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# **The influence of legitimacy on partnership creation during the adoption of radical innovation in a large business organization**

*Master's Thesis in the Master's Programme  
Management and Economics of Innovation*

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Isak Nilsson

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Department of Technology Management and Economics  
Division of Innovation and R&D Management  
CHALMERS UNIVERSITY OF TECHNOLOGY  
Gothenburg, Sweden 2018  
Report No. E 2018:091

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Gothenburg, 2018

## Abstract

Firms may enter into collaborative partnerships in order to capture value from emerging technology trends. While crucial, such collaborative partnerships are difficult to both establish and to manage. This study reports on findings related to one particular reason underlying these difficulties: legitimacy. Research has shown how legitimacy affects the way people act toward organizations and how organizations are understood in order to be perceived as worthier.

This thesis reports the findings from an examination of a recently emerged radical innovation, blockchain, and evaluates the determinants of its adoption. Specifically, the purpose is to examine the creation of partnerships for blockchain technology and we aim to show how legitimacy of incumbent service providers affects their utilization of the technology. To this aim, the study seeks to answer the following research question: *How does the need of legitimacy influence partnership creation during the adoption of radical innovation in a large business organization?*

Adding to previous research that claims that new innovation is evaluated on its technical and market feasibility, the findings reported here identify organizational legitimacy as the main evaluation criteria when incumbents consider partnerships for radical innovation. The study shows that the large business organization evaluates familiar characteristics of resources, which creates a tendency toward collaborating with incumbent firms rather than new entrants as the former's organizational legitimacy is perceived as higher.

Key words: *Legitimacy, Partnership creation, Radical innovation, Blockchain*

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# 1. Introduction

*This introduction describes the study's background, introduces key concepts, and lays a path to the thesis' purpose and research question.*

## 1.1 Background

The development of smartphones and the rise of information in society have created new opportunities for profit and firms are constantly trying to exploit these opportunities. When new technologies emerge, the way firms collaborate and communicate may change. A new technology can be what Veryzer (1998) calls a radical innovation. Veryzer (1998) describes the characteristics of a radical innovation as products which involve dramatic leaps of familiarity and use of a product or technology. Examples include jet engine airplanes that replaced propeller propulsions for certain uses, mobile smartphones compared to traditional landlines, and the taxi application Uber compared to traditional dispatchers.

Technologies can change entire industries quickly, a hard-felt fact for companies like Kodak and Nokia who were slow to adapt. A rapidly changing environment can change what firms develop and how technologies are used. To keep up, it is common that firms acquire or develop collaborations to gain knowledge about the technology.

New technologies are often brought to market by new firms, i.e., startups. To succeed, startups must overcome their lack of a successful track-record. This is particularly important for startups who seek collaborations with large business organizations. Organizations ability to be perceived as worthy is called being legitimate and the importance of legitimacy during adoption of a new technology will be the topic of this thesis.

The radical innovation in this case study is blockchain technology. When Bitcoin was introduced in 2008 it was the first solution of its kind. A combination of well-known technologies was utilized to enable transactions without any intermediary or third-party certifiers. Proponents posit that blockchain technology will disrupt intermediary services (Tapscott and Tapscott, 2016), and Iansiti and Lakhani (2017: page 120) claim that *“blockchain is not a “disruptive” technology, which can attack a traditional business model with a lower-cost solution and overtake incumbent firms quickly. Blockchain is a foundational technology: It has the potential to create new foundations for our economic and social systems.”* Many describe what they see as a tremendous potential, but the adoption and utilization of blockchain technology is underwhelming as use cases remain elusive (Glaser, 2017).

Collaborative partnerships are one way to identify such use cases. Hence, research connecting strategic alliances and partnership collaborations needs further research. The authors know that incumbent firms struggle to adopt disruptive technologies (Grant, 2010). Firms are held hostage by their past, i.e. path dependencies, which includes established relationship with suppliers and strategic alliances. The novel stage of blockchain technology means that



qualified research within the area is limited and the research that has been conducted is described by Risius and Spohrer (2017) as “*predominantly focused on technological questions of design and features, while neglecting application, value creation and governance.*”

## 1.2 Purpose and research question

The purpose of this study is to investigate the creation of partnerships for blockchain technology from the perspective of a large business organization and how the need of legitimacy affects partnership creation and the subsequent utilization of the technology.

Research question:

*How does the need of legitimacy influence partnership creation during the adoption of radical innovation in a large business organization?*

## 1.3 A note on definitions

To fulfill the purpose of this thesis it is necessary to make explicit definitions used in this thesis. There are three concepts used in the research question above that will be explained; need of legitimacy, partnership creation and adoption of radical innovation. These definitions have evolved iteratively through the analysis of empirical data. In this thesis, these concepts are defined as follows:

- (1) *Need of legitimacy*: Resources and characteristics that a supplying firm needs to possess in order to collaborate with a large business organization.
- (2) *Partnership creation*: New alliances need to be established when a new technology is introduced to the market. The creation of such alliances is defined as partnership creation.
- (3) *Adoption of radical innovation*: Commercial utilization of a radical innovation. The radical innovation used to exemplify in this thesis is blockchain technology which will be explained in the theoretical framework.

## 2. Theoretical framework

*This chapter presents the theoretical foundation of this paper. First, resource-based view is connected to legitimacy. Second, legitimacy is explained. Third, the link between radical innovation and partnerships is covered. Finally, blockchain is defined.*

### 2.1 The resource-based view

The resource-based view is explained by Wernerfelt (1984, p.72) as *“A firm’s resources at a given time could be defined as those (tangible and intangible) assets which are tied semi permanently to the firm.”* In general, a resource by itself cannot create nor add any value to a firm. However, the means by how a resource is used can create value for a firm and is defined by Grant (2010) as a capability. Resources are categorized as either; tangible (physical assets), intangible (non-physical assets) or human (Grant, 2010).

Regarding partnership creation for blockchain technology, assets such as IT-systems will play a crucial role for large business organizations. The blockchain solution that is going to be produced will be a resource for the firm, or even an entire industry, depending on ownership and governance structure. The similarities for all resources, IT-systems, and blockchain solutions, are however that no value will be generated by the resource just by having or owning it (Grant, 2010). The important aspect to evaluate is how to create a capability of utilizing the resource in the most efficient and productive way.

During the creation of a partnership, incumbent firms evaluate the legitimacy of a supplier/partner and is crucial for the sourcing process, especially for a radical innovation where initial knowledge of the technology is limited. A firm’s legitimacy is according to Wernerfelt’s (1984) definition a resource which firms should exploit.

Organizational capabilities are defined by Grant’s (2010, p.131) as *“A firm’s capacity to deploy resources for a desired end result.”* For a partnership to be initiated by a large business organization, capabilities of a partner must be evaluated, which for most firms becomes a complex task. Grant (2010, p.133) expresses the complexity as *“Identifying and drawing up an inventory of a firm’s resources is fairly straightforward. Organizational capabilities pose greater problems - they are much more elusive.”*

A radical innovation is according to O’Connor (2008, p.315) *“[...] accompanied by high levels of uncertainty because, to achieve these performance leaps, firms must expand to incorporate or create emergent customer markets or new technology competencies. Each require new knowledge or departure from existing skills or familiar practices and relationships.”* The statement implies high risks for radical innovation, which is due to high levels of uncertainty. When risks arise, and conceptual guidelines disappear, new knowledge, resources and capabilities must be developed.

Veryzer (1998) on the other hand, highlight the commercialization challenges that radical innovation face. The challenges are according to Veryzer (1998) due to high level of uncertainty regarding market and technological feasibility. Market uncertainties exist for radical innovations since the user or customer reaction of, for example a new functionality, is impossible to predict. Technological feasibility is in theory easier to predict, at least for a firm with capabilities covering the technology. Development of radical innovation may, as O'Connor (2008) states, diverge from familiar practices and in some cases also familiar relationships. In terms of collaborations for radical innovation may this create varying incentives for parties with different expertise and familiar practices could hinder adoption of a radical innovation as technology and market feasibility is hard to evaluate for radical innovation.

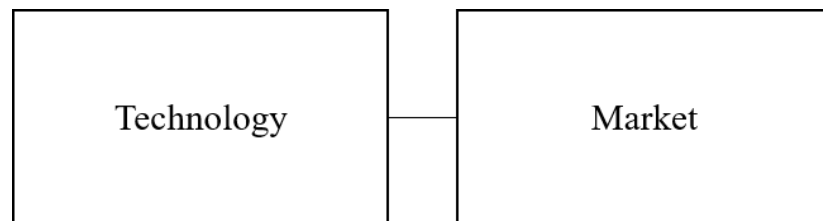


Figure 1 - Evaluation criteria of radical innovation feasibility (Veryzer, 1998)

## 2.2 Legitimacy

This study, due to empirical evidence, is focused on a partner's legitimacy. Suchman (1995, p.574) propose in his article a combined definition of legitimacy, based on the diverse literature of strategic and institutional approaches, as *"Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions."* Furthermore, Suchman (1995, p.575) claims that *"[...] legitimacy affects not only how people act toward organizations, but also how they understand them. Thus, audiences perceive the legitimate organization not only as worthier, but also as more meaningful, more predictable, and more trustworthy."* Therefore, in comparison of a risk assessment outcome, legitimacy can be considered higher for a firm due to track-record and/or predictability.

Next, the notion of legitimacy in the context of partnership creation for blockchain technology will be defined further. Suchman (1995, p.574) explains why organizational legitimacy context are dependent as *"Organizations seek legitimacy for many reasons, and conclusions about the importance, difficulty, and effectiveness of legitimization efforts may depend on the objectives against which these efforts are measured."* How efforts are measured will vary between firms and even within an organization can measures be interpreted differently and be of varying importance for a managerial decision. As an example, financial departments are usually measured by specific KPI performances and a supplier with no knowledge or insight about how those measures affect the departments work will not be perceived as legitimate (Lysons and Farrington, 2012). The authors can therefore assume that more knowledge regarding an organization's way of working will be an advantage for a supplier.

It may be claimed that a correlation between decreased risk and high legitimacy exists due to Parson's (1960, Suchman (1995), p.574) argumentation *"Legitimacy leads to persistence because audiences are most likely to supply resources to organizations that appear desirable, proper, or appropriate."* The quote implies that legitimacy leads to larger supply of resources for a firm with more legitimacy, which in turn can be argued to decrease the perceived risk. A large business organization will in line with the argumentation above chose the partner whom are considered least risky and features of risk is closely linked with legitimacy.

## 2.3 Partnership creation for radical innovation

Partnership creation for radical innovation is a natural course of action since it often includes combinations of technologies. Sampson (2007) claims that, since radical innovation is a challenge for organizations, firms tend to actively collaborate to pursue projects regarding radical innovation. In addition, Sadovnikova et al. (2016, p.1832) argues that partner's attributes need to be complimentary, quote *"strategic compatibility, knowledge complementarity, and relational competence."* Legitimacy can therefore be crucial for firms to be perceived as knowledge complementary for the other party. Sadovnikova et al. (2016) continue by implying practical implications and highlights the need of awareness of each other's attributes as a key factor to succeed with managerial practices in radical innovation partnerships. The attributes described by Sadovnikova et al. (2016) is problematic when considering partnership creations for blockchain technology since the general knowledge is low and the technology can be argued to be of high complexity.

## 2.4 Blockchain

*Blockchain is a rather complex technology which is available in different forms. It is not of necessity for this report to give an in-depth description of technologies used in blockchain solutions. Hence, a general description of the technology will be provided where Bitcoin will be used as property for explanation. For in-depth description see Dhillon (2018).*

As stated, blockchain originally derives from previous known technologies which put together creates a new way to manage and store data. The first application was Bitcoin, but the technology has since 2008 not only been applied to new cryptocurrencies but also new ways of solving business problems. Iansiti and Lakhani (2017) define five basic principles of the technology:

1. *Distributed database* - Data is shared among participants in the network and each participant can access its entire history and verify transactions. Also, no central party has control of the network.
2. *Peer-to-peer transmission* - Communication is carried out between parties in the network who communicates to the next party, i.e. there is not a central node that communicate the information.

3. *Transparency with pseudonymity* - All transactions that take place in the network is associated with a thirty-plus-character alphanumeric address. Meaning that users do not have to reveal their true identity in the network if it is not required by design.
4. *Irreversibility of records* - All transactions in a blockchain is linked together using computational algorithms. Meaning that if one would try to alter a transaction it would affect all the subsequent transactions.
5. *Computational logic* - Transactions in a blockchain network can be tied to computational logic meaning that one can program algorithms that trigger transactions to take place in the network.

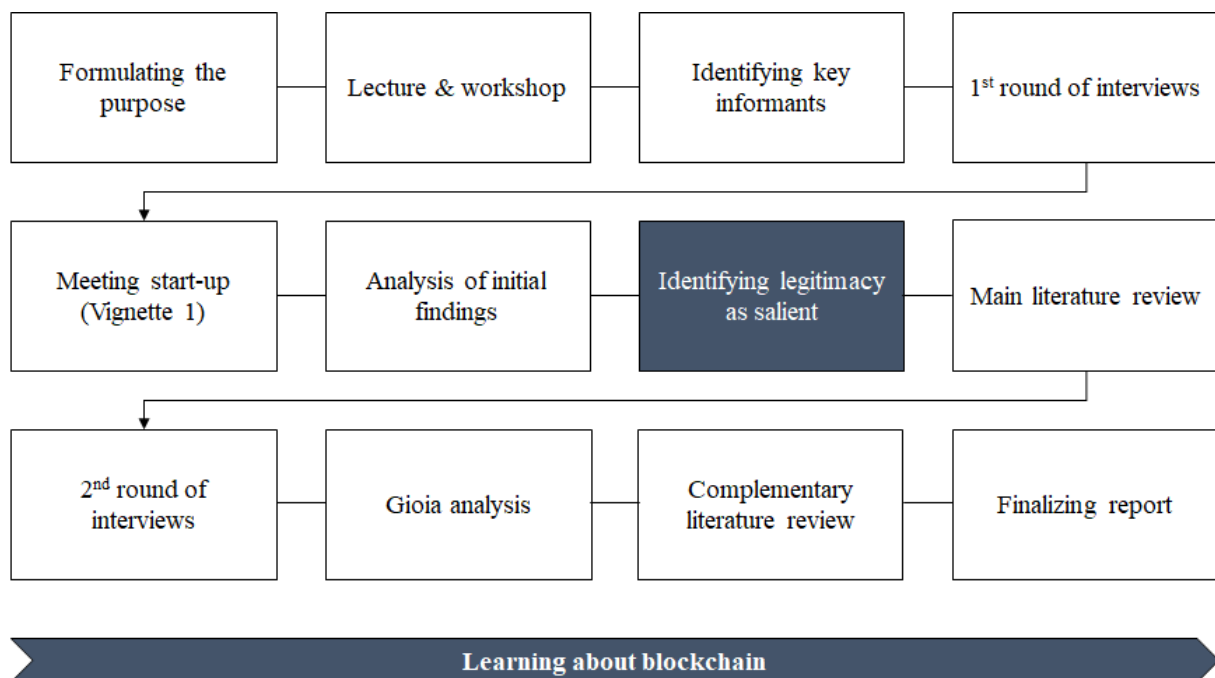
Furthermore, whilst some authors define blockchain as a radical innovation (Beck and Müller-Bloch, 2017), Iansiti and Lakhani (2017) goes further and define blockchain as foundational. Unified for both definitions is that blockchain has the potential to alter established business processes, but when and how is still to be discovered.

### 3. Method

*In this chapter the methodology of this study will be presented and motivated. At the end of the chapter a method discussion regarding transferability, reliability, transparency and credibility is presented.*

#### 3.1 Research process

In this section the research process of this thesis will be described. Figure 2, below, provides a breakdown of the components that constitute the research process to give the reader an overview of that has been done and in what order.



*Figure 2 - Illustration of research process*

In late 2017, the case company formed a new department aimed at promoting innovation within its purchasing division. The head of the newly formed division, the Senior Vice President (SVP), had decided that blockchain technology was one of the technologies that the department should monitor. He believed that blockchain, being a radically new technology, could be beneficial for the purchasing department. However, due to limited knowledge about the technology in the firm the SVP decided to initiate a master thesis project with the specific aim to understand the implications of blockchain for purchasing and to develop a use case.

Since little was known about blockchain at the purchasing department as well as among the authors, the thesis was initiated by reading up on blockchain and the authors continued to do so throughout the entire thesis in order to develop the necessary knowledge and faculty to consult the case firm. The authors did so by first studying Bitcoin to understand the origin of blockchain technology, to later understand white papers written on new blockchain solutions. When reading up on the technology in general and Risius and Spohrer (2017) in specific, a

missing link on how blockchain design actually link to economic value was identified. Hence, the first research question corresponded; *How does blockchain design link to value capturing opportunities?*

To initiate the thesis at the case firm, transfer knowledge about blockchain and find a suitable research angle, the authors and their supervisor Peter Altmann conducted a lecture and workshop on the topic of blockchain. The workshop was held at the headquarter of the case firm and 20 employees participated live and one online on skype. Out of the 20 employees, 16 belonged to the purchasing department, three attended from operations and one from legal. Our supervisor first held an hour and 15 minutes long lecture on the basics of blockchain including; background, an explanation of how the technology works and some examples of firms doing blockchain projects. The participants had the opportunity to ask questions throughout the lecture and interest was high among the participants. After the lecture, a workshop was held by the authors where the participants were divided in non-homogeneous groups, such as mixing employees from operations with purchasing and making sure that different functions within purchasing was well mixed. The participants were ought to discuss use cases in specific and the supervisor facilitate technical questions. Discussions were held for 45 minutes and the workshop was rounded off with a full table discussion on what the groups had found. After the workshop were the authors approached by a manager from the operations department who could refer us to an IT architect who, according to the manager, was a key initiator of blockchain development in the operations department.

The authors contacted the IT architect immediately to set up an interview. Through him could the authors collectively map the different blockchain initiatives in the firm as well as the key informants and set up interviews accordingly. After the first interview two facts became evident; (1) the case firm did not have enough experience on blockchain to give reliable answers on blockchain design and (2) the case firm did not have time nor interest in building necessary capabilities to develop blockchain solutions internally and thus outsourcing was the only option. In addition, the firm had a long history creating strategic partnerships with incumbent IT service providers. Hence, a new idea was formed to investigate partnership creation in regard to radical innovation and subsequently was the research question adjusted to; *What influence partnership creation in regard to adoption of radical innovation.*

Furthermore, after conducting the first round of interviews and going through the responses, a specific theme became salient; legitimacy. The interviewees were unified in their responses, they told stories about how only incumbent service providers would be able to supply what they needed and that technical aspects were irrelevant. Hence, the authors choose to pivot the research question and focus on legitimacy. The research question was instead formulated as; *How does the need of legitimacy influence partnership creation during the adoption of radical innovation in a large business organization?*

Research question	Trigger(s) of change
1. <i>How does blockchain design link to value capturing opportunities?</i>	The case firm did not possess the necessary knowledge to answer questions regarding design.
2. <i>What influence partnership creation in regard to adoption of radical innovation?</i>	Broad research question, thus the most influential aspect after the first interview round was considered more interesting to investigate
3. <i>How does the need of legitimacy influence partnership creation during the adoption of radical innovation in a large business organization?</i>	After analyzing the first round of interviews and participating in supplier meeting with a start-up.

Table 1 - Overview of research question pivots

In conclusion, to balance the need for academic relevance with practical relevance, the authors decide to develop two research questions. The first *How does legitimacy influence partnership creation during the adoption of radical innovation in large business organizations?* and the second *What do other actors do (internal & external) and how do one assess blockchain solutions?* This satisfied the academic relevance by incorporating legitimacy view into adoption of radical innovation and the practical relevance by mapping blockchain and developing a framework for how to assess use cases. In this paper, however, only the first research question will be covered while the second research question was delivered as a second report to the case firm.

### 3.2 Research design

Since this thesis was conducted in collaboration with a firm, it is by nature a case method thesis. According to Eisenhardt (1989), case methodology is a research strategy that studies dynamics in a single setting. However, as a method, case studies does neither exclude nor include the use of multiple cases (Yin, 1984). This thesis uses a single case study approach due to access of rich data. In turn, it was early on recognized that we were going to study a nascent field (Blockchain), which in accordance with Edmondson and McManus (2007) encourage use of a qualitative approach. Furthermore, since the research field is deemed nascent it was desirable to create a grounded theory model. Hence, an inductive approach was used following the principles of Gioia et al. (2013). As an example, people in organizations, in this thesis at the case firm, are seen as knowledgeable agents of their organization (Gioia et al, 2013) and are viewed as the primary source of reliable information and thus the base for building grounded theory.



### 3.3 Data collection

*In this section it will be described how interviews were held, how observations were made and how the literature study was conducted.*

#### 3.3.1 Interviews

Interviews were held at the case company in two steps, question templates are available in appendix 1 and 2 respectively. The first round was of semi-structured character to explore different blockchain initiatives within the case firm. Since the case firm is very large, information silos exist at the firm and there is no aggregated organ whom coordinates initiatives for blockchain. Hence, the authors identified a need for an approach where different blockchain initiatives at the firm could be mapped. Hence, the first initiative was to arrange a lecture and workshop on the topic of blockchain, to generate a contact network for the research at the firm as well as to find and define use cases of blockchain. After the lecture, the authors were recommended by a manager within the operations division to talk to an IT architect whom would later recommend us to other employees who was involved in blockchain. So, the authors continued until contact with all employees and blockchain initiatives at the firm were made, a total of six employees whom were all interviewed twice. It was later found out that an additional initiative existed in another region of the world. Contacts were made but the authors were unfortunately not able to hold any interviews with that part of the organization.

The second round of interviews was substantially more structured to secure proper obtaining of information about partnership creation and all interviewees from the first round of interviews were interviewed again. However, some interviewees were asked follow-up questions referring to their answers from the first round of interviewees. Such clarifying questions were asked because of two reasons; either it was unclear how one would interpret a previously given answer after transcribing the interview or that the answer, after analysis, induced further questions. All interviews were held in person apart from one interview, which was arranged to follow-up that interviewee's impression of a meeting with a potential blockchain supplier.

### 3.3.2 Interviewees

*To increase the readers understanding of interviewee's competence are their responsibilities presented in Table 2 below.*

<b>Responsibility</b>	<b>Name</b>
Technology scouting, identifying trends for R&D	Interviewee A
Develop concepts for new innovative projects in aftermarket	Interviewee B
IT architect for internal logistics	Interviewee C
Telematics	Interviewee D
Develop concepts for new innovative projects in aftermarket	Interviewee E
Technology scouting, identifying trends within purchasing	Interviewee F

*Table 2 - description of interviewed persons and their abbreviation*

### 3.3.3 Meetings

Throughout the study the authors tried to spend as much time as possible at the case firm to become familiar with the research context. In the spring of 2018, both authors spend 40 hours per week from the 14th of January until 10th of May at the case firm including participation and arrangement of numerous meetings at the case company. In total the authors participated in 27 meetings, see Table 3 below. In comparison, meetings and interviews differed in purpose, interviews were held to support this thesis and meetings were held to consult the case firm. Participants at the meetings included, but was not limited to, employees at the case firm both from the same department as well as separate departments. Other participants could include potential suppliers as well as independent experts. These meetings were not recorded by audio, but notes were taken to ensure proper documentation. Focus from a research perspective was to see how the mentioned participants interacted with each other when discussing blockchain to complement interviews which were held with one interviewee at a time. Such an approach helped the authors understand tacit connections. As an example, it became evident that one of the interviewees were informally regarded as an expert in the field of blockchain, hence, his opinions highly affected how other interviewees expressed themselves about the technology.

<b>Participants (excluding the authors)</b>	<b>Purpose of the meeting(s)</b>	<b>Number of meetings</b>
Innovative purchasing team members	Discuss innovation in the firm	12
Supplier	Discuss potential collaboration	8
External collaborator	Discussions around blockchain	3
2 employees from operation division	Discuss blockchain use cases	2
9 members of operations department and 1 from purchasing department.	Share knowledge about blockchain across departments	1
Innovative purchasing management team	Discuss current work in the department	1

*Table 3 - Overview of meetings during the thesis*

### 3.3.4 Literature study

Literature was continuously gathered and updated during the study. Firstly, literature in the domain of blockchain was gathered to understand the technology. Since the notion of blockchain only has been around for ten years and traction was gathered the last three, few academic articles on the topic can be found. Hence, blockchain literature was mainly gathered from trusted blockchain forums such as Coinbase, Github and startup's white papers as well as large service providers white papers. Example keywords generating blockchain knowledge where: *consensus algorithm, blockchain white paper, byzantine fault tolerance, protocol, cryptocurrency etc.* Secondly, resource-based view and legitimacy theory was studied to better understand how it relates to large business organizations adoption of radical innovation. Example of keywords that were used: *partnership creation, radical innovation, legitimacy, business organization etc.*

### 3.4 Data analysis

All interviews were processed in the same way; as soon as the interview was finished transcriptions were written and data was grouped into different categories to ensure that no observational data were lost due to lead time. Categories was conducted differently during the two interview rounds since the approaches differed in terms of structure. Table 4 shows found themes during interview round one.

Themes
Hype
Application areas
Organization
Technology
Partnership
Legitimacy

*Table 4 - Categories from interview round 1*

Furthermore, data from interview round two was categorized under each question since the interviews were highly structured which allowed for a feasible comparison under each question. All interviewees were assigned a color in order to separate responses. The data was then analyzed further structured in two parts; first, data sorted based on how the response was found to influence partnership creation. Hence, we could narrow down the data and start to analyze in terms of why those factors exists in the organization. Secondly, the same data was categorized in terms of found connections to legitimacy.

After data from the second round of interviews had been structured we started to analyze the data based on the Gioia method (Gioia et al., 2013). The Gioia method is applied in three steps; 1st-order analysis, 2nd-order analysis and lastly distillation of aggregate dimensions. During the 1st-order analysis codes, terms and information were extracted from the data. In accordance with Gioia, we initially made little effort to distill categories. Instead, we let the data be fully decoded. According to Gioia et al. (2013) this can be an overwhelming process as the number of categories that emerge easily can range from 50 to 100. After the data had been decoded, the authors started to analyze it again but now with the overarching theme of radical innovation and partnership creation in mind. This resulted in the selection of quotes like 1 and 2 below for further analysis:

*Quote 1:*

*“A startup had not even made it through our normal processes at all”*

*Quote 2:*

*“I can’t just bring in a firm because I think they are good. All new players go through a certain process. There we need purchasing with us if we want to bring in a new firm”*

Identified quotes were then assigned a 1st order concept. In the above example *Sourcing process favor incumbent firms* and *Strategic partners are already approved as supplier/partner* were used respectively.

After corresponding categories were identified, the 2nd-order analysis was initiated. The authors structured the 1st order concept on post-it notes which was attached to a whiteboard to draw lines between corresponding concept. Hence, concepts of higher correlation were grouped together under a common theme. The themes were then put in relation to the literature study to identify theory which could help to explain the observed themes. The process was then repeated to distill aggregated dimensions and the result was combined into a data structure.

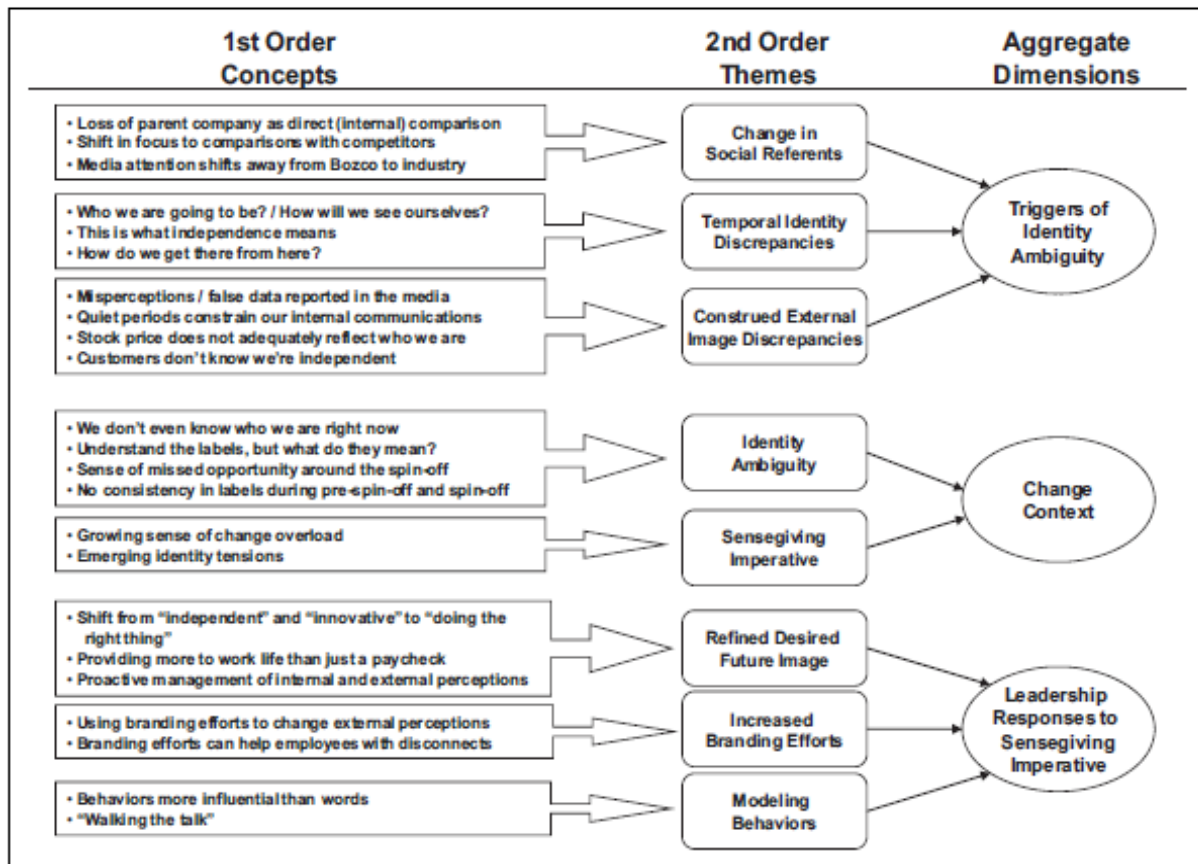


Figure 3 - Example of data structure from Gioia et al. (2013)

### 3.5 Discussion of Methodology

*In this section is the study's credibility, transferability, dependability and confirmability discussed from a quality perspective to ensure the research's trustworthiness.*

#### 3.5.1 Credibility

To ensure credibility multiple actions were taken. Firstly, and in accordance with Easterby-Smith et al. (2015), the authors tried to spend as much time as possible at the case firm (See section 3.3.3) in order to fully understand the organizational context and access it. Secondly, secondary sources were treated with care. Hence, multiple article describing the same matter e.g. bitcoin was compared in order to ensure their conformability. Thirdly, supervision

meetings were held on bi-weekly basis at the case firm and every third week on average at Chalmers to debrief findings and discuss the data.

### 3.5.2 Transferability

Researchers of qualitative studies often have a hard time to judge whether their study can be transferred to a setting beyond the scope of their study (Easterby-Smith et al., 2015). Hence, the authors of this paper choose to provide a rich contextual description in order for the reader to be able to correct for any contextual anomalies that may affect transferability.

### 3.5.3 Dependability

To ensure a repeatable process, details on how the study was conducted is presented. By following the same method, a repeated research should be able to confirm the validity. However, during this study random incidents has occurred such as supplier meetings which would not be repeatable. Also, since the thesis analysis is guided by Gioia et al. (2013) the analysis is by nature subject to subjective influences.

### 3.5.4 Confirmability

In order to stay objective as researchers two measures were taken by the authors. Firstly, interview questions where designed to be open ended in order to avoid any presumptuousness of the authors. Secondly, an audit trail was established by using the Gioia et al. (2013) methodology which clearly outlines how conclusions were drawn (See 3.4 and Figure 5 & 6).

## 3.6 Organizational description

The authors have during a five months period been assigned to write a master's thesis at the case company. Upon request, all information regarding the firm is kept anonymous.

## 4. Context description

*The chapter will start by describing blockchain solutions for a new entrant followed by an incumbent firm. Then, a comparison is made to present differences.*

### 4.1 Example of blockchain suppliers

As mentioned, the creation of Bitcoin has paved the way for many types of new businesses to be established and prosper in the domain of blockchain technology by both incumbent IT-service providers and new entrants. However, incumbent firms and new entrants arguably differ in what they offer in relation to the original radical innovation of Bitcoin. Below, two firms will be contrasted and put in relation to Bitcoin to present how their solutions differ and how that affects business opportunities for industry adopters.

#### 4.1.1 New entrant (Modum)

Modum is a Swiss startup based out of Zürich who delivers blockchain based solutions to solve supply chain problems regarding drug safety ("modum.io | Company", 2018). In specific, Modum provides an IoT sensor device which is put inside the box of a pharmaceutical shipment. The sensor then records temperature conditions during transport and when the shipment arrives to the buyer, the data is uploaded to the Ethereum blockchain ("modum.io | Solution", 2018). The Ethereum blockchain shares multiple similarities with the Bitcoin blockchain in a generalized sense; it is permissionless, uses Proof-of-Work as consensus algorithm and has a cryptocurrency connected (Lee, 2018). However, their technical capabilities differ, Bacina (2018) reads *"When a Bitcoin transaction occurs, the only information passing to the nodes is the transfer instructions themselves. [...] smart contracts are, by their nature, deterministic with no room for ambiguity such as concepts of reasonableness, part performance, limitations of liability or indemnities, or even variations to or interference with the contract once it starts to run."* Hence, when Modum uploads its sensor data to the Ethereum blockchain the data becomes public and a smart contract is executed which checks whether conditions during shipment has been within a predefined range of temperature. The sensor also records if a box would be opened during transport to secure tamper proof data. By monitoring temperature conditions firms can prove compliance with GDP 2013/C 343/01 ("modum.io | Solution", 2018).

In the above described solution, Modum connects four types of stakeholders and their incentive for behavior in the network is described in Table 5 below.

Stakeholder	Role	Incentive
<i>Drug manufacturers</i>	<i>Places sensor in shipment</i>	<i>No incentive to behave dishonest</i>
<i>Logistic companies</i>	<i>Transport goods</i>	<i>Has incentives to tamper with sensor</i>
<i>Pharmacies / doctors</i>	<i>Sell a compliant product</i>	<i>No incentive to behave dishonest</i>
<i>Regulators</i>	<i>Check compliance of medical products</i>	<i>No incentive to behave dishonest</i>

*Table 5 - Incentives and roles of stakeholders in Modum's business model*

Since the data is available publicly and confirmed by the Ethereum blockchain, all stakeholders reach consensus. As seen in Table 5, the only stakeholder with incentives to behave dishonestly in this setup is hindered technologically since the sensor record a potential attempt of tampering. Thus, as in the case with Bitcoin, aligning incentives is an essential functionality mechanism of the provided solution.

Furthermore, Modum has chosen an agnostic strategy approach both in terms of industry application for their solution as well as how they technologically carry out their solution i.e. what blockchain infrastructure to use (Modum.io, 2018). However, whether Modum obtains the required dynamic capabilities to do so is for the future to decide.







#### 4.1.2 Incumbent firm (IBM)

As of June 2016, IBM - a multinational corporations focused on hardware, software and middleware started to develop blockchain solutions together with Maersk - a global leader in container shipping. As of January 2018, IBM and Maersk took a next step in their collaboration and developed a joint venture together to develop blockchain- and cloud-based solutions ("Maersk, IBM to Form Joint Venture to Digitize Supply Chains", 2018). Their applications are built on Hyperledger Fabric, which is a permissioned based blockchain originally contributed by IBM among others for an open source blockchain project called Hyperledger, which is managed by the Linux Foundation ("Hyperledger - About", 2018). In contrast to Bitcoin and Ethereum, permissioned blockchains are closed for public access i.e. read and write capabilities and can only be accessed via permission from the network (Bauerle, 2018). Hence, governance is centralized to IBM-Maersk and not by decentralized means as in the Bitcoin network.

In terms of application areas, IBM-Maersk are currently developing a platform that increase traceability and support paperless trade of shipping (White, 2018). Figure 4 shows what different actors must provide and gain from participating in the platform. While blockchain solutions are a new capability of the firm, White (2018) says that "[...] multiple parties have



*piloted the platform including DuPont, Dow Chemical, Tetra Pak, Port Houston, Rotterdam Port Community System Portbase, the Customs Administration of the Netherlands, U.S. Customs and Border Protection.”*

	<b>Ports and Terminals</b>	<b>Provide</b> information about the disposition of shipments within the boundaries of the port / terminal <b>Benefit from</b> pre-built connections to shipping lines and other actors, end-to-end visibility across shipping corridors, and real-time access to more information to enrich port collaboration and improve terminal planning
	<b>Ocean Carriers</b>	<b>Provide</b> information about the disposition of shipments across the ocean leg <b>Benefit from</b> pre-built connections to customers and ports / terminals around the world and real-time access to end-to-end supply chain events
	<b>Customs Authorities</b>	<b>Provide</b> information about the export and import clearance status for shipments into and out of the country <b>Benefit from</b> more informed risk assessments, better information sharing, less manual paperwork, and easier connections to national single window platforms
	<b>Freight Forwarders / 3PL</b>	<b>Provide</b> the transportation plan, inland transportation events, information on intermodal handoffs, and document filings <b>Benefit from</b> pre-built connections to the ecosystem, improved tools for customs clearance brokerage function, and real-time access to the end-to-end supply chain data to improve effectiveness of track-and-trace tools
	<b>Intermodal Transport</b>	<b>Provide</b> information on the disposition of shipments carried on trucks, rail, barges, etc. <b>Benefit from</b> improved planning and utilization of assets (e.g., less queuing) given real-time access to end-to-end supply chain events for shipments
	<b>Shippers</b>	<b>Engage</b> with the solution as a consumer of the shipping information events and paperless trade capabilities <b>Benefit from</b> a streamlined and improved supply chain allowing for greater predictability, early notification of issues, full transparency to validate fees and surcharges, and less safety stock inventory

*Figure 4 - Potential benefits using the platform (White, 2018).*

Hyperledger Fabric is, in the solution described above, used as the underpinning digital infrastructure which holds digital signatures (White, 2018). Hyperledger Fabric is as mentioned a permission based blockchain, but further distinctions exist. Firstly, Hyperledger Fabric does not support consensus on ledger level, instead consensus is reached on transaction level meaning that only those involved in the transaction reach consensus (Sandner, 2018). Secondly, governance of the IBM-Maersk network is centralized to IBM-Maersk, meaning that the network does not get more secure by adding participants and hence, cryptocurrency rewards are not used to incentivize network participation (Harrison, 2018). Lastly, due to the permissioned based structure, all actors are known in the network which provides incentives to behave honest as a dishonest actor would lose brand value and its position in the network if exposed of dishonest behavior.

#### 4.1.3 Comparison (Bitcoin vs Modum vs IBM-Maersk)

Characteristic	Bitcoin	Modum	IBM-Maersk
Public	Yes	Yes	No
Governance	Community	Community / Company	Company
Consensus	Proof-of-Work	Proof-of-Work	Proof-of-Authority
Tokens/Crypto	Yes	Yes	No
Game theory	Yes	Yes	No
Anonymity	Yes	No	No

*Table 6 - Comparison of Bitcoin, Modum and IBM-Maersk joint venture based on essential blockchain characteristics*

Presented in Table 6 above are the blockchain solutions of Bitcoin, Modum and IBM-Maersk compared in terms of six different characteristics. The legitimate aspects are regarded to be closely linked to market and technological feasibility since companies not will use a system which they do not trust nor fits their market. As conclusion regarding the technological aspects is it clear that Modum's solution is more resembled with Bitcoin, the only difference being that Modum do not use anonymity. Modum's technical legitimacy may therefore be regarded higher than IBM-Maersk's. However, how a market or firm evaluates legitimacy may differ and the technical aspect may not be most important as will be shown next in the empirical findings.

## 5. Empirical findings

*In this chapter findings from interviews and participation in meeting is presented. First, the attitude towards blockchain development will be presented followed by descriptions of blockchain initiatives within the case firm. To present progress within the case firm two vignettes regarding a supplier meeting and one internal meeting is included. The second round of interviews is presented in the later part focusing on influences of partnership creation.*

The conceptual ideation of blockchain is one thing and technical aspects is another. The first interaction with blockchain was expressed by interviewee A as *“We primarily evaluated how it is going to affect us. [...] Should we even bother to learn anything at all.”* The technical differences have therefore not been evaluated yet or as interviewee C said *“We need blockchain to become more accessible, that Oracle and SAP create platforms around it for us to work with it. We cannot do as Bitcoin and code it ourselves.”*

Regarding technical aspects interviewee B said *“We have basically focused on use cases [...]. But I think the step is to see how we can use it. If we take a next step we will either way use a larger service provider for it, Oracle or something. So, I don’t believe the technical competence is critical.”* The necessity to gain capabilities about technical aspect is constantly drawn down even though the necessity to know differentiated risks is highlighted. As when interviewee B was asked if the technical aspects could be relied upon the service provider, he stated *“Yes, something like that, but we have to understand the risks, that’s for sure.”*

### 5.1 Initiatives

At the case company, many different roles are handling innovation, one of those is interviewee A whom is focused on early-phases. This person has been identified by several of the interviewees as the initiator of blockchain efforts within the firm. He describes his role as *“My role is technology scouting, where we try to look at different trends. We have a number of actors helping us with their guesses about the future and then we compile these guesses to see what is relevant for us.”* Blockchain it is not a “new” technology for the company, interviewee A describe this as *“Blockchain did not really pop-up recently, it has been there for a while [...]”*. Due to the buzz about blockchain during 2017 interviewee A decides to conduct a general study on the technology *“[...] but it was first last autumn that we did this study (refers to a consultancy report)”*. The result of this report was later communicated throughout the organization *“What we did from this was that we communicated it to different parts of the organization.”* says interviewee A. As the report was on a general level and interviewee A wanted to create viable actions he contacted a consultancy firm; *“We had a meeting with X (X being a credible consultancy firm) specialists and one of their recommendations was to look at what Maersk are doing”*. And so, they case firm did.

Even though it is not a new technology, only a handful of people are working with it. *“It is not that many that has looked at it, we are a handful, but we are spread out.”* says

interviewee B. He further describes his involvement in blockchain as *“In my area not much has happened in recent years, some new information systems but nothing special and my role is to create innovation streams in this area. We have just been up for 3 months but blockchain was one of the innovations that we stumbled upon since earlier.”* Why this is referred to something that has been discovered since earlier is because interviewee B worked together with interviewee A in creating the initial report on blockchain.

In another part of the organization, savings by using information technology has been the driving force; *“Three years ago we got a strategic objective to save 1 billion Swedish kroner. We then had to overlook how we manage our supply chain to investigate how we better can share information”* says interviewee C. This strategic objective was the spur for investigating information technology improvements and they went from a point to point integration concept to buying a solution as a service. By doing so they started to notice that blockchain was on the rise and that the provider of that service also was experimenting with blockchain technology. *“We will do testing together with Z (Z being a large provider of IT-services) since they are part of our portfolio. When it comes to supply chain, they have all our business.”* says interviewee C and since Z is experimenting with blockchain they become a natural choice of partner. Interviewee C further states that *“What we see as interesting and what we try Z to realize is that what Maersk is trying to build is already in their products. What they need to do is industrialize this together with our partner network of 3500 partners and all of sudden we will be one of the biggest blockchains.”*

Apart from those searching partnerships is another department looking into blockchain technology, focused on developments beneficial for the end customers. This person, interviewee D has chosen to take a piggyback role on others development. Interviewee D says *“I have chosen to piggyback and monitor this. Is it certain industry segments, corporations, division where blockchain could work or not?”*

As seen, different parts of the organization have had blockchain initiations and origins tied to it, but they boil down to two different initiations; the first involves looking into an already established supplier of IT-solutions and the second is exploring of use cases and potential partners.

The interest for blockchain solutions are present within the firm but the capability or interest to develop a solution on their own is out of the question, interviewee A states *“[...] I think we should trust a supplier who does it and preferably some of the larger ones. However, we should package it in our own value proposition. Buy the service and customize it to our own benefit.”* He then further points out that the supplier should be someone of previous collaboration; *“It will for certain be a supplier whom which we already have a tight collaboration with, it must be so [...]”* The ERP further elaborates that *“For us it is not an interesting case unless a supplier is willing to build the integration, we can supply data, a supply chain and explain what is happening in the processes and what standards that should be considered.”* Interviewee D also adds *“We will not build this system just like we don’t build the systems we have today.”*

When asked about whether a start-up or an incumbent firm (in this case being SAP, Oracle, IBM etc.) would be a better partner for developing some type of blockchain solution the interviewees present different answers but they all seem to be united on the latter. *“We have not really chosen to base our decision on anything else than that the Z is 1. a strategic partner to us and 2. that they have a working solution. The purpose is to create this chain and see what we can learn instead of chasing the technology”* says interviewee C who is in the forefront of initiating an actual project. Interviewee E says that *“We have invested very heavily in Y as ERP system Z as OTM system, so we look a lot to see what we can do conform with those systems. We have to start there.”* A few interviewees have met startups in the field but are pointing out the size difference, interviewee B states that *“We have been looking into a few startups that we had meetings with. One was a firm based out of India who had conducted a pilot together with Bosch and Ford I believe. [...] but there we felt... we have actually stopped... interesting but they are a very small company in India. Too small to work with. It is hard... we have focused on the large ones.”* and even though interviewee E claims that they are in an explorative phase incumbent firms are those of interest *“We are currently very open and are undergoing an explorative phase to build knowledge, learn and understand. It was just one example when we conducted the study at Maersk where we were looking at someone who has done something. Next week we will see SAP and I know that Oracle are doing something.”*

In terms of piloting and putting investments into blockchain, interviewee B states that *“We may not want to be first, we don't have either time or resources. We want to be early, but we don't want to be first.”* The ERP on the other hand gives a contrasting view and points out that it is advantages of being the initiating part; *“The others does not need to be part of the blockchain. We choose to put our data there which means that if they want to become a node they are more than welcome, since it is permissioned based we can set it up from the beginning with their ID. Then it's up to them if they want to work with traditional technology or log-on.”*

## 5.2 Maersk-example

When discussing the potential of blockchain technology it always depends on the context of the application. The case company has conducted a study to evaluate Maersk's joint venture with IBM. Interviewee B explains it as *“We are trying to understand what Maersk is doing [...] and we went and met Maersk to understand their perspective.”* Interviewee B continues *“In the IBM-Maersk case it is a permissioned based and you put in different rights for whom gets to write and read. That is the layout, everyone shall not be able to read it. And in that way, it is controlled whom can read, those who pay. But the information is accessible for everyone who pays.”*

Another interviewee, interviewee A says *“We have said that we want to test and learn. They have a business case for internal processes and the internal supply chain and it is excellent to use the own process as a learning-ground before going out and be embarrassed by customers.”*

[...] *They will do a proof-of-concept.*” The statements explain the context for why the Maersk-example was intriguing.

By questioning the obstacles Maersk stands before, interviewee B explained it as *“I think the maturity of ports, e.g. how ready is the ports for these kinds of things. If you’re not mature before it is going to be a hard to take this kind of step.”* Interviewee B elaborated on aspects affecting the internal adoption of the technology as *“If we are going to jump on the Maersk-train. It is not easy, it is something we’ve never done before. [...] The blockchain solves the trust issue, but automatically it attaches the document digitally and today it is not digitally. It is outside the chain, but it gets included.”* This fact is undisputed by interviewee’s and explained as the greatest gain for blockchain projects. Interviewee D explains it as *“It is the administration costs that is high with custom handling despite if it is a port or a boarder station.”*

### 5.3 Vignette 1 - Sales meeting with start-up

The background of this meeting was that one person in the visiting startups organization knew a person in the case company who could vouch for their legitimacy and so a meeting was set-up. The meeting held five participants, two master thesis students, one objective expert on the topic, interviewee F from the hosting firm and a salesperson (SP) from the visiting startup. Interviewee F started by presenting the firm where the thesis is conducted and was clear about his intentions with the meeting - to hear more about the startup and if they did something in the firm's industry.

The salesperson (SP) then presented his firm by explaining the fundamentals of blockchain. Early it was noticed that the SP was not talking to new combers around blockchain as technical questions arose which were hard for the SP to answer; *“I’ll talk to our Chief Scientist and get back to you.”* About the business side of their proposal nothing was yet settled, interviewee F asked, *“Can you tell me how you will make money?”* and the SP answered *“This is yet to be decided, as of now we control a stake of our issued tokens. In addition, we are creating this type of cryptographically secured sensors which are attached to items and used to put that item on our blockchain.”*

This made interviewee F sceptic. For context, interviewee F are used to handling suppliers of common goods with a clear business model. The skepticism grew even further when the SP tried to explain their governance model of nodes, he gave a hint of them being able to control all the nodes. After a short technical debate, the expert simply said, *“Do you have a master key or not?”* which the SP could not answer on the spot. This made interviewee F express *“I’m not sure that our firm are interesting in letting a startup control our data like this.”*

During the following lunch after the meeting it was concluded that an additional meeting would be set-up between the master thesis students, the blockchain expert and the startups Chief Scientist to clarify the technical uncertainties that the SP could not respond to. Within a few days an appointment was booked with the Chief Scientist and was scheduled as a skype-

meeting. During the meeting with the startups Chief Scientist it was concluded that the startup does have an indirect “key” to their blockchain. The Chief Scientist explained that their governance model is built upon the fact that the startup has a foundation connected to it. This foundation has a board in which is represented by the startup and partners to the startup whom control the voting rights of nodes and thus have a “key” to the blockchain. After this meeting a discussion with interviewee F followed. The master thesis students debriefed their findings and it was concluded that there is an issue of trust about letting a startup handle the data of the case company. However, the startup will be monitored closely to interpret further developments.

After the conclusion that the network could be shut down by the startup interviewee F was certain that no collaboration would be continued. The decision was not only based on the technical aspect, the encounter of the SP who had trouble answering questions did not give an impression of legitimacy. Any large corporation would ask similar questions and not being able to answer them gave an impression of unreliability and further contact between the firms did not take place.

#### 5.4 Vignette 2 - Two internal departments discussing blockchain advancement

As part of internal collaboration within blockchain technology a meeting was held to interact and learn from each other’s findings regarding blockchain. The meeting held four participants; two master thesis students, interviewee F and interviewee B from the case company. The beforehand expressed purpose of the meeting was to analyze blockchain potential in respective area of business. The meeting started with traditional introductions leading to the first topic for discussion, the Maersk-example. Interviewee B elaborated on Maersk’s expressed goal *“It would be more trust due to a blockchain and be able to get through customs processes faster.”* In addition to speed an adoption to blockchain would according to interviewee B mean that *“A general digitalization journey would be generated.”*

A discussion regarding other application areas started to emerge as the meeting continued. However, when implementation and set-up of the actual blockchain appeared in the discussion interviewee F interrupt and asks, *“How do you see the possibilities within the case company to develop a blockchain?”* Interviewee B, who has more experience of blockchain technology quickly responds *“We cannot do it on our own, to do it on our own does not work. [...] The choice stands between SAP, Oracle and IBM so that they can set it up for us, that’s the fastest way, we shall not do it in-house when they have complete systems. [...] Develop the IT-solution is not for us, we should let the big players take that part.”*

Further elaboration on the topic leads interviewee F to agree and he refers to the start-up meeting conducted where clear limitations for collaboration was found. After agreeing on the subject, interviewee F continued the discussion around a tip received from a supplier. The tip was to find an application area where blockchain adoption would be rather easy, yet not necessarily add much value. To initiate capability development and learn about the functionality and technical aspect of the technology. Interviewee B agrees that the idea would

increase the knowledge but elaborates with the statement *“We should not test just to be testing, there is a great deal of knowledge within the company already.”*

## 5.5 Second round of interviews

*As described in the method, the second round of interviews were structured in-depth questions about partnership creation was asked. Following the structure of the interviews, this section is divided into two sub sections; technology and organizational incentives.*

### 5.5.1 Technology

Throughout the first round of interviews it was observed that a consensus seems to have been established in the firm - it is not of interest to understand the technology since a supplier can develop it for them or as the interviewee C expressed it *“They build IT-systems we build X, we assume they know more about this stuff than we do.”* Although that probably is true, such behavior must induce some risks. The authors argued that if you do not know what you are looking at, you can simply not say who is the best at creating it. Interviewee B agree and adds; *“There is a large complexity around this (blockchain) and that is a risk. One part is that we do not fully understand the possibilities but also that we are technology blind. Because of the hype occurring around blockchain now, you believe that it can do more than it can and there are very few in the firm who actually understand blockchain technology. Many get stuck in a stage where they say we can do this and this, but that is not what blockchain is doing.”* Interviewee C agrees and adds; *“There is a lot of unanswered questions about the technology and what we can do with it, why do we even choose it?”* This shows that even though the interviewees are certain in investing time in their blockchain initiatives there are elements of uncertainty and doubt, especially in terms of competence. Interviewee A further adds; *“Why should we built a department for this when we can have a close collaboration with a partner who does it?”*

However, in contrast to the first round of interviews, the second round of interviews showed a more nuanced approach to competence development. Interviewee B states *“I still withhold that we should not develop this technology, there are others who can do that, but we should always have a full understanding of it. That is important.”* How this turns out in practice differ between the interviewees, interviewee B continues; *“[...] when we choose the use case we must really understand the technology, so we can choose the right use case and scope it in the best way. Generally, I would like more discussions on use cases and really go through them because generally we turn out to talk a lot more about platforms and suppliers instead of which use case that is the best. We need to have that in mind all the way. Should we have a permissioned based or not? We need to have discussions on how we are going to profit from this, that steers the use case.”* Interviewee A also adds; *“If we want to sell this as a service and if we want our products to share information in this way, then we must build competence.”* Unified for both statements are the need of increased awareness and to building competence around the technology no matter who builds the solution.

Furthermore, to understand the consequences of not knowing, the interviewees were asked if



they believe that their competence level affects their risk tendency level regarding choice of supplier. Interviewee B states *“It is not the competency level that matters it is our insight about our knowledge. If we have the insight that we do have competence, then I believe we are more risk inclined but if we are more insecure then I hope we are more risk averse.”* Meanwhile, interviewee C presents a more straightforward approach *“We know enough that we are dangerous now, we are not as good, so we can actually evaluate these questions.”* Present in both statements is the uncertainty of what knowledge that exist in the firm. In contrast, interviewee F said; *“The level of knowledge is very low, that we know.”*

The technology development for blockchain is rapidly shifting, interviewees has expressed concerns due to multiple factors. There is different risk by initiating a partnership with incumbent service providers and new entrants, interviewee A express it as *“It is always a higher risk to engage with a smaller firm, often we look at the big dragons. What can they offer? If a smaller supplier shall compete they have to show a clear competitive advantage in some aspect.”* The reasoning implicates that new entrants needs to utilize a radical innovation in a unique way to be able to compete. Interviewee B highlights another aspect of the topic, that *“The risk is that many start-ups have amazing ideas which we miss. So, the risk is that those are missed and that someone else gets them.”* The opinion is not entirely shared with other stakeholders, interviewee C says *“The big firms are not always first when a ball is moving, but in this case, I don’t think it matters, cause the ball is not new, it is from the early 70’s. At least the idea [...] so the industrialization has been very slow.”* Even if that is true is it first now when the industrialization is getting traction that rapid changes and standards may appear. The case firm is however quite calm about the legality aspect, interviewee A says *“All this is about nations and laws, so it will not be any abrupt changes. There will be law proposal and referrals, then lobbying activities on top of that.”* The technical factor is according to interviewee A rather irrelevant, that an open source community trusts the system is one thing, but the ruling will be another. Interviewee A says *“If you really trust the information, states, cities and borders will trust it. That is all political and legality questions. It is not hard to test if the technology works.”* The quote holds merit, but for internal processes between suppliers and the case firm is political aspects irrelevant which means that shifts may appear rapidly.

Rapid technology development may appear for other technologies as well, the notion that blockchain technology will be the most prominent one has also been questioned during some interviews. Other technologies such as directed acyclic graphs (DAG) and hash-graphs has been mentioned, but blockchain seem, as of now, to be the most interesting technology for the case company. In regards of new entrants and incumbent firm’s development, interviewee A says *“It will be technological solutions that will be better than the large firms. And then there is two options. The first is that large firms never catch up, the second is that the large firm buys to catch up. [...] Risk number one is that we bet the wrong horse and it dies, which is bad. But the horse we bet on, it is so rich, that it acquires to catch up and then that risk decreases.”* This logic has been presented as a key factor, that complementary resources is an advantage for large service providers.

### 5.5.2 Organizational incentives

At the case firm, being a multinational corporation, many processes are established on how to handle different suppliers, interviewee C says *“I can’t just bring in a firm because I think they are good. We go through all new players in a certain process. There we need purchasing with us if we want to bring in a new firm. They need to fulfill our requirement to show that, broadly speaking, that they are serious.”* Strategic partners have been seen to be favored when it comes to IT-systems.

Hence, this pre-established selection of suppliers has been seen to affect how employees view potential suppliers of blockchain solutions as well in some cases hinder the selection.

Interviewee C says; *“We choose them (large IT service providers) because they are our strategic partner, we also have completely different purchasing opportunities. Many of our strategic partners are interested in doing this for free. We invest people, they invest people and together we can build a good product. [...] they are willing to do this together with us because we purchase so much in other domains.”* Hence, not only does it comply with established processes to choose a strategic supplier, it also provides financial benefits.

Other interviewees agree on this situation, but interviewee B further adds a technical dimension *“[...] we choose to look at them because they are a good supplier of ours today and it’s much easier to integrate them in current systems.”* Meanwhile interviewee B emphasize technical integration it is further stated that *“We do not need to change our current processes in the same way and it is, simply, a smaller step.”* Lastly, interviewee F coming from a purchasing view offered an even more picturing view of how hard the processes can be to go through as a smaller player *“A startup had not even made it through our normal processes at all. From financially to our agreements, they had not passed it.”* This made the authors question whether cryptocurrencies are one part of not being able to pass the process and interviewee F responded; *“I was skeptical towards the startup I met for having a crypto, their entire idea was to pull in a lot of people to increase the value of their cryptocurrency, so they could cash out sometime in the future. That’s how I interpreted them.”*

Some of the biggest influential factors identified in current processes are size and track record. Interviewee C says; *“The problem with a small and good product is that they don’t have a track record. A product gets its legitimacy from the firm having a track record.”* Meanwhile, size can be elaborated with an example of an IoT platform provider which was known from several employees to have the best product but could not be chosen due to their limited size and brand recognition. *“For four years I looked at a firm then they were acquired by a bigger player and now we are interested in them. Their platform has been great all along, but they were not big enough to deliver to our firm. [...] suddenly the possibilities change.”*

Culture has throughout the interviews been seen to affect both how the interviewees choose a collaborating partner as well as how to manage internal capability development. For instance, interviewee A see partnership creation as hindered due to western culture’s need for being

able to sue *“All western firms actually have this approach - Oh shit, we don't understand, let's find someone that is big enough, so we believe that they can leave a guarantee of success and if they don't deliver we can sue them.”* It is then further emphasized through political aspect of the firm's culture and put forward that; *“[...] no one has been fired for hiring IBM.”* This statement shows a corporate culture where political motives are larger than technological. Furthermore, it is also a matter of not being able to separate from the past, interviewee A says; *“We have huge respect for our employees... huge... but that does also make us stick in technological areas deemed obsolete, just because we have a lot of competence in it. But I guess that why you are afraid of building new ones, you see these HR issues.”*

To further investigate how path dependency affects the choice of partner, interviewee C was approached with the question; is it your processes who hinder or is it particular employees who not are willing to take a risk and go with a startup that lacks track-record? *“I believe that it is the processes that guide how we do this. Sometimes we have a deviation but that is because an employee steps in and says ‘No, we are going to do this anyway’. That has happened, a situation where we know so much, and we have looked at everything that we are confident.”* This clearly shows that if one would vouch for a certain supplier there is possibilities to select a non-strategic supplier and thus political and to some extent cultural influences cannot be eliminated.

Moreover, even though most of the interviewees work with innovation in some form there seem to be lack of time to absorb and learn blockchain technology. Interviewee B states; *“[...] I don't believe you explain blockchain in 20 minutes. You need to do it repeatedly and learn about it on your own. Everybody that works with this should be given a homework to actually understand this.”*

## 6. Analysis

*The chapter starts to explain the structure for analyzing empirical findings, followed by three sections presenting the aggregated dimensions: knowledge state disfavor radical innovation, radical innovation fit in existing logic and path dependency.*

### 6.1 Structure for analyzing empirical findings

By creating a data structure model, the authors want to visualize empirical findings and analyze the dependencies identified to answer the research question: *How does legitimacy influence partnership creation for radical innovation in a large business organization?* Below in Figure 5 and 6 are raw data, first order concepts, second order themes and aggregated dimensions presented to increase the understanding of the analyzing structure used.

Blockchain technology is by interviewees explained as a complex technology which is hard to grasp. The industry is experiencing a hype about blockchain technology and the concept is appearing in several contexts where the need for a decentralized append only ledger is questionable. Due to the hype, skepticism has been emerging as well as speculation of industry standards, use cases and general adoption varies stark. These speculations have been identified as a reason for large business organization fitting radical innovation in existing logic. The knowledge about blockchain technology is due to the novel stage low throughout industries which creates problems for both suppliers and firms who want to adopt the technology. The complexity makes it hard to assess solutions and realizing the value it creates. Low competence has been identified within the case company which experience difficulties identifying the technological potential of presented solutions. Suppliers legitimacy is therefore the main aspect large business organization rely on when assessing supplier's solution. The analysis is illustrated in the model presented in Figure 5 and 6.

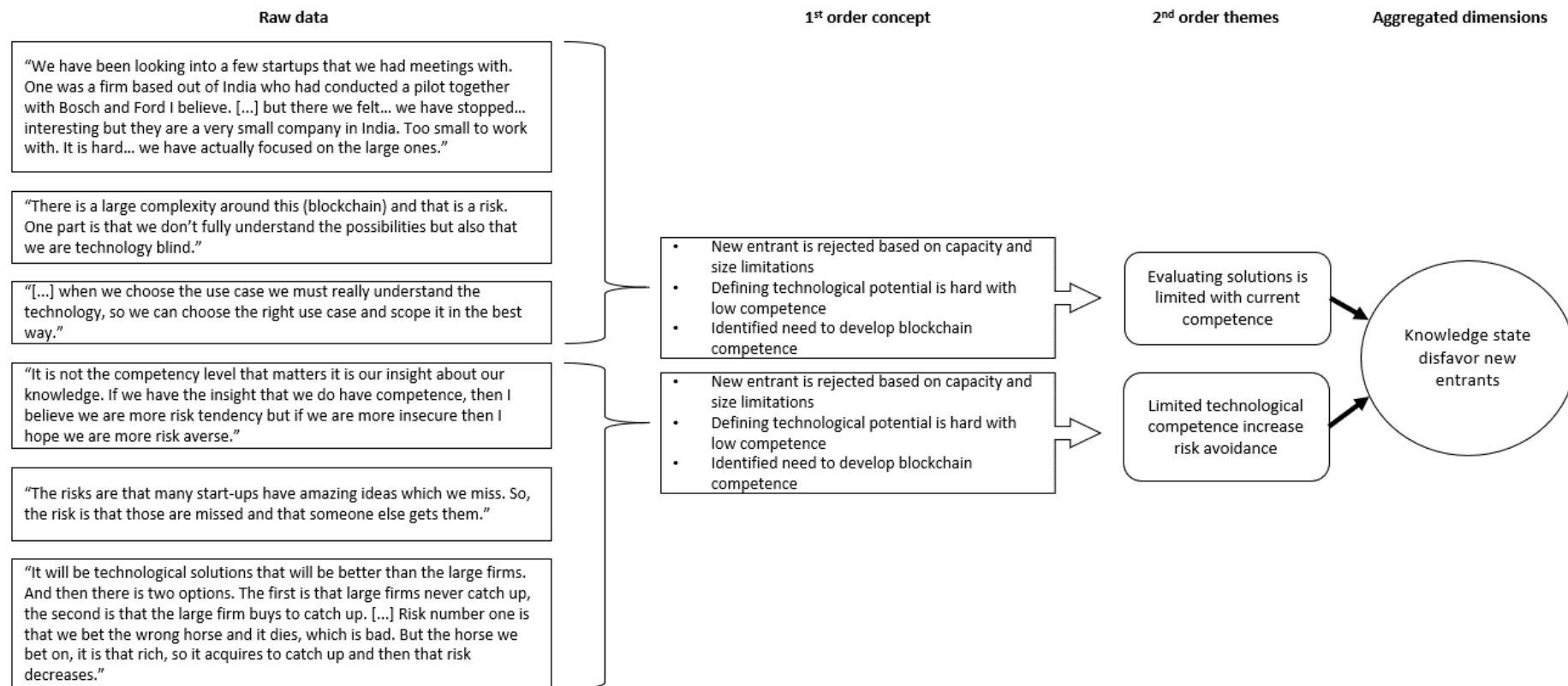


Figure 5- Data structure using Gioia methodology

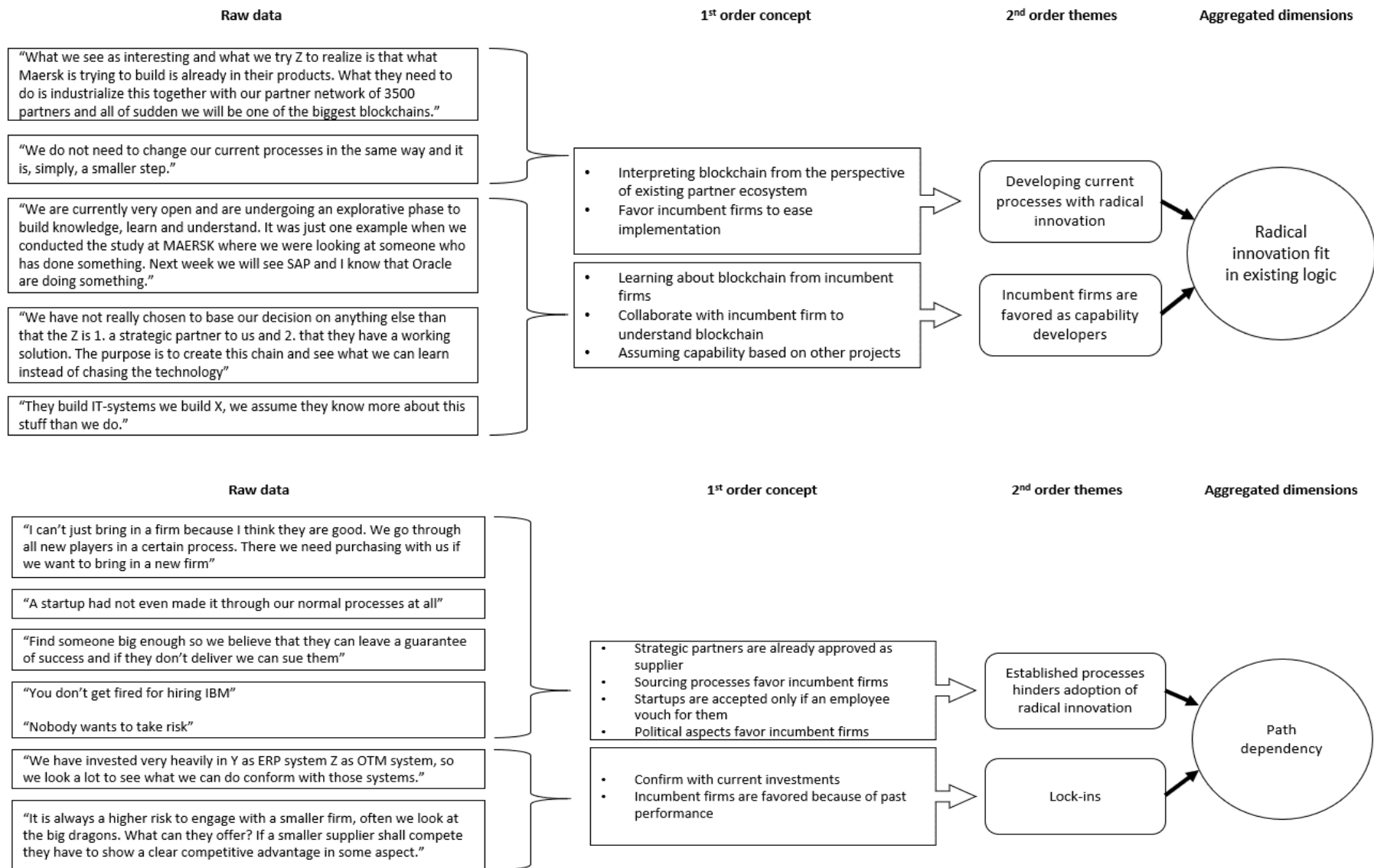


Figure 6- Data structure using Gioia methodology

## 6.2 Knowledge state disfavor radical innovation

The case firm has, as previously mentioned, been in contact with several potential suppliers to create a blockchain partnership. New entrants are described as *“We have been looking into a few startups that we had meetings with. One was a firm based out of India who had conducted a pilot together with Bosch and Ford I believe. [...] but there we felt... we have stopped... interesting but they are a very small company in India. Too small to work with. It is hard... we have actually focused on the large ones.”* One reason for the case firm being interested in the startup is argued to be for the legitimacy the startup had retained from collaborations with Ford and Bosch. The reason to not pursue collaboration was due to size and presumably capacity limitations. Interesting enough is the solution not mentioned as insufficient or problematic making the author see it as a minor priority.

The complexity of blockchain has been expressed as risky, *“There is a large complexity around this (blockchain) and that is a risk. One part is that we don’t fully understand the possibilities but also that we are technology blind.”* It is hard to intuitively understand blockchain solutions and the risk being referred to is identified as a risk of not being able to evaluate solutions’ potential. This is elaborated by another interviewee as *“[...] when we choose the use case we must really understand the technology, so we can choose the right use case and scope it in the best way.”* The statement expresses an identified need to be able to understand the technology. The risk is that a terrible solution and a great solution can be presented for the case firm and be valued as equal, which is the definition of being technology blind. Therefore, is the capability of evaluating solutions’ potential important yet limited with the case firm's current competence.

That competence level impact decisions for firms are inevitable, but how it affect is of interest for this study. How the competence level matter is expressed as follows *“It is not the competency level that matters it is our insight about our knowledge. If we have the insight that we do have competence, then I believe we are more risk inclined but if we are more insecure then I hope we are more risk averse.”* When insecurity of competence level occurs, employees will doubt themselves and their decisions which may lead to an increased risk aversion. In addition, if the competence level is known as the statement implies, that insight will be considered for the decision and not pose a risk. The argumentation leads to the conclusion that awareness of low competence increases risk aversion.

Another risk mentioned is the risk of missing out on radical innovation. The statement *“The risks are that many startups have amazing ideas which we miss. So, the risk is that those are missed and that someone else gets them.”* identify risks of not being able to distinguish a radical innovation with potential business value. Capabilities within an area will therefore impact the possibilities for the firm to produce radical innovation. The risk of missing out on radical innovation is expressed as smaller when partnering with incumbent firms. The logic is presented in the statement *“It will be technological solutions that will be better than the large firms. And then there is two options. The first is that large firms never catch up, the second is*

*that the large firm buys to catch up. [...] Risk number one is that we bet the wrong horse and it dies, which is bad. But the horse we bet on, it is that rich, so it acquires to catch up and then that risk decreases.*” Incumbent firms are in the statement argued to be able to adopt radical innovation by acquiring competence. Therefore, the conclusion can be made that incumbent firms have advantages when a large business organization is risk averse.

At the case firm it was identified that limited technological competence increase risk avoidance. In Vignette 1 is a meeting with a potential blockchain supplier described and the blockchain expert was able to ask about critical aspects of the supplier’s solution. The fact that the supplier was not able to answer is for this argument irrelevant, but what if the case firm not would have the competence to ask the right questions? A critical aspect regarding the networks’ governance structure would have been disregarded and the evaluation would have been inadequate. Evaluating the potential of solutions is within the case firm described as limited due to their competence level which increase the firm’s risk avoidance. Radical innovation is always accompanied with risks and being risk averse because of the limited knowledge state will therefore disfavor radical innovation.

### 6.3 Radical innovation fit in existing logic

The intuitive way for the case firm is to interpret blockchain in the context of current initiatives and resources. The statement *“What we see as interesting and what we try Z to realize is that what Maersk is trying to build is already in their products. What they need to do is industrialize this together with our partner network of 3500 partners and suddenly, we will be one of the biggest blockchains.”* makes the notion clear, that existing partners are resources when radical innovation is considered. Rather than developing new processes the objective is to make current processes more efficient and integrate a new solution into existing systems. In addition, incumbent firms have knowledge and experience of managing current systems. Stated as *“We do not need to change our current processes in the same way and it is, simply, a smaller step.”* and incumbent firms are thereby favored to develop new systems. It can be argued to be an incremental innovation when processes are being developed even if it is developed through a technology that is radically new. Regardless of what it is called, the innovation described is evaluated using existing logic.

Competence for blockchain technology is impacting partnership creation according to the reasoning above. How capabilities are developed will therefore also impact the partnership creation process for radical innovation. At the case firm, blockchain capability development started with consultancy reports, which recommended to investigate Maersk’s initiative. The statement *“We are currently very open and are undergoing an explorative phase to build knowledge, learn and understand. It was just one example when we conducted the study at Maersk where we were looking at someone who has done something. Next week we will see SAP and I know that Oracle are doing something.”* indicates that during the exploratory phase it has been incumbent firms that are interesting. Incumbent firms have been an information source, but the collaboration to understand blockchain is summarized as *“We have not really chosen to base our decision on anything else than that the Z is 1. a strategic partner to us and*



2. *that they have a working solution. The purpose is to create this chain and see what we can learn instead of chasing the technology*” A strategic partner is of course regarded as legitimate by the case firm, but there is one assumption that is fundamental *“They build IT-systems we build X, we assume they know more about this stuff than we do.”* An assumption of service providers competence and capability to adopt and utilize blockchain technology. The assumption is based on the incumbent firm having a track record which gives them legitimacy.

Capabilities within the blockchain domain is clearly stated to be developed with incumbent firms and will be understood by their definitions and logic. Incumbent firms have legitimacy and are assumed to know more about blockchain which the case firm are going to learn from. Existing logic is used to evaluate solutions potential even though blockchain technology potentially could displace current systems it is planned to be used to improve current systems.

## 6.4 Path dependency

The case firm have strategic partners within multiple areas, IT being one of them, and established processes exists to work on development projects. A strategic partner has gone through the standard procedures to become a supplier. The process of bringing in a new supplier was described as *“I can’t just bring in a firm because I think they are good. We go through all new players in a certain process. There we need purchasing with us if we want to bring in a new firm”* An aspect worth considering was identified, to choose an existing supplier who can deliver a solution or product without having to go through all processes again. Existing suppliers and strategic partners are already approved and that pose as a label for being legitimate to work with. When contrasting and asking about new entrants, a different conclusion is stated: *“A startup had not even made it through our normal processes at all”* Existing sourcing processes will thereby hinder new entrants to develop radical innovation in collaboration with the case firm. These statements alone shall not be interpreted as it being impossible to collaborate with startups for the case firm. But it has been described as a bigger step: *“I believe that it is the processes that guide how we do this. Sometimes we have a deviation but that is because an employee steps in and says ‘No, we are going to do this anyway’ That has happened, a situation where we know so much, and we have looked at everything that we are confident.”* Being confident about the decision of choosing a partner require a lot of work and competence within the supplier’s area of expertise. The employee who is described to step in and take the decision that not is based on the normal processes will pose with a political risk. If the analysis or assumption about the supplier is wrong, or if the project does not fulfill the wanted or targeted outcome, the employee will be responsible. Therefore, no employee will consider bringing in a startup with high risks and it is the established processes that may hinder adoption of radical innovation within the case firm.

In the standardized sourcing processes, financial stability is described as a key factor and a supplier with financial resources is considered to decrease the risk of that supplier. The statement *“Find someone big enough so we believe that they can leave a guarantee of success and if they don’t deliver we can sue them”* presents the logic why the risk decreases. The

impact of the reasoning is that incumbent firms has an advantage due to financial resources since startups usually have more limited financial resources.

Past performance is another aspect which favor incumbent firms. The past performance is regarded as proof of the capability to successfully utilize a new technology and a new entrant cannot present any comparable track record. The risk of insufficient performance is therefore considered higher for new entrants, as stated *“It is always a higher risk to engage with a smaller firm, often we look at the big dragons. What can they offer? If a smaller supplier shall compete they have to show a clear competitive advantage in some aspect.”* A clear competitive advantage is intuitively the goal for any supplier to achieve, but when technical aspects are difficult to grasp could a competitive advantage remain undiscovered.

System integration and prior investment has been described to influence considered collaboration partners. An interviewee stated, *“We have invested very heavily in Y as ERP system Z as OTM system, so we look a lot to see what we can conform with those systems.”* An integration is assumed to be needed and a lock-in to existing service provider is adamant since previous investments have been substantial. In addition, lock-in effects have been described in terms of political aspects. There is a culture at the case firm that if a supplier is large and highly recognized they pose minimal risks. During discussions, one interviewee expressed it clearly *“You don’t get fired for hiring IBM.”* These political aspects do not create lock-in effects to a single supplier, but it decreases the likelihood of partnership creation with new entrants.

Established processes for sourcing and identified lock-in effects for the case firm is creating a strong feature of path dependency for the case firm. Established processes guide employees to take less risk and adoption of radical innovation may be hindered. Path dependency is not argued to necessarily impact in a positive or negative way, but path dependency does impact partnership creation for radical innovation.

## 6.5 Legitimacy

As shown in the analysis above, incumbent firms are truly favored for multiple reasons. Unified for these reasons are the notion of legitimacy, incumbent firms are found to have incorporated legitimacy as a resource which is valued by the case firm. On the next page, in Table 7, identified legitimacy enablers are contrasted between new entrant and incumbent firms followed by supporting descriptions.

Legitimacy	New entrants	Incumbent firms
Resources	No	Yes
Track record <ul style="list-style-type: none"> <li>- Dynamic capabilities</li> <li>- Technical competence</li> </ul>	No	Yes
Established relations	No	Yes
Financial assets	No	Yes
Complementary assets	No	Yes
Permissioned based blockchain	No	Yes
Established product <ul style="list-style-type: none"> <li>- Clear roadmap</li> </ul>	Yes	Yes

*Table 7 - Comparison of New entrants and Incumbent firms based on found factors for increased legitimacy*

*Resources* has been described as a factor creating legitimacy since the risk is perceived a lot higher for smaller firms.

*Track record* is described as firms having previous successful solutions and new entrants has not accomplished any track record yet.

*Established relations* influence legitimacy in form of reliability. The supplier is well known, and the case firm feels confident about how they operate.

*Financial assets* are a safety when deciding partner, hence leading to legitimacy. Incumbent firm's financial resources are therefore regarded beneficial in order to invest for efficient development.

*Complementary assets* are regarded as legitimacy when impacting the project. The partnering firm having relationships and other partners which can be helpful for the project.

*Permissioned based blockchain* has been expressed as a legitimate factor since the case firm's business logic stays intact regarding ownership structure.

*Established product* is regarded as legitimate since the ability to present a solution which can be assess always is easier than assessing something in development.

## 7. Discussion

*In this chapter the findings will be discussed in more detail and be compared with the literature presented in the theoretical framework.*

### 7.1 The concept of legitimacy in partnership creation

During our time at the case firm, legitimacy has been found as a tacit competitive resource valued by the case firm in potential partners. However, this papers research does not distinct between legitimacy as intrinsic of pre-known tangible and intangible resources (Grant, 2010) or as standalone resource. Therefore, legitimacy will hereafter be treated as unified for both being a resource of its own as well as intrinsic of known resources.

On the next page, in Figure 7, is a model presenting partnership creation for radical innovation as identified at the case company. In the model are attributes during the initiation phase identified as *high risks for radical innovation* and *risk averse behavior* according to empirical evidence and theory (O'Connor, 2008). These attributes are the main reason for legitimacy being influential in partnership creation for radical innovation. Also, in the model presented in Figure 7 are symptoms of the need for legitimacy explained.

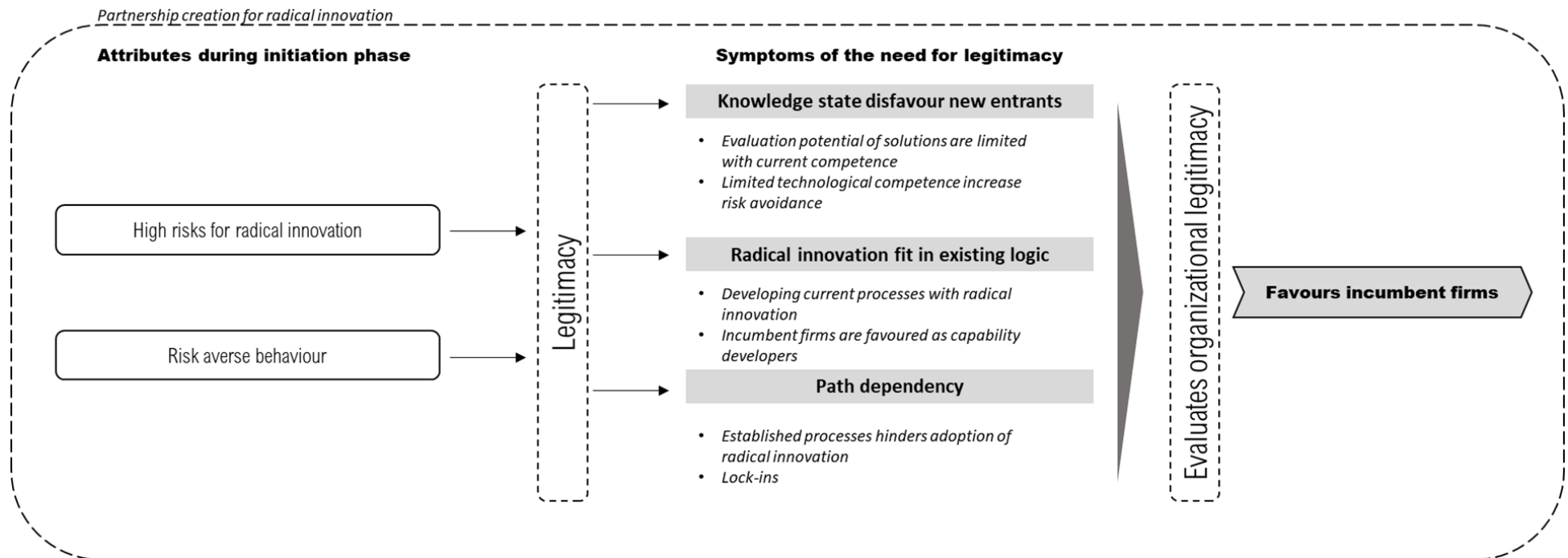


Figure 7 – Illustration of partnership creation for radical innovation

Firstly, one symptom of the need for legitimacy identified at the case firm is that the *knowledge state disfavor radical innovation*. At the case firm, several initiatives of blockchain adoption were identified. Unified for all of them was with how low competence evaluations of the technology were performed. Hence, the technical solution could not be evaluated which increased the importance of legitimacy. Also, as a direct effect, and due to internal reward systems, risk taking initiatives remained low. While acting risk averse, the firm was found to be keener towards evaluating familiar resources higher. Examples are; financial assets, track record and size, which holds higher legitimacy by Suchman's (1995) definition of trustworthiness. Resources that only incumbent firms were found to possess.

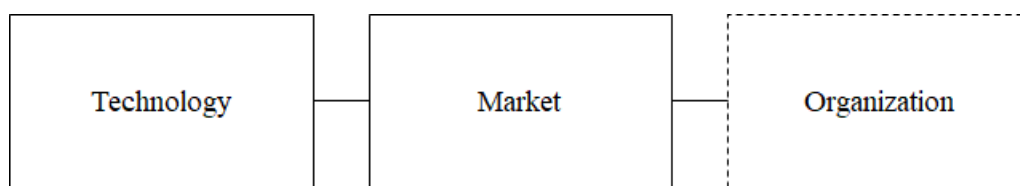
Secondly, identified at the case company as a symptom of the need for legitimacy is that *radical innovation is fit in existing logic*. Incumbent service provider has been expressed as beneficial over new entrants in terms of two different argumentations. First, touching upon path dependency, the case firm's intuitive adoption of blockchain technology is to see how it can be used as an extension of previous invested IT-systems. By doing so, they try to develop current processes with something that is radically new instead of directing efforts towards radical development. As a result of their actions, the case firm is deemed to have a need for legitimacy. The second is that even if an incumbent firm fail to deliver it has enough complementary resources, i.e. financial resources, to buy its way ahead of competitors, often referred to acquiring a firm with capabilities within the domain. The two logics presents how legitimacy is perceived, resources highly valued to increase a firm's legitimacy are those of familiar character as presented in section 6.5.

Thirdly, *path dependency* has an important role as a persistence mechanism. Hence, path dependency was also identified as a symptom of the need for legitimacy. Suchman (1995) argues that legitimacy leads to higher supply of resources in a persistence way since firms that appear appropriate are more legitimate. Same mechanisms where found at the case firm. Apart from possessing familiar resources, incumbent firms were already known and granted as strategic suppliers to the case firm. Hence, incumbent firms where already considered legitimate of going through the case firm's sourcing processes and by delivering value over time, becoming a strategic partner, reinforcing their legitimacy.

## 7.2 Conclusion

By separating organizational- and technical legitimacy it is evident that organizational legitimacy is valued higher by the case company. Technical legitimacy is by the authors defined as design features of the blockchain solution, technical characteristics and technical competence. Examples are: consensus algorithm, governance structure and if the blockchain is public or private. Identified as high technical legitimacy are blockchain solutions that have similar characteristics as the originating radical innovation, Bitcoin. Organizational legitimacy is defined as any other resource or capability creating legitimacy that do not originate from the blockchain solution. Identified at the case company is that the selection process does not evaluate technical legitimacy, meaning that technical aspects are being overlooked.

In section 2.4.3 are Modum's and IBM-Maersk's solutions compared to the originating radical innovation, Bitcoin. When Bitcoin was launched in 2008, a combination of three existing technologies was used. The comparison shows that the new entrant (Modum) utilize these existing technologies similar to Bitcoin meanwhile the incumbent firm (IBM-Maersk) only use cryptography and a distributed ledger. The authors have identified one of the reasons being organizational. Blockchain technology changes business logic and large business organizations, which IBM-Maersk targets, values organizational aspects such as track-record and financial assets as explained above. Veryzer (1998) argues that radical innovation is subject to high levels of uncertainty due to market- and technological-feasibility. However, in this study is organizational feasibility identified as the most important aspect when a large business organization tries to adopt blockchain technology. Hence, organizational aspects have been identified to create high levels of uncertainty for blockchain technology.



*Figure 8 - Identified evaluation criteria of radical innovation feasibility, based on Veryzer (1998)*

The conclusion is that organizational legitimacy influence partnership creation during adoption of radical innovation and that technical legitimacy to a large extent is disregarded. Familiar characteristics of resources increase the case firm's tendency toward collaborating with an incumbent firm. Which is regarded to create an increased risk since the solution not is evaluated for its technical relevance.

### 7.3 Broader implications for theory

Socially constructed system of norms, values, beliefs, and definitions is by Suchman (1995) described to create legitimacy for an entity which is perceived as desirable and proper. However, our research shows that financial assets and track record impact a firm's legitimacy more. Hence, Suchman (1995) may not oblige as a definition of legitimacy for large business organizations. The research context may be one reason, that legitimacy in regards of radical innovation is different from the general concept.

Legitimacy will according to Suchman (1995) affect how people act toward organizations, but also how the organization is understood. The case company have been approached by new entrants with funding mechanisms that are not recognized or known. Funding channels are an important aspect of legitimacy and financial resources are described to increase a firm's legitimacy. In contrast, when being approached by an incumbent firm are funding mechanisms known and pose no hinder nor increased risk. Hence, Suchman's (1995) theory about organizational understanding may create an increased risk for new entrants with new funding mechanisms.

For a partnership to be successful during development of radical innovation, Sadovnikova et al. (2016) argue that complementary attributes shall exist between partners. In this study, incumbent firms are identified to be more legitimate in comparison to new entrants. One reason is that incumbent firms have knowledge about current processes and easier can integrate a blockchain solution at the case firm. Competence about internal operations may be an advantage but it is not complimentary. It is in this case rather explained to be caused by path dependency and lock-in effects established by current service provider.

In this research, track-record of adopting new technologies has been identified to increase a firm's legitimacy. Adopting to a new technology is according to Grant's (2010) definition a dynamic capability. A track-record must be developed over time and new entrants can therefore never prove to possess the dynamic capability of adopting new technologies.

#### 7.4 Managerial implications

That radical innovation is subject to high level of uncertainties has been known for a long time. As a result of this research the authors finds it important for managers to be aware of the fact that organizational aspects need to be considered when adopting blockchain technology. High levels of uncertainties for blockchain technology are not only due to market- and technological-feasibility. This study has, in contrast to prior research identified organizational feasibility as the major hinder of adoption and awareness may decrease this hinder.

In terms of technological feasibility there has been no implications for it not being important and general understanding of blockchain technology are highly recommended for managers taking decisions regarding blockchain-protocols and other technical aspects.



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## **Appendix 1 – Interview template round 1**

Start by introducing ourselves

1. We would like to know more about you and your current responsibility and role?
2. What is your connection to blockchain?
  - a. Are there any ongoing activities or initiatives within your department?
  - b. Have you been involved in any blockchain project before?
3. What do you think about the blockchain development at the case company?
  - a. Is there enough knowledge to run a pilot-project?
  - b. What obstacles do you foresee?
  - c. Who would you think will have ownership of a blockchain project organizationally?

## **Appendix 2 – Interview template round 2**

For all questions, ask why they argue as they do.

1. What do you see as the reason that the case company primarily have looked at incumbent service providers right now? SAP, IBM, Oracle etc.
2. Are startups not regarded as relevant?
3. What risks do you see by collaborating with new entrants vs. incumbent firms?
4. What risks do you see by collaborating with incumbent firms vs. new entrants?
5. If you compare Hyperledger vs. Ethereum (Permissioned- vs. Public-chain), what advantages and disadvantages can you identify?
  - a. Startups often use a public chain. What is the disadvantage, are they lacking legitimacy?
6. Why is it harder to work with a smaller company?
  - a. Is it a higher risk to initiate a partnership with a startup?
7. How come it is not interesting to understand the technical aspects of blockchain?
8. How do you ensure that an incumbent firm has the best/most relevant solution for you?
9. In what way do you think that your competence level affects the choice of supplier?
  - a. Would you say that it makes you more or less risk averse?
10. How does organizational legitimacy influence supplier and/or partnership selection?
  - a. Is technical competence, reference assignments or track record asked for?
  - b. Is track record which not includes blockchain technology of value?
11. Are there organizational advantages by choosing an established service provider?
  - a. Why?
  - b. How does established relations with those actor's influence?
  - c. Why is it an advantage that a supplier already is familiar with your "data"?
  - d. Why is it an advantage that a supplier already has access to your "data"?
12. Do you believe that incumbent firms get their legitimacy due to their capability to adopt new technology?
13. If a project not would lead to the advantages which were anticipated, in what way will the supplier and/or partner selection affect in that scenario?
14. What do you identify as legitimacy when evaluating a firm?