corporations and bureaucracies to create new products in an effective way. This research concerns a case-study of the Rabobank Group, which is an international financial service provider founded on cooperative principles, rooted in the Netherlands. Besides the research suggestion earlier mentioned, the interest of the Rabobank group in this research was another motive to write this research.

This research exists first of all of a theoretical framework, mainly based on Sarasvathy (2008), Chandler, DeTienne, McKelvie & Mumford (2011), Blekman (2013) and Chandy & Tellis (2000). Important information on this part beholds the explanation of effectuation, the effectual cycle, the principles of effectuation, corporate effectuation and differences between small and large firms concerning effectuation. Effectuation, on the contrary of causation, lends on the logic of controlling the future. Effectuation processes take a set of given means as starting point and focus on selecting between possible effects that can be created by these means. The next steps of this cycle are interacting with people and achieving effectual stakeholder commitment. This process might lead towards new means or new goals. This latter can concern the creation of new markets, firms or products. This logic of effectuation has five underlying principles. The first principle is the bird-in-hand, which is based on choosing between means to create a particular effect or designing possible effects using a particular set of means. The second principle concerns affordable loss; not investing more than you want to risk. The third principle, crazy-quilt, concerns emphasizing that input from stakeholders who actually make commitments to the venture should be taken into account, without looking at opportunity costs as to possible stakeholders who may nor mat not come on board later. The fourth principle, the lemonade principle, involves the exploiting of surprises or unexpected events and using these within the process. The fifth principle is called pilot-in-the-plane, which is based on creating the future with the things you control.

Information on corporate effectuation is also collected from the literature. The results from these articles state that several organizational aspects are needed, which are relevant to apply the logic of effectuation at large corporations. Examples of these aspects are near-decomposability, top management support and people development. The final part of the theoretical framework exists of several advantages and disadvantages concerning the comparison of large corporations and bureaucracies with small firms related to effectuation.

As earlier stated this research is based on a case study of Rabobank, as an example of large corporations and bureaucracies. The overall type of research is an exploratory research. By means of interviewing several employees of Rabobank, who are involved with product creation, is investigated whether the effectual logic is applied and could be applied, with certain adoptions. By these means the interviewees were asked whether the principles of effectuation are in place, whether certain organizational elements are present and what problems they foresee concerning the implementation of this effectual logic. Eventually 15 employees were interviewed at Rabobank. This group exists of both project managers, product managers, innovators and advisors, whereby certain interviewees

work together in a project and others work separately. Besides this data, also data is used from a presentation of the User Experience Centre of Rabobank.

The results of the interviews show that the principles of effectuation are used and should be used in a limited extend. 8 out of 15 interviewees state that the bird-in-hand should be applied and around the same amount state that the principle is used at the moment, especially concerning incremental innovation. The affordable-loss principle is not used very often at the moment and there is again no clear direction towards whether this principle should be used or not. However the organization is heading more towards this principle and employees involved in radical innovation state that this principle is needed. The crazy-quilt principle is also not used very often, while more than two-third believe in this principle. The reason for this lies in the fact that this principle can't be used at every project, such as projects where incremental innovation or laws & rules are involved. The overall attitude towards the lemonade principle is that it should be used; the employees should have their focus continuously on the market. At the moment, however, it is not used that well and this should improve. The fifth principle, pilot-in-the-plane, is used partly. Although it is difficult to act by this principle as a financial corporation, examples are given of creating the future.

Furthermore almost all employees state that the effectual cycle is already applied quite well and these interviewees see the importance of the different aspects of the cycle, especially the interaction with other people and making commitments with stakeholders.

The results of this research imply a separation between the innovation and the operation departments. For a large corporation to be both innovative and entrepreneurial different kinds of specialized employees are needed; real entrepreneurs to create new products and businesses and more operational employees who look at efficiency and the operational processes. Furthermore both departments desire different principles and a different process cycle. Innovators should hereby mainly use the effectual cycle, except the first step of available means. Concerning the operational process, bird-in-hand is quite relevant just as parts of the other principles.

To really apply the effectual logic at large corporations and bureaucracies, certain organizational aspects are relevant and facilitate this process. The first aspect, of decomposing the organization in connected subsystems, near-decomposability, helps this application, especially based on budget and responsibilities. The (top) management support and the structure of the organization also help applying this logic of effectuation, by means of a positive mentality towards failure, the recognition and execution of the shared vision and providing a good structure for both incremental and radical innovation. ICT systems and people development & HR processes should also facilitate the effectual logic, by giving entrepreneurs within the organization access to other entrepreneurs and knowledge, making a more entrepreneurial culture, putting the right people on the right job and using rewards by means of recognition. Finally other organizational aspects; building mock-ups, placing firms outside the organization to achieve more speed and less costs and using lean start ups also facilitate the process of applying the effectual logic.

Table of contents

Preface	
Management summary	
1. Introduction	6
1.1 Research proposition and context	6
1.2 Problem setting and research questions.....	7
2. Theory	9
2.1 Co-creation	9
2.2 Effectuation	10
2.2.1 Effectuation versus causation	10
2.2.2 The effectual cycle.....	12
2.2.3 The principles of effectuation.....	14
2.3 Corporations and effectuation.....	15
2.3.1 Corporate effectuation.....	15
2.3.2 Differences between small and large firms related to effectuation	19
2.4 Near-decomposability and effectuation	22
2.5 Critics on effectuation.....	23
2.6 Radical versus incremental product innovation.....	25
3. Research method	26
3.1 Type of research	26
3.2 Method of data collection.....	27
3.3 Operationalization	28
3.4 Sample	31
3.5 Method of analyzing the collected data.....	32
4. Results	35
4.1 Principles of effectuation	35
4.1.1 Bird-in-hand principle.....	35
4.1.2 Affordable loss principle.....	36
4.1.3 Crazy-quilt principle.....	37
4.1.4 Lemonade principle.....	39
4.1.5 Pilot-in-the-plane principle.....	40
4.2 The effectual cycle	41
4.3 Problems and opportunities to apply the effectual logic at large corporations	42

4.4	Relevant organizational aspects to apply effectuation at LC's & bureaucracies	44
4.4.1	Near-decomposability	44
4.4.2	Top management support.....	44
4.4.3	Organizational structure.....	45
4.4.4	ICT systems.....	46
4.4.5	People development & HR processes.....	46
4.4.6	Other corporate processes and integration into operational processes	47
4.4.7	Other organizational aspects.....	48
4.5	Effectuation at large corporations & bureaucracies	49
4.5.1	Organizational aspects relevant to the application of the effectual logic within LC's and bureaucracies	51
4.5.2	Challenges related to the implementation of the effectual logic	52
5.	Discussion & conclusion	54
5.1	Answer research question	54
5.2	Theoretical implications.....	55
5.3	Practical implications	56
5.4	Research limitations & research suggestions	57
5.5	Conclusion.....	57
Bibliography	59
Appendix	62
Appendix I: Interview topics	62

1. Introduction

1.1 Research proposition and context

Rabobank is one of the three largest banks in the Netherlands concerning customers within the business segment. To keep up with, and stay ahead of the competition, such as competitor banks, but also non-banks, Rabobank needs to develop new value-adding products.

The development of these products take place within different departments of Rabobank and various stakeholders are involved within the processes. Initiatives, on new value-adding products, are mainly based on indirect customer demand; perceived by local banks, the market, employees of the bank and many more. Direct customer demand, on the contrary, is not used that often to develop new products. So the problem is that these initiatives are hardly or not tested within the market or with the customers. Despite this, products are developed and put in the market, which costs lots of money. To test whether the demand is real and to see if the demand might be a bit different, products can be (co-)created and developed with customers. Hereby the certainty is higher that a product will be successful and the customers have a feeling of being in control.

The shift of a product oriented corporation towards a more customer oriented firm, as Rabobank emphasizes, is well known. This shift is also visible at other financial institutions, just as corporations in other sectors. The set up of Rabobank by means of product silo's is developing to a more customer based and -centered organization. The concept of co-creation fits with this latter customer oriented business. Prahalad & Ramaswamy (2004) state that informed, networked, empowered and active consumers are increasingly co-creating value with the firm and that the interaction between the consumer and the firm is becoming the locus of value creation and value extraction. Furthermore Payne, Storbacka & Frow (2008) state that the proposition concerning the customer becomes a co-creator of value is central to service-dominant logic, which emphasis the development of customer-supplier relationships through interaction and dialog.

A model in line with co-creation, and the key model within this research, is the effectuation model of Sarasvathy. This effectuation model is made to engage customers or stakeholders in a type of entrepreneurial action. This is especially important for situations where the future is unknown or human agency is of great importance. In this effectuation, the theory and techniques are explored for creating new firms, markets, products and economic opportunities in an un-predictive future. (Sarasvathy, 2001)(Sarasvathy, 2008)(Fisher, 2012)

There are still several implications and future research suggestions concerning this topic. The research suggestion which is relevant and quite directly fits to this issue is investigating how the effectuation logic should be applied at large corporations and bureaucracies (Sarasvathy, 2008). Besides the importance for Rabobank which is stated above, this is important because large corporations and bureaucracies are suggested to face more causality than entrepreneurial expertise. This is because in the phase that the firm has expanded towards the inflection point, the firms need to reason causal to survival, as proposed by Read & Sarasvathy (2005). Finally the underlying logic of control in effectuation suggests ways for the headquarters of large corporations to deal with the tension between creativity and efficiency in their strategy.

Although there is a gap in the literature, a management book and an article already investigated parts of this gap. The management book, in Dutch, is written by Thomas Blekman (2013), called Corporate Effectuation; what managers can learn from entrepreneurs. This book learns

managers different ways to create the future, based on information retrieved from experienced entrepreneurs, and provides a new look on effective internal entrepreneurship. An article by Brettel, Mauer, Engelen & Küpper (2012) adopts the lens of effectuation in contrary of causation and applies it to the corporate R&D context. Means versus goals, Affordable loss versus expected returns, partnerships versus competitive market analysis and acknowledge the unexpected versus overcome the unexpected, as the four dimensions proposing the differences between effectuation and causation, are hereby linked to R&D performance.

Except what already is written, this research focuses on things which are not written yet. Besides bringing theory together on innovation, effectuation and product creation, the theories were also tested in practice. As said the book of Blekman (2013) has several assumptions from experienced managers, which need to be tested. For example the way an organization of internal entrepreneurship should be guided. In his book this assumption is stated by the author together with one (experienced) manager, but not tested in practice.

Furthermore the theory of this book of Blekman (2013) consists almost exclusively of effectuation and the operational aspect of this way of thinking, while the theory of corporate effectuation is almost neglected. This current research on corporate effectuation focuses, partly because of this reason, mainly on large corporations instead of all sorts of corporations.

Finally, within this case study, the financial sector is highlighted; how the effectuation logic needs to be applied within this sector, taking into account the specific rules and laws these corporations have to deal with. This however is not the main focus, but it is important to take into account because of the fact that Rabobank is active within this sector.

1.2 Problem setting and research questions

To fill the research gap, how the effectuation logic should be applied within large corporations and bureaucracies, research needs to be conducted. First of all a clear understanding needs to be created on the effectuation model of Sarasvathy. Critics are hereby relevant to set limitations and to review the model.

From here on, to create a basis on how to apply the effectual logic within large corporations and bureaucracies, an understanding has to be developed on how large corporations and bureaucracies differ from small entrepreneurial firms. Before giving advice to Rabobank how to do so, it is important to understand how and in which degree Rabobank is already using the logic of effectuation at the moment and what the short-term future plans are considering this topic.

Plausible is hereby that the model of effectuation needs to be adapted to apply this within large corporations and bureaucracies. Reasons for this are for example the bureaucratic way of doing business and the different approach to customers. This adaption to large corporations and bureaucracies need to be described and a new model might need to be created. Important hereby is that this concerns the theoretical part, whether changing the model is needed for the application within large corporations (LC's) and bureaucracies.

Finally challenges will arise, which Rabobank will face when implementing (part of) this logic, despite that the model is developed in a way that it fits large corporations and bureaucracies. These challenges need to be mapped to make sure that LC's and bureaucracies pay attention to them, to make sure the model is implemented in the right way.

The main research question, as described earlier, is the following:

What is an effective way to apply the effectual logic within large corporations and bureaucracies to create new products?

To answer this main research questions, the following sub questions need to be answered, which are extracted from the problem setting above:

- 1. What is the effectuation model of Sarasvathy?**
- 2. What are the main differences, related to the application of this model, between small firms and large corporations and bureaucracies?**
- 3. How does Rabobank, as an example of a large corporation and bureaucracy, develop new value-adding products at the moment and what are the problems Rabobank encounters and will encounter?**
- 4. Which aspects of the theoretical model need to be changed to apply the model within large corporations and bureaucracies?**
- 5. Which challenges will arise when implementing this logic at Rabobank?**

To answer these research questions, research needs to be done, firstly on basis of literature, which will form the base of this research. This literature especially concerns the logic of effectuation, the effectual model, corporate effectuation, critics on this model and information on the difference between large corporations and bureaucracies and small firms related to the application of this model.

Furthermore information will be collected by interviewing stakeholders of Rabobank concerning the application of this effectual logic. Several employees throughout the organization are willing to be interviewed. These employees differ from function within business banking, until private banking and strategy & innovation at the Rabobank group. Thanks to these interviews information can to be retrieved concerning how Rabobank develops new value-adding products at this moment and the problems Rabobank encounters. Furthermore questions are asked on how effectuation is implemented at the moment and how this logic should and could be applied in the future, according these employees. Eventually a model needs to be developed for large corporations using the effectual logic.

This research is structured in the way that the next chapter holds the theoretical framework of the research. As already pronounced, the first two sub questions will be answered within this part of the research. The following chapter concerns the research method; how the interviews were conducted and the operationalization of the theory. When this is done the results will be given and analyzed in the following chapter. The final chapter will include the discussion and conclusion.

2. Theory

Theory is needed to answer part of the main research question and the underlying sub questions. This chapter starts with explaining the concept of co-creation and the importance of the relationship between the firm and its customers. From this broad definition of co-creation, which is in line with the logic of effectuation, this chapter will proceed with the concept of effectuation. First of all will be explained what effectuation is in comparison with causation and furthermore what the effectual cycle involves, just as the underlying principles. Furthermore corporate effectuation will be covered, just as the differences between large corporations and small firms related to effectuation. Theory on this latter subject is relevant because of the changes the effectual model should face to be applied at large corporations in an effective way. The final sections involve theory on near-decomposability in relation with effectuation, critics on effectuation and theory on radical versus incremental product innovation.

2.1 Co-creation

This section concerning co-creation is written as theoretical introduction for the concept of effectuation. The transformation of the relationship between firms and consumers, just as the transformation of the market are the most important concepts.

If the supply nor demand exists in a substantial manner, they, or one of them, can be created. Hereby several economic inventions in marketing, financing, management etc. have to be made, for the opportunity to come into existence. In the past, opportunities have been supposed to exist or somehow goes about discovering them. The idea however is that entrepreneurial opportunities often have to be created by using imagination to express human aspirations in concrete products and markets (Sarasvathy & Venkataraman, 2001).

Vargo & Lusch (2004) stated that in the past business processes have lead towards interactivity between the firm and customers, just as connectivity and ongoing relationships between these two. In this way the orientation and analysis is shifted away from the producer or manufacturer towards the consumer. A foundation they state of is hereby of great importance: The customer is actually always a co-creator of value: There is no value until an offering is used; perception and experience are essential to value determination. The paper of Payne, Storbacka & Frow (2008) heads on from this interactivity, connectivity and ongoing relationships towards the co-creation of value. The focus lies on how a supplier can seek to manage the co-creation of value, and based on previous research, they developed a conceptual framework for the co-creation of value. Payne et al. (2008) state that co-creation is the emotional engagement of customers through advertising and promotional activities. Co-creation is hereby self-service, where there is a transfer of labor to the customer, and co-creation is where the supplier provides an experience, whereby the customer is part of this context. Furthermore co-creation is when the customer self-selects, using the supplier's prescribed processes, to solve a particular problem and that the customer and supplier engage in the especially important activity of the co-design of products (Payne et al, 2008).

Another, more briefly, description of the concept of co-creation is made by Prahalad & Ramaswamy (2004). Co-creation is firstly about joint creation of value by the company and the customer. It is not the firm trying to please the customer by these means. The problem definition is hereby joint, just as the problem solving. The customer is allowed to co-construct the service

experience to suit her context, thereby the experience can vary and the experience is of one; co-constructing personalized experiences. Continuous dialogue also takes place instead of doing several market researches. Co-creation is about experiencing the business as consumers do in real time.

A new firm-customer interaction is also created based on this “new” concept of co-creation. It deals with quite the same interaction Payne et al. (2008) state. This interaction is the locus of co-creation of value and economic value extraction by the consumer and the firm. The co-creation experiences are hereby the basis of value. The firm, just as the consumer, acts as collaborator in co-creating value and competitor in extracting economic value. Table 1 presents the transformation of the relationship between firms and consumers.

From	To
One-way	Two-way
Firm to consumer	Consumer to firm
Controlled by firm	Consumer to consumer
Consumers are “prey”	Consumer can “hunt”
Choice = buy/not buy	Consumer wants to/can impose her view of choice
Firm segments and targets consumers; consumers must “fit into” firms’ offerings	Consumer wants to/is being empowered to co-construct a <i>personalized experience</i> around herself, with firm’s experience environment

Table 1: Transformation of the relationship between firms and consumers (Prahalad & Ramaswamy, 2005)

The market, between firm and consumer, also made a transformation; from the market as target towards the market as forum. Instead of using the market as target for a firm’s offerings it should be seen as a forum for co-creating experiences. The most important statements are hereby that the firm and the consumer converge; the relative “roles of the moment” cannot be predicted. Value is co-created at multiple points of interaction, which consumers and consumer communities can also initiate. The experience is thereby the brand, which is co-created and evolves with experiences. Concerning this experience, consumers expect a 360-degree view that is transparent and trust & stickiness emerge from experience outcomes. (Prahalad & Ramaswamy, 2005).

2.2 Effectuation

As might be concluded from the previous chapter, co-creation is a process/ way of thinking which can be used for the creation of new products and especially involves the relationship between a firm and its customers. Effectuation, as a way of thinking, demands this co-creation in its principles.

2.2.1 Effectuation versus causation

Effectuation as a form of co-creation is of great importance; the main article concerning effectuation is written by Sarasvathy (2001). Also the book; Effectuation: Elements of entrepreneurial expertise (2008), written by Sarasvathy is of great importance. As an introduction on this topic, this chapter will describe what effectuation consists of and how it differs from other theories.

Effectuation on contrary of causation, which lends on a logic of prediction, lends on the logic of control (Sarasvathy, 2001). “Causation processes take a particular effect as given and focus on selecting between means to create that effect. Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means.”(Sarasvathy, 2001, p. 245). The distinguishing characteristics are hereby the set of choices:

choosing between means to create a particular effect, versus choosing between many possible effects using a particular set of means. The causation model consists of many-to-one mappings versus effectuation models involving one-to-many mapping. According to the same article there is no better or more efficient theory. Different situations state for a different process; causation is hereby structured by a given goal, a set of alternative means or causes, constraints on possible means and criteria for selecting between these means. For effectuation this involves a given set of means, a set of effects or possible operationalization's of generalized aspirations, constraints on possible effects and criteria for selecting between the effects. To provide a complete oversight in the difference between causation and effectuation and what effectuation exactly is, the following table is provided;

Categories of Differentiation	Causation Processes	Effectuation Processes
Givens	Effect is given	Only some means or tools are given
Decision-making selection criteria	<ul style="list-style-type: none"> - Help choose between means to achieve the given effect - Selection criteria based on expected return - Effect dependent: Choice of means is driven by characteristics of the effect the decision maker wants to create and his or her knowledge of possible means 	<ul style="list-style-type: none"> - Help choose between possible effects that can be created with given means - Selection criteria based on affordable loss or acceptable risk - Actor dependent: Given specific means, choice of effect is driven by characteristics of the actor and his or her ability to discover and use contingencies
Competencies employed	Excellent at exploiting knowledge	Excellent at exploiting contingencies
Context of relevance	<ul style="list-style-type: none"> - More ubiquitous in nature - More useful in static, linear, and independent environments 	<ul style="list-style-type: none"> - More ubiquitous in human action - Explicit assumption of dynamic, nonlinear and ecological environments
Nature of unknowns	Focus on the predictable aspects of an uncertain future	Focus on the controllable aspects of an unpredictable future
Underlying logic	To the extent we can predict the future, we can control it	To the extent we can control the future, we do not need to predict it
Outcomes	Market share in existent markets through competitive strategies	New markets created through alliances and other cooperative strategies

Table 2: Contrasting Causation and Effectuation (Sarasvathy, 2001)

From this perspective effectuation applied to business means that to effectuate is a specific type of entrepreneurial action and is valuable for situations where the future is unknowable. Other important findings of the article written by Sarasvathy (2008), are that companies or people using effectuation generate constraint-satisfying solutions. The other way around, using causation, leads to optimal solutions.

Chandler, DeTienne, McKelvie & Mumford (2011) propose that effectuation is a formative construct composed of three independent sub dimensions, which are stated as experimentation, affordable

loss, flexibility and one sub-dimension, pre-commitments, that is shared with causation. Within their research is indicated that experimentation, affordable loss and flexibility are not part of causation and thus supports a general conceptualization of effectuation.

Chandler et al. (2011) also stated four key differences between causation and effectuation. The first difference is that effectuation concerns a focus on short-term experiments to identify business opportunities in an unpredictable future, whereas causation concerns predicting an uncertain future by defining the final objective up front. This again could be linked towards the underlying logic as Sarasvathy (2001) stated in table 2. Fisher (2012) furthermore stated that this experimentation could concern developing diverse variations of a product or service, different concerning how to sell and/or deliver a product or service or changing the product or service during the development of the venture.

The second difference between causation and effectuation is that effectuation focuses on projects where the loss in a worst-case scenario is affordable (affordable loss as also stated in the latter table). Causation on the other hand aims at the maximization of expected returns. Fisher (2012) also recognizes this factor; limiting the resources committed to the venture in to what could be lost within the venture.

Effectuation emphasizes on pre-commitment and strategic alliances to control an unpredictable future, as third difference, where causation uses business planning and competitive analyses to predict an uncertain future. Fisher (2012) also constructed this factor, of effectuators entering into agreements with customers, suppliers and other organizations, as important for effectuation. The final and fourth difference Chandler et al (2011) stated is that effectuation concerns exploiting environmental contingencies by remaining flexible. On the other hand causation concerns exploiting pre-existing capabilities and resources. Fisher (2012) stated this latter factor as flexibility. Meaning responding to unplanned opportunities, adapting to the resources on hand and avoid courses of action that restrict this flexibility.

2.2.2 The effectual cycle

From the point of which is clear what effectuation exactly is and what the differences are with causation, effectuation should be explained more briefly. Instead of studying entrepreneurship in a traditional way as a set of psychological characteristics or as a form of environmental structure as a network, Read & Sarasvathy (2005) propose the study of entrepreneurship as a form of expertise. Sarasvathy (2001) made an effectual cycle to illustrate the way effectuation could be used by entrepreneurs. The framework involved, from Sarasvathy (2008), is displayed on the next page, this is the same framework as used by Read & Sarasvathy (2005).

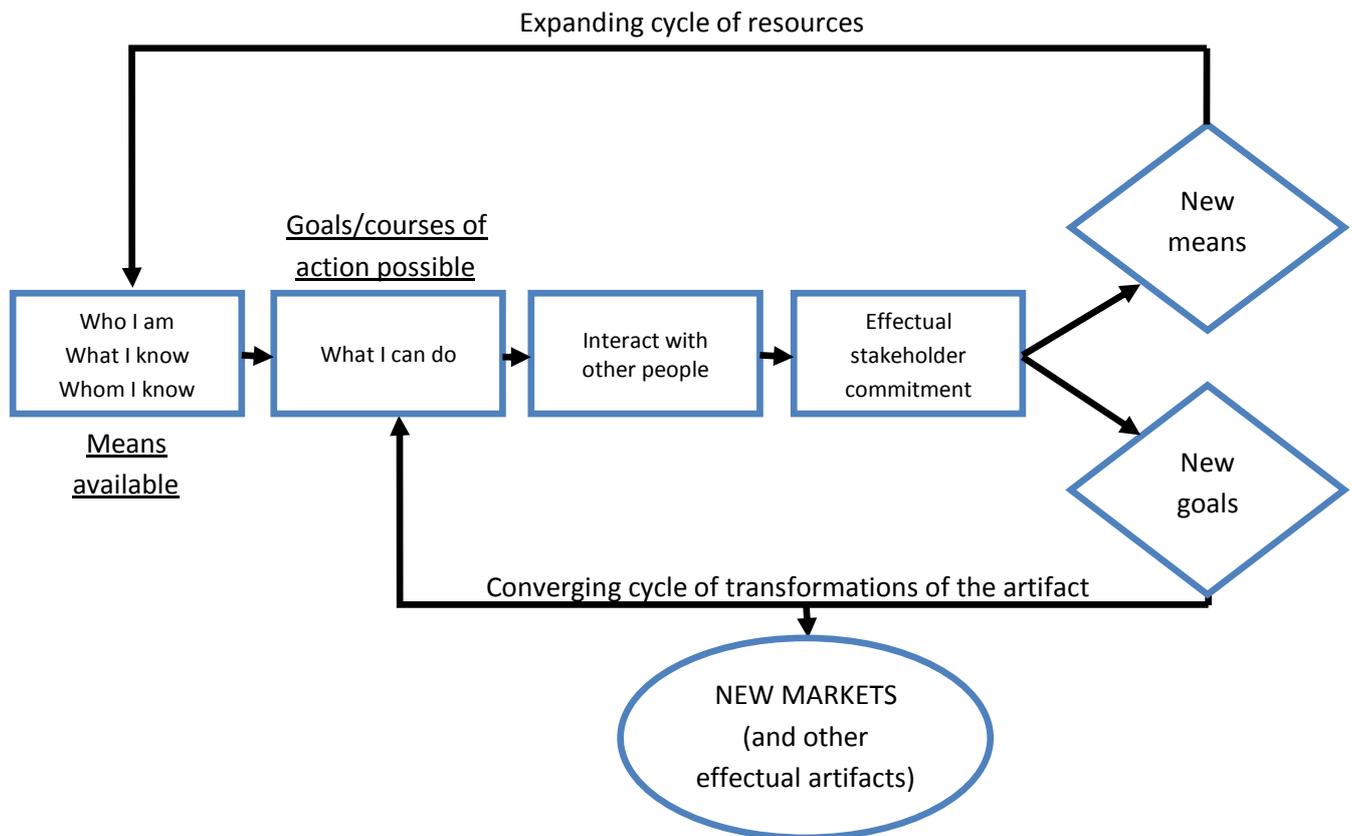


Figure 1: Dynamic model of effectuation, the effectual cycle (Sarasvathy, 2008)

The effectuators who use this model start with the available means. These means are the following; who I am, what I know and whom I know. These need to be clear and need to be mapped briefly. From these means the effectuators should start with writing down what they can do or what they can afford to do. Important hereby is that people they know should be contacted and pre-commitments have to be made to make sure the project is possible. Depending on who is on board within this process, a certain type of cycle should be set in motion. The first one should hereby be an expanding cycle. This will lead to an increase in the available resources to the venture, so new means of who I am, what I know, whom I know. The other cycle is aimed to create new goals. Certain constraints will loosen and new commitments will hereby help to increase the goal, what can I do? Through the process from what can I do until new means and new goals, the steps of interacting with people I know and obtaining stakeholder commitments are very important. Interactions drive the process of involving others to join in co-creation. Committed stakeholders will hereby influence the entrepreneur by creating the original idea into one that a whole network of stakeholders is committed to (Read & Sarasvathy, 2005).

Besides using effectuation as exploration, exploration and exploitation lie on the basis of effectuation (Venkataraman & Sarasvathy, 2001). It involves tension between the exploration of new possibilities and the exploitation of old certainties. This balancing is also crucial to the survival and sustenance of the organization.

2.2.3 The principles of effectuation

This effectual process, as described in the previous subchapter is based on five principles, as Sarasvathy (2008) describes.

The first principle is called bird-in-hand. This principle is based on designing possible effects using a particular set of means. Effectuators hereby start with determining their identity (who you are), their knowledge (what you know) and their network (whom you know), instead of what the goal is they want to achieve. Together the three means will form a basis to determine the resources.

When the effectuators have an overview of these means, more important is what to do with these means within the process. The prior knowledge and social network is already stated as important in previous literature. The identity however is quite new used at effectuation, this identity consists of preferences for particular processes or ways of living and deciding rather than particular consequences (Sarasvathy, 2008).

The second principle is the affordable-loss principle. The basis of this principle is not investing more than you want to risk. Effectuation begins with a determination of how much the effectuator is willing to lose and leveraging limited means in creative ways to generate new ends as well as new means. To make the comparison with causal models, these are focused on maximizing returns by selecting optimal strategies.

The estimate of the affordable loss does not depend on the venture or company, but from entrepreneur and across life stages and other circumstances. By using affordable loss instead of predicting the future benefits, the effectuator reduces his dependence on predictions. This affordable loss can be calculated by the financial condition and commitment of the effectuator, based on the worst case scenario (Sarasvathy, 2008).

The third principle, the crazy-quilt principle, is, together with the bird-in-hand principle, crucial for effectual logic. This principle emphasizes that inputs from stakeholders, who actually make commitments to the venture, should be taken into account without looking at opportunity costs as to possible stakeholders who may or may not come on board later. Effectuation hereby emphasizes alliances and pre-commitments from stakeholders as a way to reduce and/or eliminate uncertainty and establish entry barriers. So stakeholders are not chosen on the basis of preselected ventures or venture goals. But they allow stakeholders who make actual commitments to participate actively in shaping the enterprise. This principle matches quite well with the affordable-loss principle because it will lead to low levels of capital needed (Sarasvathy, 2008).

The fourth principle is called the lemonade principle, derived from the saying; When life gives you lemons, make lemonade. This involves the exploiting of surprises / the unexpected and using these within the process. These unexpected events should be used as useful additions and opportunities. This principle is very different from causal models; these models seek to either avoid the unexpected or to achieve established goals in spite of contingencies.

This principle is a very important principle for effectuation. The reason for this lies in the setting of goals. Goals are often loose settled at effectuators. By means of the unexpected these goals can be changed when contingent events occur. In this way uncertainty is a resource and a process instead of a disadvantage. So all in all this principle of effectuation is based on changing treating unexpected events into opportunity to exercise control of the future situation, which leads to next principle (Sarasvathy, 2008).

The fifth principle is called Pilot-in-the-plane principle. This principle is based on co-creating the future with things you control and this should be done with the partners you chose. Effectuation hereby focuses on the controllable aspects of an unpredictable future; To the extent the future can be controlled, the future does not need to be predicted. To again compare this with causal logic, causal logic focuses on the predictable aspects of an uncertain future; to the extent the future can be predicted, the future can be controlled.

As might arise from this principle, it is especially useful in areas where human action is the predominant factor for shaping the future. As Sarasvathy (2008) states, the pilot in the plane is often the window to unexpected opportunities, and the key to outliving disasters. This latter is based on a story of using an auto pilot, but you still have a pilot in case something happens (Sarasvathy, 2008).

2.3 Corporations and effectuation

From the general perspective of effectuation, a more detailed approach on corporate effectuation is needed. The following two sections concern the concept of corporate effectuation and the differences between small and large firms, which are related to effectuation.

2.3.1 Corporate effectuation

Within this first section of corporate effectuation first of all corporate entrepreneurship and corporate effectuation will be described. Furthermore the impact of corporate effectuation on R&D will be described, just as the organizational aspects relevant for corporate effectuation and a way to strategize these elements.

Entrepreneurship in organizations is driven by entrepreneurial actions. Entrepreneurship holds acts of creation, renewal or innovation that occur within or outside the organization. When these take place within an established firm, one can speak of corporate entrepreneurship. This kind of entrepreneurship is especially important in rapidly changing times concerning customer demand, societal values and technology. The broader strategy of a firm is the set of commitments and actions taken to develop and exploit a competitive advantage in the market. This competitive advantage is the result of an enduring value difference between the products (or services) of one organization and its competitors in the minds of customers. The companies which are able to exploit the competitive advantages they own at the current time, while also making decisions how to shape the advantages they intend to own and use in the future, increase the probability of their long-term survival, growth, and financial success (Kuratko, Ireland & Hornsby, 2001).

Indicators whether dimensions of effectuation, in contrary to causality, are seen as a success by large corporations are the R&D outcomes of a corporation. Besides the confirmation in earlier sections that effectuations helps controlling the future, a confirmation is also needed to indicate that effectuation is also valuable for large corporations and bureaucracies; corporate effectuation. A study of Brettel, Mauer, Engelen & Küpper (2010) adopts the lens of effectuation and causation and applies it to the corporate R&D context. Within this article they developed a research model which links four effectual dimensions and their causal counterparts in R&D projects to R&D project performance in terms of efficiency and output for different degrees of project innovativeness. The four dimensions are given in the table on the following page;

Dimension	Effectuation characteristics	Causation characteristics
Dimension 1: Means vs. Goals	R&D approach is driven by given means	R&D approach is driven by given project targets
Dimension 2: Affordable loss vs. Expected return	R&D approach is guided by advance commitments to what one is willing to lose	R&D approach is guided by expected project returns
Dimension 3: Partnerships vs. competitive market analysis	Uncertainty is reduced through partnerships and pre-commitments of self-selected stakeholders	Uncertainty is identified and avoided through market and competitor analyses
Dimension 4: Acknowledge the unexpected vs. overcome the unexpected.	Contingencies/surprises are seen as a source of opportunities	Contingencies/surprises are avoided or quickly overcome to reach given project targets

Table 3: Delineation of effectuation and causation in R&D context: key dimensions (Brettel et al., 2010)

Brettel et al. (2010) questioned R&D managers, present in their personal network or selected from the Bureau van Dijk database of European companies, about their most recent R&D projects. Findings of this research indicate that the effectual dimensions are inclined to be positively related to R&D performance when innovativeness is high. There is hereby a positive relationship between a preference for affordable loss and R&D efficient in projects with high innovativeness. This while mean-driven projects do not show a high R&D performance. Furthermore a preference for partnerships impacts the R&D output positively just as acknowledging the unexpected does. The causal dimensions as visible in table 3 show the performance drivers when innovativeness is low; goal-driven projects show high R&D output & efficiency, a preference for expected returns is positively linked to R&D efficiency and preference for overcoming the unexpected is positively related to both R&D output and efficiency.

Besides that this study suggests that different degrees of innovativeness require different R&D approaches, the study indicates that the application of effectual dimensions as stated above, can positively impact R&D performance when innovativeness is high. Another finding is that some effectual dimensions are already applied in the R&D context in a relatively high amount (Brettel et al., 2010).

As earlier mentioned the organizational aspects relevant for corporate effectuation are important to describe. On this topic of corporate effectuation a book is written in Dutch by Thomas Blekman. This book corporate effectuation; what managers can learn from entrepreneurs (Blekman, 2013) is a book describing how managers can become entrepreneurial. Based on the theory of Sarasvathy, the five principles of effectuation, the way to cope with challenges and how to create the future, are explained. Especially a bridge is created between the theory and practice of the theory. Examples are used from a department of Rabobank, Philips, Essent and more.

The scope of the book is very broad; based on all sorts of companies and managers. From top-management to regular employees at small non-governmental organizations until very large corporations, although this last aspect is underexposed. The added value of the book is hereby a quite simple and practical approach which is aimed to help managers coping with the theory. The book is thereby based on many examples and experience stories.

The book starts with explaining effectuation and the related principles, which are explained earlier within this chapter of theory. Furthermore corporate effectuation is matched with high performance organization, business modeling, reframing, granulation of innovation and more. The

latter chapter is thereby the most relevant; “the orchestration of corporate effectuation”. According to the experienced author of the book and Henri Mennens the orchestration of corporate effectuation is based on moving the mindset within an organization. This mindsets holds the attitudes and behavior and is the result of the transformation of certain aspects. Important hereby is that several of these aspects are also stated in the differences between small and large firms, within the next section. The organizational aspects are displayed below.

Aspect	Description of the subject
Top management support	Policies and budgets need to support the effectuators within the organization such as a positive mentality towards failure
Organizational structure	The organizational structure should provide a connection between effectuators
ICT systems	ICT systems should facilitate transparency, they should provide access to effectuators & insight on innovation and knowledge
People development	Development programs concerning skills, knowledge and attitudes, such as the 5 principles and the usage of work methods.
Other HR processes	Recognition of innovation, adjustments at assessment cycles, talent program and more
Other corporate processes	e.g. innovation- & communication policy, well paired advice processes, coordination within the corporate identity etc.
Working methods and tools	Developing standards to make working more effective & efficient
Integration into the operational processes	By means of approved work models; such as venturing and social business networking

Table 4: Orchestration of corporate effectuation (Blekman, 2013)

Although this book leads a bit towards the theoretical framework created earlier, this book is incomplete, because of the reason that it just creates some guidelines for the application of the effectual logic within large corporations and bureaucracies. The focus is mainly to help all different kind of employees/managers/owners with the phenomenon of effectuation and how this should be applied. In this way more information should be collected on how to apply the effectual logic at large corporations and bureaucracies. A more scientific approach is also desired; the book is very informative and operational and based on experience of several authors instead of scientific research.

Another article, concerning these organizational aspects and also corporate entrepreneurship strategy is written by Covin, Ireland & Kuratko (2009). This article presents a model of the antecedents, elements, and consequences of Corporate Entrepreneurship (CE) as an identifiable strategy. This figure is displayed on the next page.

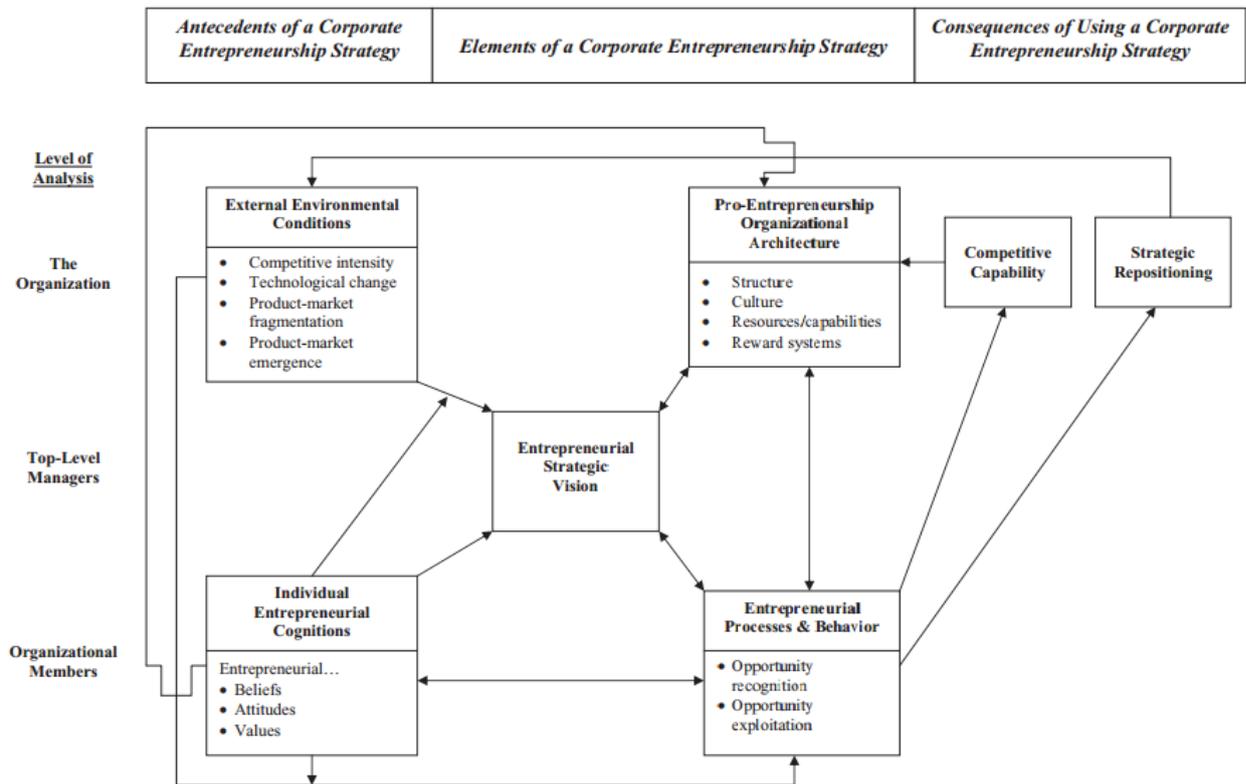


Figure 2: An Integrative Model of Corporate Entrepreneurship Strategy (Covin, Irealnd & Kuratko, 2009)

Within this model is visible that three levels of analysis are displayed; the organization as a whole, top-level managers and the organizational members. Furthermore horizontally the antecedents, elements and consequences of (using) a corporate entrepreneurship strategy are divided.

The organization as first, has antecedents, such as technology, competitive intensity and product-market- fragmentation and emergence, which by entrepreneurial strategic vision by top-managers will lead to a pro-entrepreneurship organizational architecture. This latter includes structure, culture, resources/capabilities and a reward system. These organizational aspects are hereby of great importance for corporate effectuation as earlier stated, by Brettel et al. (2010) and Blekman (2013). These elements again will lead to a competitive capability.

Also stated within the article of Covin et al. (2009) is that, for corporate entrepreneurship to operate as a strategy, it must run deep within organizations. This finding of the article relates to the earlier statement of the importance of top-management support for corporate effectuation. Top-level managers, as they are called in the article, form the bridge between the organization and organizational members and in this way are very important. However besides top-management, also management layers below need to play an important role. Also clearly visible in this figure is that opportunity recognition and exploitation is important on the level of organizational members. Concerning the effectual logic, this is also the case; based on the lemonade principle; Entrepreneurs should use opportunities/ the unexpected the best way they can. This latter part of the figure has a connection with the individual entrepreneurial cognitions, which exists of entrepreneurial beliefs, attitudes and values. As also described earlier, based on the book of Blekman (2013), is that the development of people plays an important part in implementing the effectual logic within large corporations and bureaucracies.

The support of individuals throughout the organization is also of great importance, which is also a confirmation of a statement earlier pronounced. This support or commitment deals with making corporate entrepreneurship strategy work and realizing personal and organizational entrepreneurial outcomes. Moreover alignments must be created in evaluation and reward systems (Covin, Ireland & Kuratko, 2009).

Summarizing this latter part, the organizational aspect relevant to corporate effectuation are presented in table 4. Additional aspects are the implementation of evaluation and reward systems, just as the overall management support instead of just top-management.

2.3.2 Differences between small and large firms related to effectuation

Besides existing theory on corporate effectuation, information is needed on the differences between small and large firms to be aware of concepts effecting the application of effectuation at large corporations in relation to small firms. Not all differences are needed to map, but only important aspects related to effectuation, co-creation and entrepreneurship. More in detail, differences in innovation output are important to describe. But first of all the difference between small and large firms in definition has to be described.

The definition of a large corporation and bureaucracy is broad and the definition is country specific determined. The distinction made in previous articles lies in the broad perspective. The distinction is thereby merely made to underline the problem between efficiency and creativity (Sarasvathy, 2000; Sarasvathy & Venkataraman, 2001). Large corporations & bureaucracies focus mainly on efficiency, while small firms have to cope with this less and can relatively be more creative. As Williamson (1975) confirms, headquarters of a large business firm advocate an efficiency perspective, which leads to limiting a more proactive entrepreneurial strategizing. According to the European Union (EU) the category of a company is determined by two factors, first of all the employees and either the turnover or balance sheet total. This determination is made in 2003. Concerning this categorization, a small company has fewer than 50 employees or either a turnover less than 10 million euro or a balance sheet total of less than 10 million euro. A medium-sized firm, the second categorization has less than 250 employees and either a turnover of less than 50 million euro or a balance sheet total of less than 43 million euro. A large company exceeds this amount of employees, or either the turnover of 50 million euro or a balance sheet total of 43 million (What is an SME?, n.d.).

As previous articles state that the distinction between a large corporation and a small firms lies in the difference of being more efficient and being more creative, effectuation could help large corporations and bureaucracies in being more creative, because this leads to be more efficient as well; using effectuation leads to more feedback at lower levels of investment, which enables failures to occur early (Venkataraman & Sarasvathy, 2000). Putting this into practice, product development will be more efficient, when this is developed by means of effectuation.

To state certain differences between small and large firms by means of innovation, the article of Acs & Audretsch (1998) provides useful and important information. This article presents a model suggesting that innovative output is influenced by R&D and market structure characteristics. Although this article is quite old in years, the findings are still of importance. The most important finding is hereby a positive relationship between the number of innovations and R&D; the R&D expenditure is closely related to the number of innovations. Another finding is that industry innovation tends to decrease as the level of concentrations rises. This finding is however not very relevant for the research of effectuation at large corporations, but it's important to keep in mind that

the market is also a factor, comparing large with small firms. Another finding, which is very important, is that unionization is negatively related to innovation activity. Skilled labor is also a variable which explains the degree of innovation. Skilled labor is thereby within this research statistically significant and shows almost the same effect as R&D expenditure. A final finding of this research is that innovation activity of small and large firms responds to considerably different technological and economic environments.

Another article, An integration of research findings of effects of firm size and market competition on product and process innovations (Damanpour, 2010), is also very important for the innovation differences between large and small firms; the firm size and the market competition are the independent variables compared with the dependent variables product and process innovations. The most important findings based on different articles will be explained in the following section.

The first findings are the reasons why small organizations have an advantage in comparison with large firms concerning innovations. Firstly small firms can innovate better because these have a more responsive climate for faster decisions making to go ahead with new and ambitious projects. This leads to more flexibility and a better timing. Furthermore small firms have less bureaucratic inertia and a more flexible structure, which leads to a better alignment with innovation. Finally small firms have a higher ability to adapt and improve and less difficulty in accepting and implementing changes (Damanpour, 2010)(Chandy & Tellis, 2000)(Dean, Brown & Bamford, 1998)(Nord & Tucker, 1987).

The article of Chandy & Tellis (2000) also answers the question why dominant and large firms maintain their innovative vigor despite the supposed liabilities of size and incumbency. Two answers are given; the first reason is by the dynamic organizational climate they find themselves in and the second is the technological capability the firms has. The first answer, the dynamic organizational climate of these large firms, is comparable with those of small firms; such character as decentralization and competition. The second answer, technological capability, concerns the response of the large firm. Incumbent firms with strong technological capability are likely to become aware of scientific breakthroughs at an early stage. Thanks to this awareness, investments can be made quickly in the right innovation instead of small firms, which lack such awareness (and possible financial capabilities, which will be described later on).

Just as small firms, the article of Damanpour (2010) describes the advantages large firms have, concerning innovation. First of all large organizations are more likely to be innovative because they have more financial and technical capabilities. This advantages, as just described as opportunity from the article of Chandy & Tellis (2000), forms one of the main advantages. Thanks to financial and technical capabilities, innovations can be developed and launched faster than without these sources. To make the innovations successful, the economies of scale to spread the risk of failure and absorb the costs of innovation is also of importance. Thereby large firms have a better ability to establish and maintain scientific facilities and resources to hire professional and skilled workers in diverse disciplines. Finally large firms also have the ability to raise capital and market the innovation better than small firms (Damanpour, 2010, p. 998)(Chandy & Tellis, 2000)(Hitt, Hoskisson & Ireland, 1990)(Nord & Tucker, 1987).

Chandy & Tellis (2000) state, concerning radical and incremental innovation, that small firms and non-incumbents introduce slightly more radical product innovations than large firms and incumbents. However this curve is not always the case, as in World War II large firms and incumbents introduce a majority of radical product innovations. (Chandy & Tellis, 2000).

This article (Chandy & Tellis, 2000), to head back to small firms, state that opportunities for

non-incumbents and smaller firms are based on the use of research spillovers and actively partnering with organizations with technological capabilities, just as financial resources. These opportunities lie in the advantages of large firms, but can be transferred to small firms. First of all, a small firm using the spillovers will lead to innovations as fast or a bit slower than large firms. This is mainly the fact because of the described advantage of flexibility and making quick adoptions. The second opportunity, using the technological capabilities and financial resources of large firms will lead to more capacity to develop the innovation.

Also important is that the diversification is limited in the firm, as is the case in many small firms. The reason for the fact that this diversification should be limited, is because of managerial support related to the process of innovating. Furthermore executives make trade-offs between strategic and financial controls (Hoskisson & Hitt, 1988). In more focused, less diversified firms, strategic controls are the primary means of control that are used. The other side is how more diversified, how more financial controls are used. Thereby reliance on formal behavioral controls increases in large firms, while for small this is on informal and procedural controls (Mintzberg, 1979).

Schumpeter's article (1961) stated that large firms are more innovative than small firms. The reason for this is that large firms often have more sustained and efficient R&D programs compared with small firms. Furthermore he argued that economies of scale in R&D allowed large firms to be more efficient in the development of innovation. Other reasons are that researchers in large firms have better connections and colleagues with whom to interact. Hereby specialization might play a big role. Finally Schumpeter stated that large firms have more ability to exploit innovative ideas and that large firms should be able to assume greater levels of risk in comparison.

While each theory has received empirical support, the overall findings tip a positive rather than a negative relationship between size and innovation, the article of Damanpour (1998) concludes. "A meta-analytical review of 36 correlations from 20 empirical studies found a mean correlation of 0.32 ($p < 0.05$) between size and innovation" (Damanpour, 1998, p. 384). The article of Damanpour (2010) further states that a more recent and larger analysis from 53 studies found a smaller yet statically significant mean correlation between size and innovation ($r = 0.15$, $p < 0.05$).

As further presented in this theoretical framework it is clear that being a small or large firm has its own advantages and disadvantages. To summarize this; small firms have a more responsive climate, are more flexible, have a better timing, have a better alignment with innovating and have a higher ability to adapt and improve and have less difficulty in accepting and implementing changes. Large firms on the other hand have the following advantages; financial and technical capabilities, such as R&D budget, economies of scale to spread the risk of failure, have a better ability to establish and maintain scientific facilities and resources to hire professional and skilled workers in diverse disciplines. Table 5, on the next page, displays these advantages just as disadvantages of small firms and large corporations and bureaucracies.

Subject	Small firms	LC's & Bureaucracies
Responsive climate	+	-
Flexibility	+	-
Time to the market	+	-
Alignment with innovation	+	-
Ability to adapt and improve changes	+	-
Accepting and implementing changes	+	-
Financial- and technical capabilities	-	+
Spread on risk of failure	-	+
Scientific facilities	-	+
Labor	-	+

Table 5: Differences between small firms and large corporations & bureaucracies

Besides innovation, entrepreneurship is of great importance comparing small firms with large corporations and bureaucracies. The importance lies, making a bridge with the latter part, in the fact that the entrepreneur is the source of all economic change and is identified as the innovator (Schumpeter, 2000).

Schumpeter thereby made a distinction between Schumpeter Mark I and Schumpeter Mark II. This difference might be based on a difference in the organization of innovative activities (Malerba, 2005). Mark I can hereby be characterized as creative destruction. The technological ease of entry, a major role played by entrepreneurs and new firms in innovative activities are elements of this creative destruction. Schumpeter Mark II on the other hand can be characterized as creative accumulation with the prevalence of large established firms, a stable core of innovators and the presence of barriers to entry for new innovators.

High technological opportunities, low appropriability and low cumulateness conditions and a limited role of generic knowledge lead to the first distinction; Schumpeter Mark I. On the other hand high appropriability, high cumulateness conditions and a generic knowledge base lead to the latter, Schumpeter Mark II (Malerba & Orsenigo, 1997). This distinction made is of importance looking at the difference between small and large firms as large firms focus more often on the Schumpeter Mark II regime.

Concluding this subchapter of differences between small and large firms, related to effectuation, many differences are mapped. Especially differences from the perspective of innovation. The next subchapter will concern the concept of near-decomposability in relation to effectuation.

2.4 Near-decomposability and effectuation

Near-decomposability is an important feature of the architecture of the complex systems that we find in the world, both inorganic and organic, ranging from elementary particles to social systems (Simon, 1996). The statement hereby is that a complex system is nearly decomposable if it is compromised by a number of interconnected subsystems in such way that elements within any particular subsystem interact much more vigorously and rapidly with each other than do elements belonging to different subsystems.

The reason why this feature is of importance is because of the fact that by dividing the organizations in interconnected subsystems, less time is needed for certain projects to be completed

and less costs are involved. Several scientific articles also state the importance of near-decomposability in relation to effectuation. Venkataraman (1989) used the idea of near-decomposability to explain the ability of entrepreneurs to create stable forms as a condition for longer-term survival. Besides this effect on longer-term survival, near-decomposability also leads towards the ability of entrepreneurs to fulfill their original aspirations.

Sarasvathy & Simon (2000) stated that near-decomposability is a necessary condition for quick response to opportunity, which is especially relevant for effectuation by means of the lemonade principle, but also overall for the model of effectuation. Even more important Sarasvathy & Venkataraman (2001) state that effectuation, combined with the near-decomposable systems it creates, can explain firm performance. This conclusion hereby derives from the statement that while effectuation stitches together entrepreneurial pieces into economic quilts that continue to make sense in an interactive and dynamically changing environment, near-decomposability identifies lines of “tearing” so that pieces can be reworked in synchrony with the overall pattern imposed by the environmental change. Another important statement found in the literature is that nearly decomposable systems are very good at both dealing with the limitations of the inner environment as the changing complexities of the outer environment (Sarasvathy, 2003). This latter attribute is connected with effectuation, because effectuation has to deal with both of these environments. Furthermore the article of Sarasvathy (2003) stated that near-decomposability is an essential feature of enduring design. A final remark concerning the near-decomposability and effectuation is that the book of Thomas Blekman (2013), as described earlier, describes internal entrepreneurship as important to apply effectuation at corporations. This can also be seen as interconnected subsystems.

Effectuation also creates nearly decomposable artifacts by itself. Starting from offering a product or service to one customer, this first configuration will change the means available and will lead to more knowledge, an enlarging network and a reinforced identity. Throughout the further process, the effectuator will seek new mission statements, new business plans etc. in a broader context. While building these up the process will reduce costs of failures and allows success to accumulate, learning to occur etc. Firms can thereby not be completely decomposable or 100% modular, if they ought to have a strong identity that inspires loyalty and trust with intern stakeholders. But they need to be decomposable, so (negative) feedback from different stakeholders can be incorporated to re-work parts of the firm as it grows and endures in the marketplace. Thanks to this opportunity; advantages of both interdependence and independence, that firms can evolve faster and endure longer. (Sarasvathy, 2003)

The summary is hereby that both effectuation and near-decomposability exploit loyalty and contingency. Effectuation thereby collects pieces of entrepreneurial outcome and transforms this in economic quilts that continue to make sense in an interactive and dynamically changing environment. Near-decomposability does quite the same in the way of tearing pieces, so that these can be re-worked in line with the overall pattern (based on the environment). As the article states, these two together can be the explanation for creation and growth of firms (Sarasvathy, 2003).

2.5 Critics on effectuation

Although there are many reviews on effectuation, there are not many critics on effectuation or the effectual model. However there is, for example, stated frequently that effectuation is mainly relevant for entrepreneurs (e.g. Perry, Chandler & Markova, 2011; Read, Song & Smit, 2009), but this is not really a critique for the model, because this model is especially made for entrepreneurs. The reason for the non-existence of much critique might result from the fact that the topic is not fully developed yet. However of course certain critics are stated in the literature, the following section will highlight these.

A first critique is that the affordable loss principle is not significantly related to new venture performance (Read et al., 2009). This research of Read et al. (2009) investigated whether means, partnership, affordable loss and leverage contingency have a positive relation towards venture performance. The results show that means- What I know, Who I am and Whom I know- significantly and positively relate to venture performance, just as partnership and leverage contingency, including willingness to modify products, customization, openness, organicity and transformational leadership style. The affordable loss principle, however, is not significantly related to new venture performance according to this research and actually has a negative influence. According to this article it is important to investigate more on how to measure this principle of affordable loss in relation to expected return (Read et al., 2009)

A second critique is the fact that making pre-commitments is relevant for both effectuation and causation processes and by these means is not a differentiator comparing effectuation with causation (Chandler, DeTienne & McKelvie, 2011; Fisher, 2012). Chandler et al. (2011) wrote an article concerning a validation study on causation and effectuation processes. Besides the overall recognition of both causation and effectuation as alternative new venture creation processes by entrepreneurs, a more important finding is that making pre-commitments is relevant for both effectuation and causation processes. They hereby state that the difference is not that effectuation emphasizes on pre-commitment and strategic alliances to control an unpredictable future and causation uses business planning and competitive analyses to predict an uncertain future, but that for both causation and effectuation pre-commitments are relevant. Fisher (2012) also stated in the theory part, derived from Sarasvathy (2001) and Chandler et al (2011), that making pre-commitment is a differentiator of effectuation in comparison with causation. However this articles stated at the end that this isn't really true. The data in the research of Fisher (2012) did not indicate that these pre-commitments were used to reduce uncertainty. Furthermore Chandler et al. (2011) stated that this dimension is shared with the causation construction, meaning that these pre-commitments were used in both constructions.

Another critique, stated by Kraaijenbrink (2012) is that the comparison of the two models, causation and effectuation is an oversimplification. This article both forms an appreciation and a reflection on the work of Sarasvathy. It gives a suggestion that a more productive approach can be created when the six dimensions, given in the table on the next page, are independent and therefore that it is more fruitful to focus on these instead of the two models.

Dimension	Causation model (teleological)	Effectuation model (pragmatist)
Starting point	Ends are given	Means are given
Assumptions on future	Predictability means controllability	Controllability reduces need to predict
Predisposition towards risk	Expected return	Affordable loss
Appropriate for	Existing products and markets	New products and markets
Attitude toward outside firms	Competition	Cooperation
Type of model	Linear	Cyclical

Table 6: Comparison of the causation and effectuation model (Kraaijenbrink, 2012)

A final critique, argued by Brettel et al (2010), is that control can be actively built using effectual elements, such as starting the process based on individual means and competences. This is a contradiction on the existing framework, which deals with uncertainty by recommending quick adoptions to unforeseen circumstances and developments. Kraaijenbrink (2012) also acknowledges this critique and stated that to develop a more productive approach, a pragmatist view on entrepreneurship is more fruitful when it is not applied at the level of the entrepreneurial process but at the level of the underlying human actions. This latter is based on Joas' theorizing as a pragmatist basis; all creative human action is characterized by situatedness, corporeality and sociality. (Kraaijenbrink, 2012).

2.6 Radical versus incremental product innovation

Answering the main question; what is an effective way to apply the effectual logic within large corporations and bureaucracies to create new products, a chapter of theory is provided to explain the differences between radical and incremental innovation. The reason for this fact is that product creation can be seen in two ways; creating entirely new products or creating partially new products. The difference in these two types of innovation processes might affect the application of the effectual logic at large corporations and bureaucracies, as Chandy & Tellis (2000) argued that small firms slightly develop more radical product innovation and Brettel et al. (2010) argue that the level of innovativeness influences the desired principles of these innovation processes.

A radical product innovation is a new product that incorporates a substantially different core technology and provides higher product benefits relative to previous products in the industry (Chandy & Tellis, 1998). These innovations furthermore serve as the basis for future products (Christensen, 2012). According to Lassen, Gertsen & Riis (2006), terms as 'disruptive', 'radical', 'non-linear', 'discontinuous', 'breakthrough' and 'paradigm-shifting' have all been used to describe the breaking away from the customary, creating entirely new possibilities and growth.

Incremental innovations on the other hand, involves relatively minor changes in technology and provide relatively low incremental customer benefits per dollar (Chandy & Tellis, 1998). This type of innovation is critical to sustain and enhance shares in mainstream markets (Baden-Fuller & Pitt (1996). The focus of this type of research is on improving existing products to satisfy new and changing customer demands (Bessant, 2003).

These two types of product innovation are important for established firms. Although a common perception is that in the field of innovation incumbent firms rarely introduce radical product innovations. These firms tend to solidify their market positions with relatively incremental innovations (Chandy & Tellis, 2000). Radical innovation however is an important driver of growth,

success and wealth of firms. (Tellis, Prabhu & Chandu, 2009). Important, concerning these two types of innovation, is that these two types also require a different management, due to several reasons, such as uncertainty and dynamics of the innovation cycle of radical innovation (Leifer, O'Connor & Rice, 2001).

3. Research method

3.1 Type of research

The overall type of research which was conducted is an exploratory research. This type of research is typically conducted when a researcher examines a new interest or when the subject of the study itself is relatively new (Babbie, 2010). In this case the topic, effectuation at large corporations and bureaucracies, is, as already pronounced, quite new in a way that the developed effectuation model fits at smaller firms and (individual-) entrepreneurs, but might miss the fit when applying it at large corporations & bureaucracies. Looking at the further content of this research, it is a case study in the way that representativeness is a minor point. A case study focuses attention on a single instance of some social phenomenon. The chief purpose of case studies may be descriptive or the in-depth study of a particular case can yield explanatory insights (Babbie, 2010). So as already said this case-study focuses on explanatory insights.

The unit of analysis of this research is an organization: Rabobank. Rabobank group is an international financial service provider founded on cooperative principles, which is rooted in the Netherlands. This bank is active in the fields of banking, asset management, leasing, insurance and real estate. Rabobank is a cooperative bank, and exists of 136 independent local banks with a central organization called Rabobank Nederland. Rabobank "Nederland" supports, facilitates and advises the local banks on basis of marketing and the development of new products (Rabobank Nederland, n.d.). Besides this central organization focused on the Netherlands, Rabobank also has an international organization within the group; Rabobank International. The focus of Rabobank International is mainly on international business and private banking, with a focus on food & agriculture customers. (Rabobank International, n.d.). The entire Rabobank group is active in 47 countries, employs 61.000 fte and serves around 10 million customers (Rabobank Nederland, n.d.).

Rabobank is, within this research, a representation of large corporations and bureaucracies. Individuals working for Rabobank were hereby interviewed. Keeping in mind that this bank is quite large in employees and departments, differences might rise within the segments or departments of different types of products. More specific the individuals being interviewed, are individuals working for Rabobank involved with product creation. Thanks to an existing connection with Rabobank, a starting point is created. From here on new individuals of Rabobank need to be found, who want to be interviewed, by means of "networking". This sampling technique used is snowball sampling. "In snowball sampling, the researcher collects data on the few members of the target population he or she can locate, then asks those individuals to provide the information needed to locate other members of that population whom they happen to know" (Babbie, 2010, page 193). The aim is to interview individuals in depth; several interviews within one project group, but also among project groups. The numbers of persons needed to interview is difficult to define beforehand. This amount depends on the differences in the collected information and the level of new information along the interview.

Further defining the conducted research, considering the time-element, the research is a cross-sectional study; a cross-sectional study involves observations of a sample of a population or phenomenon that are made at one point in time (Babbie, 2010). The time element however might be of importance, because changes can be applied in existing ways of creating products. However this might be the case within different departments and the goal is eventually not to describe the way Rabobank has implemented the effectual logic, but an effective way for large corporations and bureaucracies to apply this effectual logic. In this way the time element does not really affect the research.

The overall type of research is a qualitative research, as pronounced earlier. The reason for this type is especially the match with the exploratory research setup. Because of the fact that the topic of effectuation at large corporations and bureaucracies needs to be explored, propositions can't be tested and valued, just as other quantitative methods.

The advantage of qualitative research, is that using this type of research does not really remark subject and situation related statements, such as insight in the perspectives of the participants and their diversity (Flick, 2009). Another advantage of doing qualitative research is that this kind of research provides flexibility for the researcher and the research itself, just as it provides a variety of approaches and methods (Flick, 2009). The appropriateness of methods and theories is hereby based on the goal, not to test what is already known; for example not testing hypothesis, but to discover and develop the new and to develop empirically grounded theories (Flick, 2009). The other side of the coin is that in this way the validity of the study is assessed with reference to the object under study and does not exclusively follow abstract academic criteria of science as in quantitative research (Flick, 2009). A final statement concerns that qualitative research has to do with a variety of perspectives on the object and starts from the subjective meanings to it. These researches study participants' knowledge and practices. Furthermore interrelations are described in the context of the case and explained in relation to it.

Besides this broad definition of the type of research, this chapter continues with the method of data collection, the operationalization, the sample and the method of analyzing these data.

3.2 Method of data collection

As earlier mentioned, a qualitative research is conducted, more specifically, the research is done by means of a qualitative interview. The reason for this choice of method lies in the type of research, which is an exploratory research. Due to the fact that before the research only certain assumptions could be made, more qualitative information is needed, which is difficult to collect by using other kinds of methods. Conducting an interview also gives the opportunity to ask for clarification for certain statements, which is not possible when sending out a survey. Also the validity is quite high compared with survey and experimental measurements (Babbie, 2010). Other advantages of this kind of research involve the flexibility and the inexpensiveness of this method.

According to Babbie (2010), a qualitative interview is an interaction between the interviewer and a respondent in which the interviewer has a general plan of inquiry. This plan incurs topics involved, but not a set of questions that must be asked with particular words and in a certain order. This leads to a smoothly, flexible and natural approach of the interviewer. Essentially this sort of interview is a conversation whereby the interviewer establishes a general direction for the conversation and pursues specific topics raised by the respondent. Of importance is thereby that

questions are not biased in the way they are asked. This will lead to non-desirable answers by the respondent.

Based on these guidelines the interviews are set up as flexible conversations based on global topics, which will be further highlighted at the next chapter, operationalization. Based on a broad line of starting with the current way of product development towards the effectual logic and the application of this latter, the interview is structured. The first interview was thereby scheduled as a “pilot” to find out how long one interview would take, making sure all information is collected. The estimated time one interview took, is thereby around 60 minutes. A final aspect of these qualitative interviews is that snowball sampling is used, as previously explained; interviewees were asked who should be interviewed next, concerning this topic.

Qualitative field research, also has a weaknesses, which is important to keep in mind. This weakness is that the data collected is not appropriate for arriving at statistical descriptions of a large population. In other words, the reliability for all large corporations and bureaucracies is (quite) low.

3.3 Operationalization

As already said, information was retrieved by means of an interview. The questions asked are broadly described in the appendix. The reason for the fact that these questions are broadly described lies in the fact that during the interview, other questions could be more important to receive the right information. The operationalization and basis of these questions is described below.

To firstly know what the function and background is of the person being interviewed, certain questions will be asked. The name of the person being interviewed is already clear before the person will be interviewed, but the function will be the identifier. What is relevant to ask is his or her function at Rabobank. In this way, might already be clear why this person is relevant concerning this research. To know more about this person, other information should be retrieved; for how long the person is already working within this function and if the person already has other experience before this function with product creation involving customers at other bureaucracies or large corporations. The word co-creation will not be used when asking these questions because this might lead to a certain scope at the person being interviewed. Finishing this topic, to be more precise, questions need to be asked about how the person is exactly dealing with product creation processes. This global background is needed to find out how much the person knows about this process and what his or her perspective is concerning co-creation/product creation.

The next step concerns the topic on how product creation is used at the moment, assuming that this is the case at the moment. Quite precise information needs to be retrieved on how this is done at the moment within the company. Four steps are of quite importance in attaining this information, firstly it's important to know within how many and which processes the person being interviewed is involved. Furthermore it is of importance to know what these processes look like, how and how many customers are involved and finally what his or her motivation is to use product creation including interaction with customers.

Following up on the questions on how the process of product creation currently is performed, a reflection should be made by the person being interviewed. This is already quite valuable information for the research; where does the process go wrong and what are the solutions for this? Firstly it is important to know how successful the product creation process is; what is achieved in the past and what do you think this process will achieve in the future? The next topic is on which problems occur in the steps mentioned at the current process, but also about the results;

do you have the results you wanted? Based on these problems the person being interviewed is asked to provide possible solutions. To head on with making the process better or more efficient, the person is asked to give solutions to upgrade the product creation process.

From this point the interview heads towards effectuation. It must be clear whether the person being interviewed already is familiar with this concept of effectuation. If this is not or not entirely clear, a brief description will be given on the concept of effectuation, based on displaying figure 1, which is the figure displaying the effectual cycle, and the five principles of effectuation.

When the interviewee is familiar with this process of effectuation, his or her opinion is needed to see whether this process is applicable to the product creation process of large corporations or bureaucracies, such as Rabobank. To head more in detail, every step will be discussed and in this way will be visible which steps are good as they are and which steps lead to problems. The steps are based on the resources available, the possibilities with these resources, the interaction and finally the stakeholder commitment as stated in the theory. From this point on the principles will be discussed; the bird-in-hand principle, the affordable-loss principle, the crazy-guilt principle, the lemonade principle and the pilot-in-the-plane principle. Important with these principles is whether they can be applied and how this application should take place within a large corporation such as Rabobank. When problems occur concerning the steps or concerning the principles, the respondent will be asked to provide possible solutions and first of all his vision on the problem. This is hereby also the main point of the research; What is an effective way, based on a case of Rabobank, to apply the effectual logic within large corporations and bureaucracies to create new products?

Another bridge between the theory and operationalization is created on basis of the differences between large and small firms related to effectuation. As already pronounced, large firms have advantages on financial- and technological capabilities, better ability to spread risk of failure, better ability to establish and maintain scientific facilities and better resources to hire professional and skilled workers in diverse disciplines. The persons being interviewed are asked whether these advantages really are relevant and present within the organization. Due to these advantages the model could be adapted towards large corporations and bureaucracies.

The advantages of small firms are also of importance, because these might lead to problems concerning implementing the model; how should effectuation at large firms differ without these advantages? The advantages derived from the theory are presented in table 5 of the theory chapter. These advantages are being discussed in the interview by asking the relevance of these subjects and whether these really are different in a large corporation such as Rabobank. Besides these advantages, also other advantages and disadvantages of large firms and bureaucracies were asked. Thanks to this information again might become clear how the model should be adapted to large corporations and bureaucracies. When problems arise during this part of the interview, again is asked for solutions to solve these problems.

Near-decomposability is the next subject which needs to be discussed. This phenomenon might be of great importance when applying effectuation at large corporations or bureaucracies, as already stated in the theory. After a clear explanation of the concept, the question will be asked whether this helps applying effectuation and the argument behind this.

A final part of operationalization of the theory in the interview consists mainly of the theory of Blekman (2013). This theory is relevant because this leads to solutions on effectuation at large corporations and bureaucracies, which could follow up on the problems stated earlier. The table concerning the organizational aspects relevant to apply effectuation in large corporations and bureaucracies is presented in table 4 of the theory chapter. The interviewees were asked whether

these possible implementations are already implemented and whether these are desired to be implemented concerning effectuation at Rabobank.

Wrapping up the interview, the interviewees should be able to give some comments or additional information, which has not yet been a topic of the interview. Furthermore the interviewees were asked to give some advice to whom to talk to, to develop this research, which is part of snowball sampling as explained earlier.

The structure of this interview is displayed below, in table 7. The sections are described by topic and underlying subjects, just as the sources used to develop the questions.

Section	Topic	Subjects	Scientific sources
1.	Background	What is your background; Function/Involvement/Experience	-
2.	Current processes	How are you involved in product creation; which processes/description/how & how many customers are involved/motivation	-
3.	Reflection	How successful is this process; rate of success/problems/solutions	-
4.	Effectuation	Do you think effectuation in general is in place at the process of product creation at large corporations or bureaucracies such as Rabobank (including the effectual cycle)	Sarasvathy (2001) Sarasvathy (2008) Chandler et al. (2011) Sarasvathy & Read (2005)
		Do you already use the five principles of effectuation and would these principles be desired	Sarasvathy (2008)
		Which problems will arise when implementing the effectual logic at Rabobank, as an example of large corporations and bureaucracies?	Chandy & Tellis (2000) Damanpour (2010) Schumpeter (1961) Damanpour (1998) Mintzberg (1979) Malerba (2005)
		Does near-decomposability help applying effectuation at Rabobank?	Sarasvathy & Simon (2000) Sarasvathy (2003) Sarasvathy & Venkataraman (2001)
		Are the relevant organizational aspects applicable at Rabobank and would this help effectuation?	Brettel et al. (2010) Blekman (2013) Vocin et al. (2009)
5.	Wrapping up	Additional comments/ advice to whom to talk to	-

Table 7: Interview structure including scientific sources

3.4 Sample

Within this section the different kinds of collected data are described, with a special focus on the interviews. Following on this section the method of analyzing the collected data will be explained.

As already stated, employees of Rabobank were interviewed and information is collected by these means. These interviewees work first of all at various departments at Rabobank “Nederland” and Rabobank International. The difference between the two is explained at the introduction of this research, besides these differences however, there are several projects in which both organizations participate and in this way strive for the same goals by the same methods.

Besides working at different departments, the interviewees also have different functions within these organizations. For example project managers at different projects, but also several different stakeholders within the same project and product managers at various departments.

To show more in detail which employees were interviewed, their broad job description is given in table 8. The reason to not further give names or specific function is to use this information freely without the employee involved being disadvantaged.

Job title	Job function	Experience (years)
Project Manager eCommerce IT	Development & strategy	9
Project Manager SEPA	Initiating untill realization	3
Sr. Business Development Manager	Especially initiative taker	10
Project Manager Strategy & Innovation	Initiating untill realization	15
Advisor eCommerce	Initiating untill realization	3,5
Sr. Business analyst	Development of new services	2
Manager eCommerce	Especially incremental innovation	6
Innovator Group ICT	Idea/innovation management	7
Advisor eCommerce	Product development	3
Teamleader PM	Management & development	2,5
Product Manager	Product development	0,5
E-Product manager	New business development	1,5
Business Change Manager	Involved in incremental Innovation	5,5
Product Manager	Product idea, development & piloting	15
Product Manager	Especially initiative taker	6

Table 8: A table of the Interviewees involved

One aspects of this table, which is quite important, is that both employees were interviewed who are involved in radical innovations and employees who are involved in incremental innovation. As earlier pronounced for radical innovation effectuation is of great importance, while incremental innovation involves merely causality. Looking at the experience the interviewees have concerning product creation, the minimum is 0,5 years and reached up to 15 years with an average of 5.97 years.

A notion has to be made concerning the collected data. Not every interviewee had knowledge on all aspects of the interview. These aspects are because of this reason taken out of the interview from this person and not taking into account, because not having knowledge on a perspective is not seen as data. Especially concerning problems and theories on the application of

certain aspects of effectuation at large corporations and bureaucracies, interviewees had difficulties to provide an answer.

Besides interviewing employees at the Rabobank group, information is also collected by a presentation of the user experience (UX) centre of Rabobank, where the UX department explained how the product creation processes, they are involved in, work. A PowerPoint presentation is thereby the main source of data. Comparing this process with the effectual cycle will provide important information, especially concerning the current product creation process.

3.5 Method of analyzing the collected data

Once the data is collected, these results need to be analyzed. Analyzing qualitative data can be done in several ways. However qualitative data processing is as much art as science (Babbie, 2010). The reason behind this is that there are several methods how qualitative data can be analyzed; by coding the data, writing memos or mapping concepts graphically. However these methods are no real manuals, but starting points for finding order in qualitative data.

For this research is chosen to code qualitative data, which is the key process in the analysis of qualitative research. Coding is classifying or categorizing individual pieces of data. By doing this, information can be retrieved on specific topics. For example in this research what employees think of the principle of affordable loss. Furthermore you can by these means discover patterns in data and create theoretical understanding (Babbie, 2010). This process of coding within this research is done manually, although there is software available to help this process. However due to the non-experience with this software and the advice by Saldaña (2012) to code on hard-copy printouts at first, this process is done manually.

“Glaser & Strauss (1967) allow for the possibility of coding data for the purpose of testing hypotheses that have been generated by prior theory.” (Babbie, 2010 p.401). This research holds quite the same purpose. Especially concerning the involved problems, applying the broad effectual logic at large corporations and bureaucracies and the applications of organizational aspects. The codes are hereby suggested as variables.

Besides this form of coding, open coding will be used to identify other aspects. The main aspects hereby are the principles and whether the entire model is already in use, should be used and could be used at Rabobank as an example of a large corporation. This open coding is done by seeking to identify the key concepts of all answers and information given. From open coding, axial coding can be used to identify the core concepts. This involves a regrouping of the data, whereby the researcher looks for more analytic concepts. Finally selective coding is used to identify the central codes within the study. These should hereby arise from several axial codes, not just for example from one quotation (Babbie, 2010).

To give an indication of how this concept of coding is used, the coding of an aspect of top management support, positive mentality towards failure, will be highlighted. A part of the coding tree used is displayed in figure 3, with a focus on this topic of positive mentality towards failure.

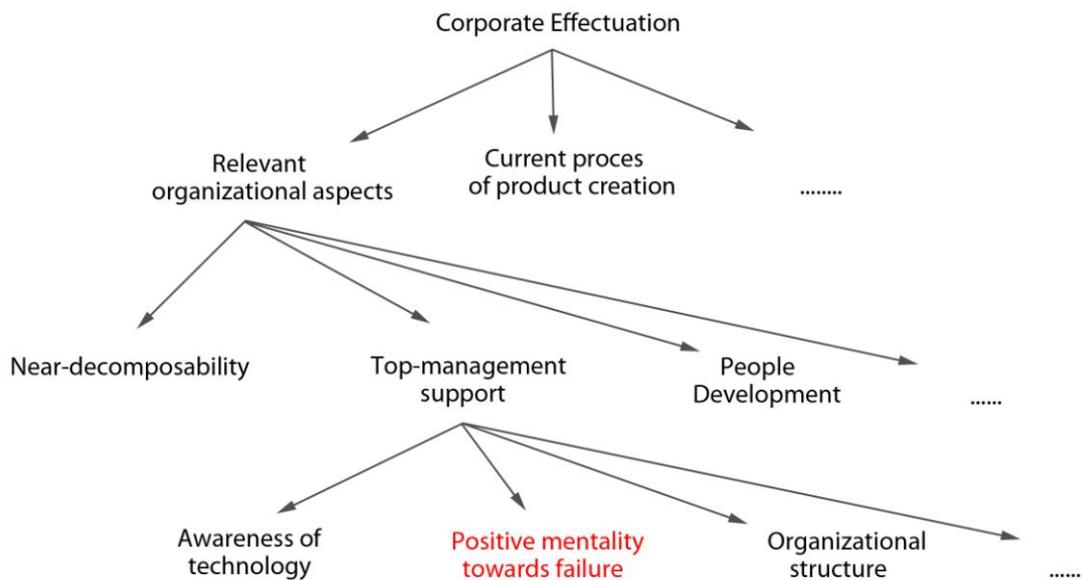


Figure 3: Coding tree of Positive mentality towards failure

Within this part of the research the interest lies in whether employees find this aspect relevant to apply corporate effectuation and whether this aspect is desirable. All passages related to this topic need to be coded as “positive mentality towards failure”. Although some sentences might be clearly related to this mentality, also concepts such as “afraid of making mistakes” are related to this code. In this way coding involves more than finding related words or sentences. Because of this fact, before the real process of coding the data starts, the keywords, relevant to the specific code, should be described. In this example these keywords are; (mentality of) failure(s), making mistakes, (afraid to) fail and (culture of) fear. When this scheme of coding is developed, all data needs to be coded according to the description of the codes. The next step involves collecting all data of the code “positive mentality towards failure” and presenting this information in the research. For this example the following sentences are coded as “positive mentality towards failure”. The keywords of this organizational aspect are boldfaced.

Failing is still seen as a **mistake**. The reputation of the bank is hereby of great importance. It’s hereby good and of importance to implement this support, however, these **mistakes** should be made on a small scale.

The **culture of making mistakes** should be implemented better at the organization. This should be an obligation. By these means one will improve and learn.

Making mistakes is a must, you will fail, learn and head on with your business

This **mentality towards failures** is going downwards, while this is necessary for the process

Employees will not be punished for **mistakes**, but are also not motivated to release new balloons and develop new businesses. This is not sportive, but it’s also difficult to implement.

Banks are not that good in **failures**, based on reputation and safety. Because of this fact the risks should be low. However this should be the case.

Employees are too **afraid of making mistakes**, but you have to learn from these. These employees are just making too few **mistakes**. You should show them that **mistakes** are important to make and to learn from these.

Employees are too **afraid to fail**, risks need to be described and discussed whether these should be taken. More mistakes need to happen, however, the **fear** is still measurable.

The **mentality of making mistakes** is decreasing, there use to be more space for doing this. **Making mistakes** is a must for innovation.

Within innovation this **mentality of failure** is present. Other employees should be shown that this **mentality** works and space should be provided to make mistakes.

Furthermore an analysis will take place to draw certain conclusions from the data. For this example the results are given at paragraph 4.4.2.

Concerning open coding, other relevant and frequent pieces of data will also be coded. Because certain concepts, which were stated quite frequently, might not be based on the theory, but might provide a very important understanding.

4. Results

Within this chapter the results of the research will be given. Concerning the five principles of effectuation will be discussed whether these principles are already applied at Rabobank and whether these principles fit at a large corporation or bureaucracy, such as Rabobank. Furthermore the results will be given on the question whether the effectual cycle could be applied at Rabobank. In this way the focus lies mainly on the steps involved instead of the principles.

To highlight the problems large corporations such as Rabobank face, compared with small firms, another subchapter is used to show these results. The subsequent part involves the organizational aspects relevant to effectuation; whether these are needed to implement according to the interviewees. At the end an interpretation and conclusion of these results will be given.

4.1 Principles of effectuation

4.1.1 *Bird-in-hand principle*

The bird-in-hand principle, as described earlier, is based on choosing between means to create a particular effect instead of designing possible effects using a particular set of means. The focus should hereby be on your identity, knowledge and network (who you are, what you know and whom you know) and by these means not what the goal is you want to achieve. Within the questionnaire the interviewees were asked whether they already use this principle and whether this principle should be used within the processes at Rabobank as an example of LC's and bureaucracies.

This principle is used by around one third of the interviewees. One employee stated; "It's easy to do and a good starting point to improve and develop something you already have". Many interviewees, the ones who use this principle and the ones who are not using this principle state that, at Rabobank, it depends on the project, sometimes they use this principle and sometimes they look at opportunities or gaps in the market. Some of these employees, do not use this principle at all, they focus mainly on the idea. One innovator states: "This principle is not used. You need to look where you want to go and then head back to your means, to see whether the goal is possible."

Regarding this principle several reasons were mentioned why this principle should be used. First of all, as interviewees state, are these means the leading factor; these determine what you're able to do and achieve. Furthermore interviewees state that these means are needed when you want to develop a vision and furthermore state that these means are of great importance. Others state thereby that this principle is a good starting point, when you want to develop some products you already have, but not when you want to develop an entire new product. At the end 8 interviewees out of 15 state that this principle is correct and should be used.

On the other hand several reasons were mentioned why this principle should not be used. The first reason is that you, as a large corporation, must look towards the most complete idea, reasoning from efficiency. Another reason is that you should look at the vision of the company instead of the means at the beginning of the process. The vision should state what you want to achieve. Heading on with his argument one interviewee states that this principle doesn't work because of legacy; "Because of legacy you should take a look at what you want and what you need to be, from there onwards looking at which means are useful." One other reason to not use this principle is that you should start by interacting with other people, as two interviewees state. You

should really take a look at what they want, otherwise your energy will be wasted.

To create a better understanding on this principle, the question should be whether this principle should be applied at incremental and radical innovation. Looking at just radical innovation two interviewees disagree on whether this principle is correct to apply or not. One states that these means are the leading factor at the beginning of the process and furthermore will the vision state what you can do with these means, so in this way this principle is correctly applied. The other disagrees in a way that the idea should really be the focus and after this idea you should take a look at who to hire and where to get the budget.

Looking at incremental innovation one states that first the vision should be ready before you can really build products. The vision should thereby be placed on top of the means within the model. Another employee states that it is quite important to look at the means available, but it should fit within the formula or the vision, which already is the case at the effectual cycle. Another interviewee says that using the bird-in-hand principle is easy to do; it's a good starting point for incremental innovation, but you will not get any further than tweaking something you already have. If you really want something new, you've got to ask the question; what do you know? How do the customers know they want it? The effectual cycle is therefore not suitable, according to the same interviewee. Also a handful other interviewees state that concerning existing products this principle is good to implement.

Most people made a statement on both radical and incremental innovation. Hereby one states that looking at the means doesn't really work. The reason behind this is that because of legacy you should take a look at what you want and what you need to be. From there onwards you should look at which means are useful. Others state that using this model works refreshing and that it is desirable and this does not happen (completely) at the moment. Concerning these means, another interviewee stated that time and means are needed, but need to be further developed by using input from stakeholders and others.

Overall, as one interviewee also defines, does it depend on the project whether this principle is used and should be used; sometimes they look to what the means available are (especially existing products) and sometimes market gaps / researches are involved and the starting point of the project. Especially employees involved in radical innovation look at where you want to go and then look back to the means you have available and whether these fit. The formula of the organization is thereby also taking into account.

4.1.2 Affordable-loss principle

The affordable-loss principle is based on not investing more than you want to risk. In this way effectuation starts with a determination of how much the effectuator is willing to lose instead of focusing on maximizing returns by selecting optimal strategies. The same questions are asked, as the previous principle; whether they already use this principle and whether this principle could and should be used within the processes of product creation at Rabobank as an example of LC's and bureaucracies.

Several interviewees state that they are using this principle once in a while. "The bank is too conservative and risk-avoiding" as an interviewee stated, explaining why this principle is not in use yet. Also is stated that a culture of anxiety is present; employees are afraid of making mistakes. Although is clear that this culture is wrong and people should learn from the mistakes they make, instead of being embarrassed on making these mistakes. Furthermore the support of the top management fits together with this reason. When the (top) management will put more effort in

supporting this principle, it can be implemented better and more quickly. A few employees also state that “the affordable loss principle matches our working method, but it has not been applied very well”. Interviewees thereby state that it is noticeable that the organization is heading towards a process more based on the affordable loss principle and because of the downscaling budgets, using this principle is getting more urgent. But still the question will be asked whether the business case was correct when a (affordable) loss happens. Thereby efficiency is still seen as a buffer towards using the affordable loss principle.

More than half of the interviewees state that using this principle is quite good to do. Around two third of the interviewees state that “the affordable loss needs to be applied on a small scale, concerning small investments.” Hereby you can test whether the proposition is correct, which you had in mind. This latter also leads back to the factor of experimentation.

Also several reasons were mentioned why this principle should not be used at Rabobank. The first reason is based on the reputation of a bank. Hereby it’s not suitable to take (high) risks and lose money, which is why making a business case might be better. The second reason is based on efficiency. Several employees state that making a business case is better for the efficiency of large corporations. By choosing between several business cases, the best will be applied and this is seen as efficient.

Making the same distinction as the previous subchapter between incremental and radical innovation it seems that looking at incremental innovation, making a business case is better, because costs are becoming more relevant, for example at the virtualization of particular services. In this way employees look at how you can save money. But thereby it is also difficult to see the costs of certain innovations; what is it worth?

For radical innovation the affordable loss principle is used more often. The reasoning behind this is because of the fact that you really do not know what the product will be worth. Thereby as previously said using affordable loss on a small scale can provide the solution.

From these statements the conclusion can be made that the affordable loss principle is not used very often. The focus lies mainly on what a project is worth in numbers, based on a business case. The argument to not use this principle is because of reasons, such as a risk-avoiding attitude, perceived efficiency and the risk involved at the reputation of the organization. Overall is also noticeable that the projects, whether based on the affordable loss principle or a business case, should be monitored better and that a project needs to be “unplugged” when it’s going in to the wrong direction, instead of going on with the particular project. Often heard is that it’s usual to put more money in the project when it doesn’t goes as scheduled than that it’s been plugged out. Thereby the preferences go out towards affordable loss, because this fits better with the just called statement, which more than halve of the employees, especially innovators agree with. Another option mentioned is to apply the affordable loss outside the firm; at spin-offs or buying other companies. In this way the reputation is not harmed and still this principle can lead to new products.

4.1.3 Crazy-Quilt principle

The crazy-quilt principle, as described in the theory, emphasizes that inputs from stakeholders, who actually make commitments to the venture should be taken into account, without looking at opportunity costs as to possible stakeholders who may or may not come on board later. This statement matches with forming alliances and pre-commitments with stakeholders to reduce uncertainty. Again the questions were asked whether this principle is already in use and whether this principle should be used at product development/creation processes at Rabobank.

The largest part of the interviewees state that the crazy quilt principle is sometimes applied at the beginning of the process and it very depends on the projects whether the principle is used, but they do not see this principle used very often. When the process heads on, it will become a more straight-line or linear process, because the uncertainty will decline building a product and sometimes you do have a timeline which you want to comply with. Especially small projects will work using this principle. Four interviewees state thereby that Agile is of great importance concerning this principle. Agile is a work method for flexible software development. Concerning the stakeholder change, this latter group, of employees who state that the crazy quilt principle is sometimes applied, state that the stakeholders internally are almost always settled, but that external stakeholders might change during the project. Others, around one out of three, state that this principle is not used at all. A steady partnership and developing a road map, before hand, is seen as normal. This especially has to do with the involvement of laws and rules, just as incremental innovation.

Several reasons were mentioned why this principle of crazy-quilt is desired within the processes of product creation. A first reason, according to several interviewees, is that this principle will lead to new insights and will show whether the proposition is the right one. Furthermore interviewees state that they see the importance, whereas one interviewee really believes in this principle; "Using a lean-startup and using the power of an organization is hereby very important. At innovation you need space to adapt; involving new stakeholders".

Others state that this principle cannot be used at Rabobank for particular processes. For example when laws and rules are involved, a crazy-quilt is not desirable and furthermore involving stakeholders, such as competitors, is not allowed due to market regulation. According to the same stakeholders a steady partnership is normal, so stakeholders don't change quite often. One interviewee underlines the importance; "It's easier to change writers than producers", which is relevant concerning changing suppliers.

Again looking at incremental innovation projects, this principle should not be applied, as employees state, just as in projects concerning new laws or rules. Perceived is that this is because of the fact that certain parts of the project are fixed; for incremental innovation, for example, the system and business plan. Concerning new rules and laws the project is also quite fixed, due to the specific desired outcomes. On the other hand concerning radical innovation, e.g. using lean startups, the crazy quilt principle should be applied, according to the interviewees involved with this kind of innovation. The reason behind this is based on not knowing how the project will work out. Back to the theory earlier stated, this leads to creating the unpredicted future.

To draw a conclusion, it is clear that the principle is not used very often, while more than two out of three of the respondents "believe" in this principle. The reason to not use this principle lies in the overall process and attitude towards this principle. Thereby, as already stated, this principle cannot be applied at every project, such as new laws or incremental innovation processes. Furthermore looking at the stakeholder change in the process, is perceived that the project is quite flexible, concerning external stakeholders. Although it does not happen quite often that stakeholders, such as the supplier, change during the process. Finally is perceived that using the crazy-quilt principle, also depends on the phase of the project. At the initiation/ pre-initiation phase this principle of crazy-quilt should be implemented in both kind of innovation processes, until a certain moment, because otherwise the demand changes or the gap in the market will disappear. "You need certain settle points in time, if you adjust continuously you will not achieve your goal".

4.1.4 Lemonade principle

The fourth principle, the lemonade principle, involves the exploiting of surprises or unexpected discoveries or –events and using these in the process instead of avoiding these. These unexpected events should be used as useful additions and opportunities, as explained earlier. Once again is asked whether this principle is already in use at Rabobank and whether this should be the case at Rabobank, as an example of LC's and bureaucracies.

Concerning this principle is said that this principle is not used the way it should be used; it should be used more and better according to three interviewees. Thereby one other states that this lemonade principle is applied in a quite good way, but not the best way. On the other hand two employees state that this principle is hardly noticeable. An example of this latter is an employee who stated; "The process is thrown in cement, from the business case on". The reason for this, as the interviewee states, is because of legacy. One other employee states that going into discussion is not something the bank likes; when you will go into discussion concerning these "lemons", which is possible, it will cost a lot of time and money. So most of the times these unexpected events need to be identified in front of the project and responses should be written down, when these events would occur. "Afterwards you'll get the question why you didn't or couldn't manage these lemons". Furthermore another interviewee stated that lemons are seen as "annoying". This is all based on the different demand of stakeholders, but overall every stakeholder knows that ignoring the opportunities will not lead to a better result. This employee uses these lemons the best as he can, but he also states that the rest of the organization is lagging concerning this principle.

A reason to implement this principle is that this principle helps to improve the success of the product. One employee states, concerning efficiency, that guidelines need to be created for how to cope with certain situations. But if it's possible to use them, you should use them. The same interviewee states that entrepreneurs should be able to make their own choices, so not be bothered by the entire organizations and its laws and rules. So although due to efficiency several guidelines are needed, he thinks entrepreneurs should be able to go their own way. Building upon the latter principle, crazy quilt, one interviewee states that the process of creating a product should not be designed in a way that changes can't be implemented. You should start small and act very flexible in the beginning; using this lemonade principle. At the end, however, it should be more straight-line and more risk-avoiding, as explained earlier.

Reasons to not implement this principle are not mentioned. Although one important statement is, related to the time-to-market, that you should use lemons within the process. But actually you have to reduce the time-to-market, because in this way the lemons can be used when you further develop the product and you will not be bother within the process.

Again a difference can be made between new products and stable/existing products (radical versus incremental innovation). Perceived by many interviewees is that this principle is used most and should be used at the process of developing new products and (a bit) less, but still quite often used at stable products. In the end not one interviewee stated that this principle should not be used and the overall attitude is that the employees should have their focus continuously on the market to be able to spot and use opportunities, where they can.

4.1.5 Pilot-in-the-plane principle

The fifth principle, the pilot-in-the-plane principle, is based on co-creating the future instead of predicting the future. According to effectuation, entrepreneurs should “co-create” the future with the things one controls and the partners one chooses; to the extent the future can be controlled, the future does not need to be predicted. The interviewees were asked whether Rabobank deals according to this principle in the process of product creation and whether they could and should use this principle.

Several employees state that this principle is not applicable or just on a few small examples. The reason behind this is especially based on laws and rules which are imposed. Thereby is cooperating with partners and competitors quite difficult as two interviewees state. You can't simply partner up with competitors because of the agreed rules concerning competition (AFM), as also explained earlier at the principle of crazy quilt. Thereby because of the time-to-market it's difficult to be the pilot in the plane; “there are examples of creating the future”, as one employee states, “but most of the time it's not even based on the future; when a gap is spotted, two years later the gap will be filled, but the demand might be entirely different by then.” Although interviewing real innovators at Rabobank, became clear that Rabobank still acts by the pilot-in-the-plane principle, but that, during the last years, because of the crisis and other factors, this principle partly faded away. “Previously we made the future, although the few past years not any more. This had to do with old bankers who did not go with the market.” However, this employee also stated that at the moment Rabobank is busy to be or become the pilot in the plane. Hereby better support from the top is perceived and more money is invested in innovation, e.g. innovation days. Examples of being a pilot in the plane are hereby My Order, Minitix and Omnikassa. These latter examples are also recognized by other innovators, who agree upon the overall statement that this principle is still (partly) in use. One innovator stated hereby that entrepreneurs within the company are “steering the big tanker by small speed boats”.

Less than half of the interviewees, especially innovators, state that you should act by the pilot-in-the-plane principle by innovating more and taking more risks. “We should make the trend, instead of following the future”. An option, according to several employees, is also to buy small companies and to be innovative outside the borders of the organization, instead of within the organization.

Others, however, state that on behalf of the reputation of the bank, just as the role of trust, Rabobank can't be pilot in the plane; you can't play with this reputation of the bank. Besides this fact the laws and rules involved at the financial sector will obstruct the principle. Several interviewees do admit that within the Netherlands, Rabobank might become pilot in the plane, but international this can't the case.

Concluding the latter results, is quite clear that there is no consensus at the interviewees on whether Rabobank acts as a “pilot in the plane” and in this way creates the future instead of predicting it. Overall, as a quite majority states, is clear that Rabobank is not a real “pilot-in-the-plane” nor the opposite. There are several innovations which state that Rabobank is a pilot in the plane, but also many products which derive from existing trends, derived from competitors, technology, the international market or laws and regulations. Innovators hereby state that Rabobank should become a “pilot-in-the-plane” by innovating more and taking more risks within or outside the organization. On the other hand other interviewees state that this should not be the case, because of the laws and rules involved, just as the reputation and trust of the bank.

4.2 The effectual cycle

Besides the principles, also the entire model is presented to the interviewees, as stated earlier. Several principles such as bird-in-hand already explained the first two steps; the means available and the goals/courses of action possible. One final comment on these two steps concerns the difficulty Rabobank has at the moment; knowing whether a certain project will fit within the formula.

For the remaining parts of this model several interviewees state that this model is quite logically. Some even say that, without knowing, these steps are already applied and that this model is built upon common sense. In line with what previously is said, most employees state that besides the creation of new products, markets or firms, which is very specific, the other parts of the model are very important and also guide the process very well.

Concerning the step of interaction with people is said; “You need to interact with people and head back to the drawing board”; “You need to make a proof of concept and continuously improve this together with other people; stakeholders, customers, partners etc.” Another interviewee also states that the interaction is very important, but that this is difficult to achieve internally. He is always surprised, when he talks to a few random colleagues, how many other employees are also busy with the same sort of project or product. This stakeholder interaction should thereby also be the case at the initiating of the idea as this employee stated as solution on this problem. So when you look at the means or courses/actions possible; interaction with colleagues, customers and other key stakeholders should take place at the same time. “And when you eventually have a new product idea, you need commitment to really develop it.” Other interviewees agree with this employee on this aspect; One states that several mistakes were made in the past concerning the development of new products. Certain products were for example build, while the sales department didn’t want to sell these in the end. So these products didn’t make it to the market and were “destroyed”. Another example is that a certain product was developed, while the key performance indicators were irrelevant for the customer and these customers didn’t want to use it and in this way didn’t use it as expected. Besides the stated importance, it’s important to communicate with the real customer instead of indirect communication by means of another employee, as a few interviewees stated. In this way the degree of noise in communication will be minimized. A final statement one interviewee made is that you really need to check as often as you can how the suppliers are doing and whether they are going the right way. Even when a mock-up or proof of concept is made, they can still have other interpretations.

As a conclusion can be stated that the effectual cycle is already applied quite well, that the interviewees see the importance of the different aspects and that most interviewees think that the effectual cycle is quite obvious. However there still is a discussion about the order of these steps among a few interviewees.

As explained earlier, information about the product creation process, at Rabobank, is also collected from the user experience center. The process they describe starts with creating a discussion panel with employees from the development department, business department and UX department. Here the project is described, the requirements are written down just as the wishes from the business and customer. The next phase concerns a facilitated brainstorm session, for which a special development place is created with a creative atmosphere. Workshops, brainstorm sessions and other relevant activities can be facilitated within this specific “development square”. On basis of the findings derived from this phase in the project a concept is created. Most of the time these are still rough sketches. From these sketches a structure and navigation is build and eventually an interaction

design; the skeleton of the design. When this skeleton is ready, a prototype can be developed. This prototype should hereby be good enough to test with customers. This testing will be done at the UX lab. Testing will be done by means of interviews, by observing customers while they perform assignments and by a usability test. The overall goal is to test whether the proposition is correct and whether the products (new feature, app or platform) are created the way customers use it. Eventually the test will proceed with an evaluation and mapping of the bottlenecks within the project. The final step hereby is to optimize the design and improve the graphics.

Looking at the process of effectuation, this product creation process of Rabobank leads to the process of effectuation. Stakeholders in the bank map who I am, What I know & Whom I know. From here on a brainstorm session takes place to see what goals or courses of action are possible, which need to be formulated. The next step leads to the interaction with the people one knows; employees of Rabobank for internal products or external customers to develop products for this group of customers. Hereby is tested whether the customer suits the product and to see whether some changes need to be made. The UX lab will furthermore send a review of these activities to the project team. This project team most of the time uses this information to adapt the products.

This specialization leads in large corporations as Rabobank to efficiency. The UX center is thereby very complicated, large and technology intensive. By these means the experience is measured quite precise. This also leads to better work of the project teams.

4.3 Problems and opportunities to apply the effectual logic at large corporations

In the theory chapter, several problems and opportunities are stated related to applying the effectual logic at large corporations and bureaucracies. Several problems, stated by the interviewees, are hereby already mentioned at the description whether the principles should and could be applied at LC's and bureaucracies. Within this subchapter these problems, and also opportunities, are highlighted, based on information retrieved from the interviews, to identify structural differences between small firms/entrepreneurs and LC's & bureaucracies. These structural difference are important to identify the relevant organizational aspects to apply the effectual logic at LC's and bureaucracies, which are described in the next chapter.

The first problem large corporations and bureaucracies have, concerns flexibility. This problem is especially based on legacy, as interviewees state; existing customers and (quite old) systems concerning IT. These existing customers, the infrastructure around these customers and the underlying IT system leads to less flexibility in time and output concerning the development of new products. The time it takes to develop a new product is hereby longer and the output should be based on existing systems, as several interviewees indicate. Furthermore the flexibility is decreased because of the obligated tasks an employee has. Many interviewees state that the bank has (too) many other obligated (large) projects, for example based on new or upcoming laws and rules, that the flexibility is again decreased. Small companies on the other hand are hereby more flexible because they don't have (much) history and do not have to face market regulation nor other rules, large corporations have to comply with. On the other hand just a few interviewees state that although these small companies could be more flexible, a large corporation can also be flexible by having processes for certain projects and more and better means available. For example thanks to working methods such as Agile, this flexibility is composed. However much work has to be done to really implement Agile, at the moment this is just partly the case, as almost every employee agrees

with. A final problem large corporations as Rabobank face, concerning flexibility, is based on the large span of control; “bureaucracy is everywhere”.

The problem of time-to-market is the second problem discussed by the interviewees. A reason for this problem is because of the quality standard large corporation have, compared with small companies and entrepreneurs, as a few interviewees state. The latter can start from scratch without the risk of losing customers. An aspect which two third of the interviewees stated is that the communication is quite bad, which results in a longer time-to-market. This communication is meant as the communication between different departments within the organization. For example the communication between the business department and the IT department, when the IT has to develop a certain product, which the business has specified. The integration of existing customers also leads to a larger time-to-market, as it also leads to less flexibility. Another important reason for a larger time-to-market is because of the fact that employees need to convince people, who do not have any affection with the subject. These people concern budget holders or other important stakeholders of the project. In smaller organizations capital also need to be required, but most of the times these are financiers who know the business, so it's easier to get capital, one interviewee stated. Furthermore again the span of control leads to a larger time-to-market, just as the existing (old) systems and the law- and rules involved. These old systems lead to a low speed and to the fact that different systems are operative at Rabobank Nederland en Rabobank International, which on its turn leads to more (complex) work. Furthermore the decisiveness and mandate take too long considering the span of control. Procedures and guidelines are hereby also not focused on the time-to-market, but too much on security and providing the right direction.

Another problem, which you also can see as a advantage, is that it takes a lot of effort to get things done in the organization. “You need to be very motivated to achieve something, you need to fight to reach your goals” as one interviewee stated. Although sometimes this is good, because of the fact that certain bad ideas will not be implemented, most of the times the barrier is too high to get things done.

The next problem, stated by theory, is the acceptance of change by management and the adjustments involved. Although the support by top management, as later on will be discussed is not that good, accepting and making adjustments by management is perceived as quite good. This might be the case because this management stands closer to the operational part of the organization. The attitude towards innovation is hereby a bit less; later on at the relevant organizational aspects, will this be discussed in detail, but the management, especially the top management do not support innovation and entrepreneurship the way it should.

Another problem half of the interviewees state is that the business importance is too high. This statement is based on the fact that the customers do not have the focus they deserve and that the focus lies too much on the business the organization does. Existing- and new products just as (new-) laws and rules have too much focus, which should be shifted more towards the customers.

A final problem is the fact that large corporations are too complex, as several employees take Rabobank as an example. There are too many political issues, budget requests, governance, laws, customers et cetera. Certain project managers, for example, have a connection with a relation manager to ask the customer questions, there is too much consultation and the organization is too fragmented as interviewees state. According to the interviewees this leads to non-efficiency and standard high costs for projects, just as a larger time-to-market.

Besides problems, also advantages of LC's and bureaucracies are questioned. Financial and technical capabilities are according to most of the interviewees good enough. Just as the labor and

scientific facilities. The spread of risk of failure is also quite good according to most interviewees. This latter is however not the way it should be. Especially taking a loss is not really the case in practice. Based on the effort taken it seems quite difficult to unplug a project and to take a loss, so more money is used to make it successful. Thereby cannibalizing your business also forms resistance. As can be concluded, according to the interviewees, large corporations and bureaucracies face several big and small problems, compared with small firms. Especially flexibility and time-to-market are relevant, just as top management support and a complex system to operate in. To handle these problems, the next chapter will state organizational aspects, which help overcome these problems just as help to apply effectuation in large corporations and bureaucracies.

4.4 Relevant organizational aspects to apply effectuation at LC's & bureaucracies

As explained earlier in the theory chapter of this research, certain organizational aspects are important to apply effectuation at large corporations and bureaucracies on basis of Brettel et al. (2010), Blekman (2013) and others. These aspects were also presented to the interviewees to receive feedback on whether these aspect will help applying effectuation at large corporations and bureaucracies. Besides these, already described aspects, interviewees were also asked whether they have ideas or suggestions on other aspects. The answers of the employees are mainly based on the experience they have.

4.4.1 Near-decomposability

As explained earlier, near-decomposability might help applying the entrepreneurial attitude and in this way help applying the effectual logic at large corporations and bureaucracies. A complex system is hereby near-decomposable if it exists out of several connected subsystems.

Several employees mention that getting budget is quite difficult within the organization; there are many different stakeholders which you need to convince before you'll get the budget you need. The same applies for the distribution of responsibilities, or as you can call the span of control and decision making. By decomposing the organization, one can for example have the mandatory or a delegated responsibility by which a project can work more flexible, efficient and quickly. A real innovator states that near-decomposability helps, so the team can be self-steering. According to this interviewee there are not 10.000 entrepreneurs in the building, but there are around 250. If they get the space and are able to form a team by their own it will provide great results. At the moment this is already happening, but on a very small scale, for example just at several projects. One other employee states that this aspect helps, but that outside the organization the web is much larger and that this might be an obstructive factor for systems within a large corporation.

However the common sense of the interviewed employees at Rabobank is that near-decomposability helps the application of effectuation, especially on basis of budget and the spread of responsibilities.

4.4.2 Top management support

The (top) management support concerns policies and budgets needed to support the effectuators within the organization, such as a positive mentality towards failure. "When you really want to go for something and achieve something this support is a key factor", one employee states. This

management support can be divided in several aspects. As earlier mentioned at the affordable-loss principle, the mentality towards failures is one of these aspects. At the moment employees are too afraid to make mistakes and make too few mistakes, while you need to make mistakes to learn from them, as all innovators state. "Making mistakes is a must, you will fail, learn and head on with your business". Risks need to be described and taken and check whether the customer agrees with the proposition, by reflecting on this. Still these mistakes should happen on a small scale, because of the reputation of the bank, as almost all employees state. One other employee sees this situation quite different. His opinion is that employees will not be punished when they will make mistakes, but that most employees are not motivated to release "new balloons". According to him this is quite difficult to implement, but this should be the case. Besides statements derived from the interviews, the chairman of the Rabobank group, Rinus Minderhoud, stated on the new-year's presentation that making mistakes is allowed and that the organization should not be based on a culture of fear. But thereby he also stated that he preferred that this should not happen that often and that of course making the same mistakes is not desirable, just as big mistakes. Besides the way how this mentality towards failures is at the moment, which is not very clear, noticeable is that this mentality should be implemented.

Another aspect of support is the recognition and execution of the shared vision. Many things were said concerning this aspect; several employees stated that the board supports the business quite well, but also that this is only the case until a certain layer of the organization; at the micro-level this support is not perceived. Furthermore is said that some visions are not translated in actions, such as the virtualization of the bank. In speeches and (news-) items this vision is communicated, but in actions you do not perceive this vision; for example an action such giving budget. Others, especially innovators, state that the support is good, but not until the board of directors, which is merely based at radical innovation. According to these interviewees it is important to train leaders to help setting up a culture of leadership.

These innovators, also state that the vision lags, it focuses too much on existing products instead of new products and what the future proposition will be. Some interviewees state that the board and top management are from another generation, in the way that these managers are difficult to convince about high-tech (ICT-) innovations. But these interviewees also state that this is only needed at huge projects and that this is not that relevant on a smaller scale. The focus of the top management is also too much focused on how to get somewhere instead of achieving real results, as for example one employee states. "The organization should be more result driven".

A final relevant aspect concerning the top management support is a specific top-manager for every department. An employee stated that a R&D manager or Chief Information Officer is needed, but that at the moment the same managers are responsible for both the operational processes as the R&D of new products.

The need for this latter aspect, shows, together with the previous described aspects, that support is needed from the top-management, but also from lower management layers. At the moment, this is happening quite well, but as perceived, this should become better in the future.

4.4.3 Organizational structure

The organizational structure should also be optimal to provide a connection between effectuators, as explained in the theory chapter. A few employees state that the structure, at the moment, is especially based on products, which form "silo's" towards the customer, while the bank seeks a way to be customer-driven instead of product-driven. In this way the structure should be more customer

centric and the product “silos” should move more to the production side. Besides making one “silo” towards the customer, the responsibility should also move that way, to involve their demand better in the process, which is important to act entrepreneurial.

Concerning the structure, innovators furthermore state that the company should be divided in two departments; one group concerning innovative employees and another concerning operational employees. By doing this, the innovators, which have different competences, can create businesses more easily and operational employees can take care of the efficiency. Innovators state that at the moment these employees concerned with the operational part of the organization abrupt the product creation processes too much. Because these ideas already exist, new setups concerning the structure are made quite a lot, but in practice it stays quite difficult concerning a few employees.

All in all is stated that the structure is of importance to be entrepreneurial. Especially important is to put the customer central within the structure instead of the products. Furthermore is stated that dividing the organization in two departments is an important aspect according to several interviewees.

4.4.4 ICT systems

ICT systems should facilitate transparency and provide access to effectuators & insight on innovation and knowledge as earlier described. Concerning this aspect is firstly said that certain processes, internally and externally, happened without knowing. As earlier said, one employee doubts on whether this is positive or negative appearance, but overall is stated that the transparency in this way is not good enough within the organization. This latter statement indicates the importance of ICT systems within LC's and bureaucracies to apply the effectual logic. Thereby different ICT methods cause problems, such as Agile and Scrum, but also deliveries to other departments, because of different perspectives and communication, as quite a few business analysts and project managers state, due to the development of these methods within the organization. A solution for this is to create a new situation instead of developing a new one as an employee stated. Also looking at working methods, one's desire is to develop concrete guidelines and roadmaps. This especially concerns the operational part of the organization. Setting up business cases is one example of where these guidelines should be provided for. For real innovations this will be more difficult. Heading back towards ICT systems, which also should provide insight on innovation and knowledge is stated that this aspect is of importance and that this insight is provided. However a few employees state that this access is not used that often. In this way it's very important to make sure that people will start using this access to obtain insight on innovation and knowledge.

Concluding this topic becomes clear that this organizational aspect is of importance for effectuation according to the interviewees, especially the transparency, by means of access to effectuators and access & insight on innovation and knowledge. Another quite important topic is that besides providing this access, employees should also use this access to make it successful.

4.4.5 People development & HR processes

People development is another organizational aspect, which needs to be implemented, according to Blekman (2013). This development concerns skills, knowledge and attitudes, such as the 5 principles and the usage of work methods, which is previously described. According to this aspect, is stated that developing the attitude of employees works until a certain level. It is true that people should have a more innovative and creative attitude, but this only reaches until a certain point. You can't really

change people, you will still have “efficiency” employees and innovative employees, as various interviewees appoint. “An organization as Rabobank should focus more on talent, hiring/firing of employees and putting the right person on the right task instead of changing them”. Although the culture does help the process of change and the overall culture of Rabobank needs to be changed, as almost the same amount of interviewees appoint. Entrepreneurship should hereby be promoted, just as decisiveness as one other interviewee stated. Thereby one employee stated that just changing principles and mission doesn’t help, because everyone has his own interpretation of these principles or visions. All in all is clear that the attitudes need to be changed and that certain skills can be learned. The organization should thereby not act very conservative and should promote entrepreneurship. Furthermore employees should be put on the right place and change should be based more on firing/hiring instead of really changing the character of employees.

Concerning other HR processes, such as recognition, rewards and talent, is already clear that hiring/firing the right people is of great importance concerning the interviewees. Talent management is hereby of great importance. Furthermore is said, concerning rewarding as HR process, that (extra) money as a reward doesn’t fit within the organization (anymore). First of all interviewees state that this doesn’t really influence the results and second of all this only helps short term and is hereby the wrong driver to do so. A few others state that bonuses might help speeding up the process and that these should be connected with the entire process of bringing your idea to the market and not just on for example inventing a new product. Another reason to give a bonus might be because an employee achieved something not correlated with his function. But in the end most of the interviewees state that bonuses are not in place, mainly because of the reputation of the bank.

Almost the same amount of people, who are against a monetary bonus, state that recognition is of importance within this organization. Besides that it is one employees’ job to develop new products, when this development took place, this employee should be rewarded by getting placed in the spotlight. Letting other people see what he is doing and what he did to motivate these employees. In this way leaders can be formed, which motivate and lead the organization. Another way to give recognition, to this employee performing well, is by given him more responsibilities to make sure he can act faster or better in the future.

Finishing this aspect of people development and other HR processes, the interviewees state that changing the culture is of importance, just as putting the right people on the right job. Furthermore monetary rewards are not desirable (anymore), but the recognition of employees doing a great job should be implemented.

4.4.6 Other corporate processes and integration into operational processes

Concerning other corporate processes, such as innovation policy, well paired advice processes and coordination within the corporate identity, several interviewees refer to the building of mock-ups, communication and responsibilities. Building mock-ups will take care of showing all stakeholders what the goal is of a certain project and providing a detailed example. Building mock-ups also leads to a better communication within the project, as will be explained more in detail later on. Rabobank also has a special department called formula management, which task is to coordinate the corporate identity. This is hereby of great importance according to various interviewees, because in this way, you know which way the organization wants to go and which products will be relevant and approved by these means and which products will not be approved.

Integration into the operational processes is another relevant organizational aspect, which also concerns certain aspects of other corporate processes. For large corporations this is especially

based on finding a balance between efficiency and innovativeness, as explained in the theory. To clarify this statement, one interviewee states that you need to find a balance between milking the cash cows and creating question marks. Milking your cows too long, will kill your cows and you don't have new ones. The other way around will lead you into other unforeseen problems. There is also said that all products need to be tested more often and properly to find out whether customers will use them. One interviewee states that sometimes a product is developed and that after the development, the specific product is launched and furthermore not checked whether it is used or not; it was not even removed when became clear that hardly anyone was using it. This balance between efficiency and innovation seems not right in the way that too few attention is given towards innovation, as several employees state. Especially innovators made this statement, but also other interviewees. One important reason, according to a few interviewees, is related to cannibalization, described as Schumpeter Mark II (creative destruction) in the theory. Furthermore they stated about this topic that disruptive ideas will not be supportive within the organization, which is needed to proceed. Overall however is noticed, that a good distribution between innovation and efficiency is needed. As earlier stated, splitting the organization might be helpful, according to several employees; one side for employees concerned with efficiency and one side with innovative employees. Also stated is that several departments should not exceed a certain number of employees to keep sight on the business and development. This statement has a linkage towards near-decomposability; the subsystems should not exceed a particular number of employees.

Furthermore also is repeatedly stated that placing new firms out of the organization will help achieving goals faster and cheaper. The creation of new firms could thereby also be an outcome of using the effectual cycle as explained earlier, which matches quite well with the statements of these employees. These interviewees state that by starting on a small scale, with a small budget, the future needs to be shaped by these new firms. The affordable loss is hereby also relevant; starting with a small budget and taking (high) risks. Other reasons why new firms should be created is to avoid bureaucracy and improve the time-to-market, whereby financial and technological capabilities still can be used, just as the network of the LC. The loss of legacy is a final option for achieving goals faster and cheaper, which can be achieved by starting a new firm instead of developing a certain product in-house. When this small firm becomes a success, it should find its way back in/to the organization, as these interviewees state.

Concluding and interpreting the statements made on other corporate processes and integration into operational processes, it seems that building mock-ups is very important to quickly develop products and to communicate this towards stakeholders. Furthermore paying attention to the right balance between innovation and efficiency, just as the communication between those two is of (great) importance. One suggestion to let both departments do their work properly is to divide the organization in two parts. Also based on earlier statements, this will lead to faster processes and less disruption during the process. A final statement concerning these organizational aspects is that placing firms outside the LC is a good thing to do, mainly based on time-to-market, reputation and risk.

4.4.7 Other organizational aspects

Besides all the ideas and implementations stated above, which mainly fit in the subsections, there are also other relevant organizational aspects. The first of these is setting up boot camps and hackathons for other purposes than just ICT. Several interviewees state that by these means employees can be very creative and motivated by putting them outside their daily environment and

giving them the opportunity to work on their ideas of new products. In the daily grind of most employees, there is no time to develop new products or be creative in the way that these boot camps or hackatons can facilitate.

Another aspect concerns the development of mock-ups, as earlier mentioned at other corporate processes. This aspect however deserves more attention. By making this process, of designing mockups, standard, the communication will be improved, just as the time-to-market. The communication by means of a better representation of what is desired and the time-of-market to convince stakeholders better to spend money on the projects. As several interviewees agree with: "you can win time by defining what you really want instead of continuously discussing and interacting with other people". Besides the fact that almost every interviewee agrees with this, not every interviewee pronounced mock-ups. Also prototyping/ making pilots or proof of concepts are well represented. But hereby the same reason is mentioned; in the beginning making a proof of concept or pilot takes more time, but in the end it saves time and money.

Also using lean start ups is mentioned by an interviewee, as useful tool to help entrepreneurship. This lean startup is based on firms following a hypothesis-driven approach to evaluating entrepreneurial opportunity. The vision of entrepreneurs is translated in falsifiable business model hypotheses, which are tested by using minimum viable products. From the feedback of customers, the entrepreneurs can decide to head on and improve the product or abandon the startup (Eisenmann, Ries & Dillard, 2012). Several aspects of effectuation are hereby used, such as affordable loss. Using lean startups might help LC's and bureaucracies speed up their process cycle.

All organizational aspects discussed within this section of 4.4 are presented in table 10 of the next section, 4.5.

4.5 Effectuation at large corporations & bureaucracies

Until this point is made clear how product creation is taken place at Rabobank, which aspects of effectuation are already in use, which organizational aspects are relevant for effectuation. Within this subchapter will be described more briefly which principles and organizational aspects are relevant to apply the effectual logic, which challenges will arise, when implementing these aspects and how the effectual logic should be applied at both incremental and radical innovation.

First of all the principles of effectuation will be summarized and described how these should be handled within the new model of effectuation at radical and incremental innovation. This data is derived from section 4.1.

According to the interviewees, as described in paragraph 4.1.1, the bird-in-hand principle is mainly relevant and based on incremental innovation; You need to know what the available means are and what you want to do with these. For radical innovation, this principle is seen as a obstruction, according to the innovators among the interviewees. For this latter kind of innovation you should think outside what you have and more on what you want to be, as these innovators state, it's thereby also difficult to really know all the means available due to the size of the organization. As the theory of this research also stated, they agree upon that you, as entrepreneur, shouldn't wait for a billion dollar idea, but you should just try certain things now and then.

The affordable loss principle should thereby be implemented especially at radical innovation, mainly because of the just made statement concerning experimentation. On the other hand, interviewees state that it's difficult to know beforehand what a certain product will be worth, when it's a radical innovation. Because of this fact, a business case is not desirable and using affordable loss

is. Incremental innovation is for the largest part based on improving products or too cut on costs. Due to the fact that the outcomes of these processes, based on research, can be estimated, a business case is more desirable than the affordable loss, as interviewees state. Because you know what the particular project is worth and what it will costs, the affordable loss is not very relevant. Although sometimes using affordable loss is good to do, based on using this to make mock-ups and to develop business cases. Another important statement derived from this principle is that projects need to be unplugged when they are heading in the wrong direction; you should take certain losses to prevent even more losses in the future.

According to the various interviewees the principle of crazy quilt should be used at Rabobank, as an example of large corporations and bureaucracies, and for both innovation types, as earlier described in paragraph 4.1.3. For incremental innovation, however, this path is merely a straight line, because of the timeliness and the associated business case. The reason for the fact that this principle should be used, is because of the interviewees who state that you, as innovator, need space to adapt and see whether the proposition is the right one.

The lemonade principle is hereby also divided among the innovation types. At radical innovation, this principle is of huge importance. The reason for the this is the way products are developed. You can't set up a business case concerning the unknown, that's why the principle is very relevant. For incremental innovation this principle is less relevant, because you have a business case, a road map and more straight line planning.

The fifth principle, the pilot-in-the-plane principle is also divided among the kinds of innovation. For radical innovation the pilot-in-the-plane principle is sometimes applicable, while for incremental this most of the times is not the case. Although there are hereby several exceptions, the main focus of incremental innovation is based on new laws, rules or cutting costs.

The table with an overview of these principle and whether these should be used at the two types of innovation, based on subchapter 4.1, is provided below. The symbol x stands for the fact that this principle should be used at the specific type of innovation, whereby the symbol (x) stands for the fact that this principle should be used partly at the specific type of innovation.

Principle	Incremental innovation	Radical innovation
Bird-in-hand	x	(x)
Affordable loss	(x)	x
Crazy-quilt	(x)	x
Lemonade principle	(x)	x
Pilot-in-the-plane	(x)	x

Table 9: Principles and type of innovation

As already stated in section 4.2 the existing cycle of effectuation is quite good, especially concerning incremental innovation. However in large corporations a distinction between product owners/managers and product developers/innovators might help applying the effectual logic, as is described earlier in theory and at section 4.1 and 4.2 concerning the results of the interviews. The first department takes care of existing products and is furthermore involved in incremental innovation and the management of these products. These processes of incremental innovation lead towards quite new or entirely new products in the extension of existing products and needs. The cycle presented in figure 2, the effectual model of Sarasvathy (2008), fits this process quite well; the starting point of the process is located at the means available, from here on the goals or courses of action possible will be mapped, just as the rest of the steps. Just one change needs to be made in this

model. This concerns the result of this cycle; instead of new products, firms and markets, will new products be the main result of this cycle.

The product developers/innovators, on the other hand, take care of developing new (radical) products. This process uses a different model with different principles. A very important aspect is that by completing the cycle for the innovators, this will lead to new products, new firms or even new markets. As explained earlier it might be good, especially for LC's and bureaucracies, to place the developed products out of the organization/group due to the gain in time, costs and reputation. Thereby the process starts with the goals/courses of action possible instead of the means, as explained earlier. This effectual cycle of radical innovation, developed on basis of section 4.1 and 4.2 is displayed in figure 4.

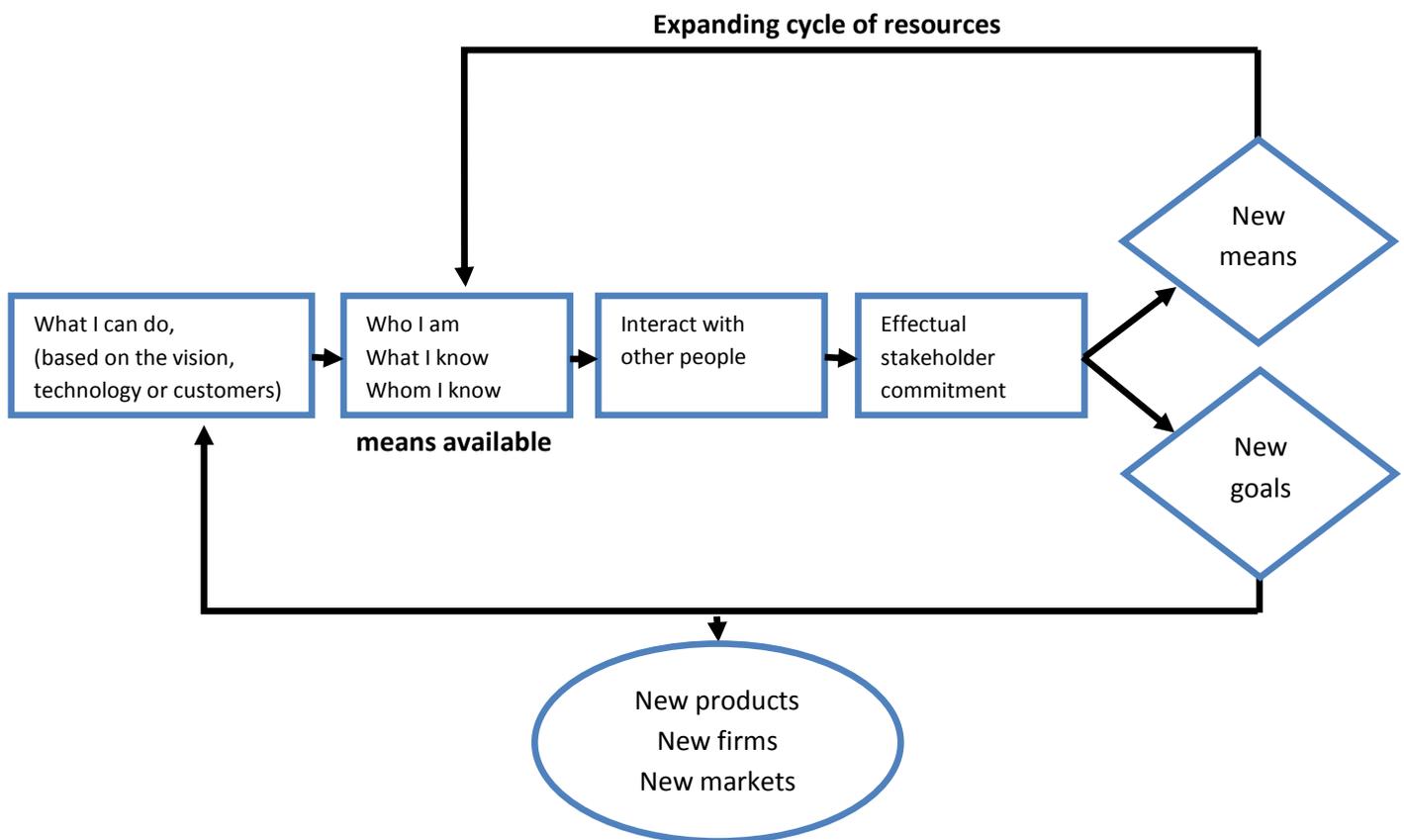


Figure 4: Effectual cycle of radical innovation

4.5.1 Organizational aspects relevant to the application of the effectual logic within LC's and bureaucracies

The following section concerns changing, confirming and completing the organizational aspects Blekman (2013) and other articles described, relevant to the application of the effectual logic at large corporations and bureaucracies. These aspects were previously discussed within the chapter of theory and section 4.3 and 4.4 concerning problems and opportunities, just as discussing the relevant organizational aspects. To provide a clear overview of the organizational aspects involved, a table is presented on the next page.

As might be clear, the overall classification is kept the way it was. However certain aspects, as

also described in analyzing the data, are added or changed. The most important changes are hereby splitting the organization according to incremental innovation/ product managers and radical innovation/ innovators, a better representation at the top-management and more awareness and decisiveness at the top-management and lower management. Another complement concerns putting the right people on the right job and instead of changing their initial attitudes. Furthermore implementing other corporate processes such as making mock-ups, adapting lean start ups, setting up boot camps and placing certain parts outside the organization are relevant to apply the logic of effectuation within large corporations and bureaucracies.

Organizational aspects	Description
Near-decomposability	- Decomposing the organization in connected subsystems
(Top) Management support	- Positive mentality towards failures - Recognition and execution of the vision - Top management should be aware of the technology, knowledge and developments of the present - Representation of interest in top management
Organizational structure	- Optimal structure between effectuators - Difference between innovation and efficiency; splitting the organization
ICT systems	- ICT systems should facilitate transparency
People development	- The overall culture should be entrepreneurial - Positive mentality towards cannibalism and failure
Other HR processes	- Putting the right people on the right place - No monetary bonus, but recognition - Talent management - Leadership
Other (corporate) processes	- Innovation & communication policy; - The overall implementation of mock-ups or proof of concepts - Direct guidance from the formula management or corporate identity - Lean start ups - Setting up boot camps and “hackatons” - Placing companies outside the organization
Working methods and tools	- Developing standards and guidelines just as standard roadmaps - Access and availability of resources such as knowledge, science and technology
Integration into the operational processes	- Finding a balance between efficiency and innovativeness.

Table 10: Relevant organizational aspects to apply the effectual logic at LC's and bureaucracies

4.5.2 Challenges related to the implementation of the effectual logic

Implementing the effectual logic at Rabobank, as described earlier, will lead to certain challenges. These challenges are derived from the interviews, whereby many interviewees state that certain aspects need to be changed or implemented, but that this implementation might be quite difficult, due to certain reasons.

The first of these challenges is to overcome a lagging attitude, by the employees, towards change. As can be concluded from the interviews, several changes were implemented e.g.

concerning work methods and communication, whereby the willingness to use these aspects is the most important factor why these work methods weren't used or weren't perceived as successful. Another challenge is the time and effort it takes to implement changes, which will cost lots of money. These implementations and changes are hereby only effective when these are used the way they need to be used; when just, for example, half of the employees have a certain attitude or use a certain way of communication, this will not lead to a success within the organization, because then there will still be problems due to inconsistencies.

Interviewees also state that it's not desirable to change the organization, because you will have to deal with certain forms of resistance and lagging attitudes. What you should do is implementing an entirely new situation, by means of blocking the way back to old habits.

A way to do this is on basis of the method of unfreezing, moving and freezing (Lewin, 1947). This might help overcome certain problems such as both lagging attitudes and an undesired long timeline. This method ensures that the new created attitude and culture is made relatively secure against change and that in this way the employees, when applying the effectual principles, will act by these and do not tend to head back towards older principles. Unfreezing hereby means unfreezing the present level. The next step is moving towards the new level and changing group values, but also attitudes in this way. The final step is to re-freeze this on the new level.

Another point, on basis of effectuation, is that the organization should implement the organizational aspects together with the employees, by means of commitment. As also previously announced, leaders should be trained to guide the organization. These leaders might help overcome the challenges and will possibly motivate the employees.

5. Discussion & conclusion

Within this chapter first of all the answer of the main research question will be given. Furthermore two subchapters will concern the theoretical and practical implications of the research and the limitations of this research, including future research suggestions, will be given. The final part of this chapter will concern an overall conclusion of the conducted research.

5.1 Answer research question

The logic of effectuation at Rabobank, as an example of large corporations and bureaucracies, is already partly implemented at the process of product creation at Rabobank. Partly is hereby based on the use of principles, but also on the implementation at the diverse departments. This basis of existing relevant organizational aspects and structures, together with suggestions from interviewees, based on experience and knowledge, and theory are combined to develop a way to apply the effectual logic in an effective way at large corporations and bureaucracies in general.

For a large corporation to be both entrepreneurial and efficient different kind of specialized employees are needed. First of all real entrepreneurs to create new products and businesses and on the other hand more operational employees who mainly look at efficiency and the operational processes. This distinction should be supported by means of looking at radical innovation and incremental innovation. The real innovators and entrepreneurs are assumed to use another logic than the employees involved with the operational processes and incremental innovation. Within the latter chapter of the results, an effectual cycle is presented for radical innovation and innovators at LC's or bureaucracies. The main difference with the existing effectual model, which fits for operational employees at LC's and bureaucracies, is the fact that the cycle starts with courses/actions possible instead of the means available. Furthermore, for radical innovation the affordable-loss, crazy-quilt, lemonade and pilot-in-the-plane principle are very relevant, while the bird-in-hand principle is the only very important principle at incremental innovation. The affordable-loss, crazy-quilt and lemonade principle are hereby also partly relevant, just as the pilot-in-the-plane, although the interviewees state that the latter principle is not used often at this process of incremental innovation.

Besides this global application of the logic of effectuation, organizational aspects are important to develop to apply the effectual logic. Table 10 in section 4.5 presents these organizational aspects and gives a brief description of the most important elements. These aspects form a base to develop an entrepreneurial mindset in the organization and is based on creating the future instead of predicting it. Four key sets of aspects are the structure of the organization, facilitating the process of effectuation within the organization, implementing corporate processes and HR processes.

This first set, the structure of the organization concerns the facilitation of a supporting structure of the corporation. An optimal structure between effectuators should be created, by means of communication and cooperation. Furthermore, as explained earlier, there should be an optimal difference between the real innovation department and the operational department, and decomposing the organization in connected subsystems, using near-decomposability, also plays an important role to facilitate the effectual logic.

The second set of aspects is concerned with facilitating, by means of ICT systems and working

methods, the process of effectuation within the corporation. Transparency is hereby one important aspect to provide insight in means and projects. Furthermore of importance are the working methods and tools, such as standard roadmaps and access & availability of resources.

The third set concerns the usage of (corporate) processes related to effectuation. The placement of new spin-ups out of the organization is one of the most important aspects, just as using mock-ups and similar processes to apply the principle of affordable-loss.

The fourth set concerns people development and other HR processes. Top management support, just as support at lower layers, is an important aspect concerning this set of aspects. A positive mentality towards failure and awareness of the technology and knowledge are part of this management support, which especially by the interviewees is viewed as very important. Besides this top-management other aspects such as recognition of the work of employees, talent management and a positive mentality towards cannibalism is of importance.

5.2 Theoretical implications

The findings of this research suggest a different approach applying the effectual logic of Sarasvathy (2001) at large corporations and bureaucracies in relation to small firms and individual entrepreneurial level. The existing cycle, developed on basis of entrepreneurs and small firms is not compatible with the (entire) structure of large corporations and bureaucracies. To use this logic effectively, a distinction needs to be made between the different kinds of innovation; incremental innovation and radical innovation. The cycle as presented by Sarasvathy (2001) can hereby be applied at incremental innovation quite well; the same steps should be used within the process. For the department concerned with radical innovation, this cycle should be different. Instead of looking at the available means, one should start by looking at what is possible for the organization to do by means of goals or courses of action possible. After this first step is developed, one should take a look at the available means and the next two steps of interacting with other people and creating stakeholder commitment. Besides these cycles, also the principles underneath these cycles should be different. For incremental innovation the bird-in-hand principle is mainly relevant, while the others are a bit less relevant. Especially the activity of mapping the available means is a leading step in the process, furthermore a business case beforehand should facilitate this process better than using aspects of the affordable loss-, crazy-quilt- and lemonade principle. The pilot-in-the-plane principle is hereby used sometimes as the result of this research indicates. On the other hand, radical innovation should mainly use these latter principles, while the bird-in-hand principle is less desirable. The reason for this is because of the fact that the available means are less relevant within this process. This latter result confirms the result of Brettel et al. (2010), which states that mean-driven projects do not show a high R&D performance when the level of innovativeness is high, while a preference for affordable loss and R&D efficiency are positively related.

The most important theoretical implications of this research suggests other organizational aspects relevant for applying the logic of effectuation at large corporations & bureaucracies. The organizational aspects of Blekman (2013), which were not based on an academic basis, are hereby confirmed and completed. The first addition is the concept of near-decomposability, as implied by Sarasvathy and Simon (2000). Decomposing the organization in connected subsystems should be used to facilitate effectuation. Another addition is using a testing phase within product creation projects based on mock-ups and other tools & processes to implement the principle of affordable loss. Using lean start ups should also help these processes, especially concerning radical innovation

processes, to speed up the process and to be more creative. A final theoretical implication is the addition of HR processes. Using leadership roles and recognition as a reward, instead of (short-term) bonuses, will help to apply the effectual logic at large corporations and bureaucracies.

5.3 Practical implications

Besides the theoretical implications, I would also like to give several recommendations to Rabobank and large corporations and bureaucracies in general within this section of practical implications. Although the Rabobank group is heading in the right direction; the group is already partly using effectual principles, just as implementing certain principles & the organizational aspects relevant to these principles, more effort is needed to really implement the effectual logic. A first recommendation is to make a better distinction between the two following departments; the innovation department and the operational department. The aim of this separation is not to exclude one from another, but to make the processes of both departments more efficient. Innovators can hereby operate using the principle of affordable loss and can develop new radical product innovations without resistance, which is perceived at the moment. On the other hand employees involved in incremental product innovation can hereby head on with using business cases and develop new products in the way they do it at the moment, on which they agree with. This latter is thereby mainly based on the effectual cycle from Sarasvathy (2008).

Another recommendation for Rabobank is to implement a positive mentality towards failure within the entire group. Besides communicating this verbally, this should also be executed more noticeable. Near-decomposability is another organizational aspect which will help applying the effectual logic. For Rabobank this might lead to an improved time-to-market and also an improved efficiency of projects. My advice is hereby to develop subsystems on a small scale to provide entrepreneurs space to develop innovations. It's also important to reflect on this "experiment" to see whether the results indicate a positive effect. This latter organizational aspect is especially relevant for Rabobank, because the bank has cooperative roots. The individual banks can hereby act as interconnected sub-systems, just as departments at the head office of the Rabobank group.

Two other important recommendations for Rabobank are providing transparency, by the use of ICT systems and by paying more attention towards people development and other HR processes. This latter concerns developing or implementing a culture of entrepreneurship instead of a more bureaucratic culture. Furthermore recognition should find its place in the organization just as leaders, who drive, motivate and lead the organization. Finally talent management should be expanded and employees should be placed more often on the right function, instead of training and developing these employees towards certain functions.

For large corporations and bureaucracies in general my recommendation is to map how the effectual logic or parts of this logic are applied within the firm. On basis of the information provided within this report, firms can identify what parts are implemented and used correctly and whether certain aspects still need to be implemented. A possible way to do so is by means of looking at the sets of organizational aspects or by table 10 concerning all different kind of organizational aspects. Hereby it is quite probable that several aspects are not implemented yet. These firms should take a look at these aspects and determine how to change or implement these aspects, because without one of these actions (the lack of) these aspects might disturb the usage of effectuation within the firm. Furthermore I'd like to recommend for the large corporations and bureaucracies in general to look especially at the aspects described at the recommendations for Rabobank. These aspects might be

very relevant because Rabobank is especially an example of LC's and bureaucracies in the way they have organizational aspects and use business processes.

5.4 Research limitations & research suggestions

This research on corporate effectuation involves several limitations. One first limitation is that the research is based upon a case-study of Rabobank. Rabobank is hereby taken as an example of large corporations and bureaucracies. Furthermore Rabobank is more specified as a financial institution, which has to deal with specific rules and laws and thereby might have got a different culture, by these means, than other large corporations. Although this case-study provides an in-depth research of this topic at Rabobank, it provides flexibility and insight from many disciplines, which makes it very difficult to make a generalization, which is quite important when you want to say something about all large corporations and bureaucracies. Another limitation is the fact that the research is based on interviewing 15 employees of Rabobank, which is, as stated earlier, an organization employing 61.000 fte. Although a quite good representation is chosen according to the employees, this might not be the best.

This case-study is chosen because of the fact that, as already stated, the subject seemed very interesting. Because of this motivation and the interest of Rabobank and my supervisor, this choice is made. The representation is hereby based on suggestions of the interviewees. These interviewees were asked, after they were being interviewed, which persons within the organization were as addition important to interview. It was hereby quite difficult to know exactly which employees were important to interview and whether they were able to make time to participate in an interview.

In the future such limitations as stated above should be overcome to conduct such researches at different large corporations and bureaucracies. Different hereby meant as different sectors and with different cultures. When support can be acquired from these organizations, a researcher can better map an overall image of effectuation at large corporations and bureaucracies. This, however, will possibly lead to a longer timeline than was available for this research. Furthermore by having more information from the organizations should be tried to find the most important employees to conduct this interview at.

Besides these suggestions based on the limitations of this research, another research suggestion is to investigate how efficiency at large corporations should be taken into account, when these firms are using the principles of effectuation within their processes and implemented the organizational aspects related to effectuation. Efficiency, as might be clear, is a key element for the survival of large corporations. The real impact of the implementation of these organization aspects, related to effectuation, on this efficiency is unknown.

5.5 Conclusion

By means of this research new insights are obtained on the concept of corporate effectuation. Especially the proposed difference between the types of innovation to apply the effectual logic effectively, is an important aspect of this research. It confirms the fact that for incremental innovation the effectual cycle as proposed by Sarasvathy (2008) and others is correct to apply, while for radical innovation this is not the case. This latter type of innovation suggests another cycle, just as other underlying principles. Furthermore other organizational aspects derived from theory are collected, mapped and tested. In this way several aspects are confirmed by means of the research

and is this list of aspects supplemented with several new or changed aspects based on theory and suggestions made by interviewees at Rabobank. Overall near-decomposability and (top) management support are the most important aspects to apply the effectual logic, just as the already partly mentioned structure, the facilitation of effectuation, corporate processes and HR processes. Based on the collected data, and findings based on this data, this research provided a contribution to science concerning the concept of effectuation and especially the application of this effectual logic within large corporations and bureaucracies. Very practically this research provided recommendations to the Rabobank group and large corporations and bureaucracies in general, based on the different effectual cycles for the two types of innovation, the underlying principles and the organizational aspects. Besides these outcomes of this research also future research suggestions are made concerning this topic of corporate effectuation and related aspects.

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Appendix

Appendix I: Interview questions:

1. Background

What is your current function at Rabobank?

For how long have you exercised this function?

How are you involved in creating products with customers?

Do you have other experience concerning product creation in large corporations & bureaucracies?

2. Current

In which way are you involved with creating products with customers at the moment?

- How & in which processes
- briefly description of the process(es)
- how and how many customers are involved
- what is your motivation to do so

3. Reflection

How successful is this process in your opinion?

What problems do you face concerning this process? (based on customers, the process, etc.)

What solutions do you think will solve these problems?

Besides problems, do you have other suggestions which might make this process more effective and efficient?

4. Effectuation

Are you familiar with the effectuation model of Sarasvathy?

(further description will be given from co-creation to effectuation)

Do you think effectuation in general is in place at the process of product creation at large corporations or bureaucracies such as Rabobank?

More detailed;(how) can and do you apply the following steps?

- Who I am, What I know, Whom I know
- What I can do
- Interact with people I know
- Stakeholder commitment

Do you already use the five principles of effectuation and can you use them within the process at Rabobank as an example of a large corporation & bureaucracy?

(These will be explained briefly)

- bird-in-hand principle
- affordable-loss principle
- crazy-guilt principle
- lemonade principle
- Pilot-in-the-plane principle

If not, what is the reason for this and what are solutions for this problem?

What are problems considering this effectuation at the process of co-creation at large corporations or bureaucracies such as Rabobank, besides the problems stated before?

(Certain examples from the literature are the following;)

- Responsive & flexible enough?
- Time to the market?
- Easy acceptance & adaption to changes?
- Alignment with innovating?
- Financial & technological capabilities?
- Labor/scientific facilities?
- Spread of risk of failure?

How should these problem be solved in your opinion?

(Near-decomposability will be explained)

Does near-decomposability help implementing effectuation at Rabobank?

On a theoretical basis of corporate effectuation/ corporate entrepreneurship strategy, the following elements are needed, could you apply these?/ Why not?

- Top management support; positive mentality towards failure, supported by policies and budget.
- Organizational structure; connection between effectuators
- ICT systems/ working methods and tools; resources, capabilities, processes
- People development; 5 principles, skills, knowledge, attitude
- Other HR processes; recognition, rewards, talent programs etc.
- Other corporate processes; coordination with the corporate identity, innovation & communication policy
- Integration into operational processes; opportunity recognition, opportunity exploitation

Can you think of any other elements needed to apply effectuation at large corporations?

5. Wrapping up

Do you have any additional comments or information concerning any of the discussed topics or any other related topic?

Do you know any other person, who is also involved in creating products with customers and is able to help this research?