Managing power asymmetries and increasing mutual understanding between start-ups and established organisations

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ABSTRACT: Todays established organisations cooperate with start-ups in order to drive innovation and as part of their business strategies. In this relationship, mutual understanding and power asymmetries play a crucial role. When these two factors are not considered, strategic alignment can be affected which in turn would lead to increased risk of project failure. This study focuses on developing a new planning methodology, one which considers aspects of mutual understanding and power asymmetries. This will be achieved by combining elements of Capability Based Planning and Strategic Planning. The methodology, called the Infinity Model, will be tested in two relationships between start-ups and established organisations. This will be followed by an evaluation of the model via open questionnaire. The questionnaire is based on the guideline proposed by Viswanath Venkatesh (2003) in the Unified Theory of Acceptance and Use of Technology (UTAUT). Results show that, although users expect the model to positively impact their job performance, they are also reluctant in using it, mainly due to its complexity. From observations, it appears that the Infinity Model can help teams reach mutual understanding, however, more research must be undertaken to first simplify the model and secondly observe if it can help teams manage power asymmetries.

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1. INTRODUCTION

Today's organisations are always on the lookout for enhancing their business strategy, especially those in volatile and fast paced industries such as IT, High-Tech, Fashion, etc. One way in which large, established organisations tackle strategy improvements is long term cooperation with smaller, more agile start-ups, which can drive innovation at a faster pace, with more flexibility and close to no bureaucracy. (Ries, 2011) However, for projects undertaken by start-ups and established organisations to be successful, their strategies (at least to respect of the project) need to be in alignment. Research identifies that lack of mutual understanding and unmanaged power asymmetries between organisations can lead to relationship disruption (Ryu, Park, & Min, 2007) and strategic misalignment (Johnson & Lederer, 2010) (Zhao & Cao, 2015).

Current planning methodologies such as Agile, Lean or Six Sigma are not directly concerned with aspects of mutual understanding and power asymmetries. As these aspects are linked to strategic alignment, one can argue that a planning methodology should bring them into focus, along with aspects of strategic planning.

The following study is aimed at designing a new planning methodology to assist inter-organizational teams with achieving higher levels of strategic alignment. This will be achieved by combining elements of Capability Based Planning and Strategic Planning. The new methodology is designed to allow inter-organizational teams to successfully develop, align and implement their business strategies by focusing on aspects of mutual understanding and power asymmetries prior to strategy formulation (crucial for developing a successful strategy (Johnson & Lederer, 2010)**)**

The following paragraphs focus on presenting methodologies used to achieve the aim and why these methodologies have been selected. To increase strategic alignment, organisations can make use of Strategic Planning (SP) which, in essence, refers to the strategic planning process. This as described by literature, consists of three essential phases: strategy formulation, strategy implementation (Mintzberg, 1990) and strategy control (Hunger & Wheelen, 2011). One other methodology used for increasing strategic alignment is Capability Based Planning (CBP). It focuses on the planning, engineering and delivery of strategic business capabilities to organisations (The Open Group, 2011). CBP is slowly taking form in literature, and both companies and scholars are increasingly more interested in the topic. It emerged as a military planning method, and mainly consisted of techniques for allocating military capabilities to respond to a situation which presents a high degree of threat (Najgebauer, et al., 2015). With respect to what a business capability is, Iacob, Quartel and Jonkers (2012) define business capabilities as any actions taken by an organisation which will have a direct impact on achieving its goal(s)**.**
However, CBP, as opposed to SP, is lacking a strategy formulation phase. By combining elements of CBP (business capabilities) and SP (strategy formulation and implementation) into a new planning methodology, we can allow inter-organizational teams to use business capabilities before formulating strategy. As we will present further, this will lead to higher levels of mutual understanding and better managed power asymmetries, ultimately leading to higher levels of strategic alignment.

1.1 Problem identification

We begin with the problem of mutual understanding between organizations, or the lack thereof. People communicate every day in a variety of forms: verbal, written, electronically, etc. However, even in the age of instant and vastly improved communications, we still encounter issues, as organisations do not have a reference language which attributes one meaning to one concept (Brewer & Holmes,, 2009). As Brewer and Holmes (2009) present in their article, persistent communication problems, related to subjective terms, can result in "lower productivity, poor motivation, [and] loss of customers", which in this case will affect both start-up and established organisation. Therefore, stating the meaning of different terms can prevent misunderstandings, even if there is an impression that everyone is assigning the same meaning to those terms. Furthermore, Thibodeau (2010) describes effective communications as communications which can only be formed between individuals who have a "mutual understanding of the message" that is being transmitted. Current social psychology research identifies that mutual understanding occurs between individuals who share the same concepts with the same meaning (Ta, Babcock, & Ickes, 2016). **This is where business capabilities (utilized in CBP) can intervene, by providing organisations with predefined concepts which can be uniformly used anywhere and by everyone.** As terms are commonly standardized and defined (by start-up and established organisation together), agreement and mutual understanding should be ensured for each identified business capability. Provided that definitions are "timely, complete, clear, concise, factual and accurate" (Thibodeau, 2010), the organisations will have the necessary tools to reach agreement and thus mutual understanding. When discussing of effective communications, research identifies three boundaries across which these concepts can be shared: Syntactic boundary - a transfer or information-processing approach; Semantic boundary - a translation or interpretive approach; Pragmatic boundary - a transformation or political approach (Carlile, 2004). For this study, focus will be mainly placed on sharing concepts across the semantic boundary. This implies that definitions for concepts are commonly agreed upon and shared between communicating partners (both at an individual and organisational level).

With respect to power asymmetries, research identifies that, when within a dyadic relationship, making use of power will impact the way partners react to each other's actions. Furthermore, use of power has been linked with impacts on operational performance (of the weaker partner) (Nyaga, Lynch, Marshall, & Ambrose, 2013) and with impacts on project risk factors such as project strategy (Gulati & Sytch, 2007). Therefore, we argue that power asymmetries must be identified and managed, so that negative relationship impacts can be avoided. Jacobs (1974) proposes one method of identifying power asymmetries by assessing resource/service *essentiality* and *substitutability* of each organisation. **This is where business capabilities can be utilized, by providing organisations with means of assessing the essentiality and substitutability of their services/resources.**

Therefore, we argue that a planning methodology making use of business capabilities has the potential to aid organisations with achieving mutual understanding and manage power asymmetries.

2. OBJECTIVES

As previously established, this study will focus on developing a planning methodology which will allow start-ups and established organisations to manage power asymmetries (either existing or perceived) and increase mutual understanding of concepts across the two organization. This will lead to the efficient formulation of strategy and therefore to higher levels of strategic alignment (Johnson & Lederer, 2010) as well as reduced risks related to project completion. (Zhao & Cao, 2015).

The research goal of this study is: **To design a new planning methodology which combines elements of CBP and SP.** Achieving this goal would require answering the following (research) questions, via literature review and interviews/open ended questionnaires:

1. How can defining and sharing business capabilities be used to achieve mutual understanding?
2. How can defining and sharing business capabilities be used to manage power asymmetries?
3. How does mutual understanding impact strategic alignment?
4. How do power asymmetries impact project related risk factors such as project strategy, team trust and relationship stability?
5. How is the newly developed methodology viewed by potential users?

2.1 Research methodology

The scope of this subsection is to introduce the applied research methodology. It will present how research has been approached and how data was collected, coded and analysed.

To achieve its goal the study will follow a general guide provided by the six-step design science methodology developed by Peffers et al. (2007). It is structured as follows: **Problem identification and motivation:** here we present and define both the research problem and the value of the proposed solution. In this paper, Section 1 will focus on these aspects. **Defining the objectives for a solution:** based on the problem definition, a series of objectives must be constructed. Section 2 is dedicated to this aspect. **Design and development**: the proposed method is developed, presenting its functionality and design with the help of literature. The paper will make a presentation of both general concepts as well as method specific concepts in Section 2.2, while Section 2.3 will present a literature review on mutual understanding and power asymmetries. Furthermore, Section 3 will present the general design of the method, named the Infinity Model. **Demonstration:** the developed method will undergo a field test to assess its usability. This will be presented in Section 4, via two study cases developed together with two Dutch based startups: Eden 365 and Pineapple Studios BV together with their partners (Spark BV and Brilliance BV respectively). Eden 365 is an urban farming startup aiming at equipping refurbished shipping containers with aeroponics irrigation systems and LED lighting systems for growing leafy greens and vegetables. Pineapple Studios is a software startup,

developing applications for Dutch municipalities which ensure an easily accessible two-way communication channel between municipalities and their citizens. The developed methodology has been used together with Spark BV and Brilliance BV over a period of several weeks. This was done during meetings between Eden 365 and Spark BV, and Pineapple Studios BV and Brilliance BV respectively. During the first meeting, the new methodology was introduced and explained, followed by its direct application of on the urban farming and software development projects. **Evaluation:** to evaluate the methodology, open questionnaires were given to a total of six users: one from Eden 365, one from Pineapple Studios BV, two from Brilliance BV and another two from Spark BV (please note that Spark BV and Brilliance BV are placeholder names, as both companies requested anonymity). The open questionnaires were given in person, and can be found in Appendix 5. The questions were based on the guideline proposed by Viswanath Venkatesh (2003) in the Unified Theory of Acceptance and Use of Technology (UTAUT). The UTAUT is generally employed to explore matters such as acceptance of technology by users (Venkatesh, Morris, Davis, & Davis, 2003), and in this case, it was used to investigate user acceptance of the newly developed methodology. Before the questionnaire was offered, the methodology was briefly explained again to each participant, with emphasis on use of business tools and outcomes of each phase. After all questionnaires have been collected, the answers were coded with focus on uncovering the willingness of participants to use the Infinity Model. Section 5 will show the coded responses for each respondent against question categories. These categories are the same as used by the UTAUT (Venkatesh, Morris, Davis, & Davis, 2003):

1. Performance expectancy – the degree to which users believe that using the model would positively impact their job performance
2. Effort expectancy – the amount of effort associated with using the model
3. Attitude towards using technology - the user's overall affective reaction to using a model
4. Facilitating conditions – the degree to which users believe that an organisational and technical infrastructure exists to support the model
5. Anxiety – the level of anxiety users feel towards using the model
6. Intention to use – the user's overall intention to utilize the model

The coding scheme's aim was to pinpoint user intentions and perceptions. For example, with respect to performance expectancy, answers would be coded to investigate whether users expect using the methodology to have a positive impact (high performance expectancy), a negative impact (low performance expectancy) or no impact (neutral performance expectancy) on their job performance. All other categories have been coded in a similar fashion. **Communication:** refers to communicating the findings of this research, along with the identified problem and the proposed solution (Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007).
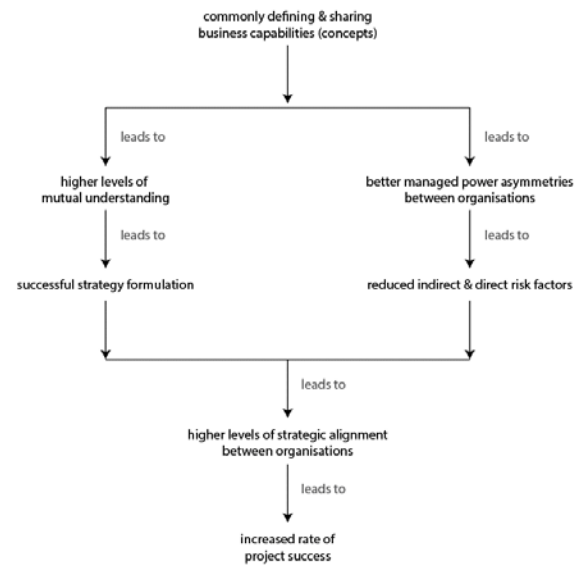
Regarding the first and third research questions, answering them will require a brief introduction from the fields of Social Psychology and Cognitive Sciences, as we present a literature review on how humans communicate and achieve agreement and mutual understanding. Further, we will present a literature

review on how mutual understanding can lead to successful strategy formulation and achieving strategic alignment. This will be followed by a review showing that organisations struggle with high levels of perceived mutual understanding and lower levels of actual mutual understanding which in turn can also lower strategic alignment. Answering the second and fourth research questions will require a literature review on unequal dependencies and power asymmetries, and the factors which influence them. We will then present how the developed method can be used to achieve mutual understanding before formulation of strategy. Once mutual understanding is achieved, the method will allow organisations to reach their objectives. Ideally, it will be able to assist organisations through strategy formulation and implementation, while managing power asymmetries and maintaining mutual understanding throughout.

2.2 Key concepts

The aim of this subsection is to bring the reader up to date with used theoretical concepts. The paper will make use of a series of general concepts, such as: business capabilities, strategic alignment, power asymmetries and mutual understanding. **Business Capabilities** are the ability of an organisation to make use of one or more resources to achieve a goal (Iacob, Quartel, & Jonkers, 2012). The concept of capabilities originates from the Capability Based Planning methodology. Examples of (broad) capabilities are: marketing capabilities, manufacturing capabilities, sales capabilities, development capabilities, design capabilities etc. Figure A1 (appendix 2) shows the relationship between business capabilities, mutual understanding and strategic alignment. **Resources** are tangible or intangible assets of an organisation. They are used in combination with business capabilities to achieve a goal or target. Resources can vary from raw materials and cash to human resources and time. **Strategic planning** refers to the three-stage process, consisting of strategy formulation, strategy implementation (Mintzberg, 1990) and strategy control (Hunger & Wheelen, 2011). Strategy formulation entails that an organisation possesses a well-defined mission and a clear set of goals, the ability to analyse the situation and to develop a strategy (Slater, Olson, & Hult, 2006). Strategy implementation refers to designing a structure for the

organisation, writing the objectives and placing implementation incentives. (Cater & Pucko, 2010). Lastly, the strategy control phase is in place to provide feedback and check for alignment with the environment, both external and internal (Hunger & Wheelen, 2011). **Strategic alignment** is defined as "the degree to which the needs, demands, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component" (Baker & Jones, 2008).

Figure 1. Connection between business capabilities, mutual understanding, power asymmetries and strategic alignment.

Figure 1 illustrates the relationships between business capabilities, mutual understanding, power asymmetries and strategic alignment, as presented in section 2.3. Further on, Table 1 presents concepts (business tools) used in the new methodology. The presented tools and concepts are used in various phases within the methodology. A more detailed overview of how these tools are used and in which steps is presented in Appendix 1. As mentioned, the new methodology has been named *"The Infinity Model"*.

Table 1. Used concepts (business tools)

Concept	Scope
Capability Maps	Spot and eliminate inconsistent or duplicate capabilities; raise awareness on capability gaps (SOA Consortium, 2010). Used in the implementation of enterprise transformation (Burke, Yu, & McKenna, 2014).
Resource Maps	A resource analysis is a crucial phase in the process of formulating and implementing strategy. (Woodcock & Beamish, 2002)
Value proposition	To map values generated by the business. Value generation is achieved by capability enrichment. (Sirmon, Hitt, & Ireland, 2009)
The 5WH Analysis	Inspired from the Zachman Framework it's a generic framework for describing and analyzing anything (Zachman, 2003).
MoSCoW	Provides higher user confidence in decision making (Hatton, 2008).
SWOT	Seen as the "go-to" model for "kick starting" the process of strategy planning (Helms & Nixon, 2010).
Business Model Canvas	Alexander Osterwalder's BMC is used for business model generation and innovation (Osterwalder & Pigneur, 2009).
Strategy Canvas	Helps organisations achieve a higher degree of responsiveness to changes in the strategic landscape (Kim & Mauborgne, 2002).

Value disciplines model	Organizations which choose one of these disciplines while keeping industry standards for the other two usually have a greater competitive advantage (Treacy & Wiersema, 1993).
Balance Scorecard	Serves the purpose of aligning business operations with an organizations' vision and mission (Kaplan & Norton, 1996).
Strategy Maps	Helps communicating strategy to the entire organisation (Kaplan & Norton, 2000).
TOWS	Allows companies to take advantage of opportunities in their external environment (Weihrich, 1982).
Gap Analysis	Can be used in identifying product position in the market (Langford, Franck, Huynh, & Lewis, 2008).
Multi Criteria Decision Analysis	Use to develop strategy and make decision upon strategic choices (Montibeller & Franco, 2010).
Kanban Boards	Allows the team to efficiently divide tasks and monitor activity, and have the role of limiting the number of tasks running at a given time (Wang, Conboy, & Cawley, 2012).
Kanban Dashboards	A derivation of Kanban Boards used as a visual monitoring tool for managers.

2.3 Literature review

2.3.1 The importance of mutual understanding between organisations

We begin with a short introduction on how humans communicate. Recent research in the field of Cognitive Sciences shows that "[...] conceptual alignment (i.e., a continuous dynamic alignment of individual knowledge spaces) provides a cognitive framework suitable for resolving the ambiguities inherent in human communicative signals". In less technical terms, the above statement identifies that humans reach mutual understanding via sharing of concepts and not via non-verbal signals as scholars believed (Stolk, Verhagen, & Toni, 2016). The authors define mutual understanding as "[…] different minds coming to an agreement on an understanding of an object, person, place, event or idea", the word mind here referring to the human brain. Social psychologists at the University of Texas at Arlington have identified that humans reach mutual understanding mainly by exchanging information and ideas and by asking questions. This disproves general knowledge per which humans also require non-verbal communications to reach mutual understanding (Ta, Babcock, & Ickes, 2016). The authors define mutual understanding as partners coming to use the same words in essentially the same way (e.g. shared meaning or shared understanding). With this we identify that, between the fields of Social Psychology and Cognitive Sciences, there is agreement on what mutual understanding is and how it is reached.

Moving to the field of Business Administration, literature identifies a solid link between reaching mutual understanding and successfully creating a business strategy (Johnson & Lederer, 2010). Consistent with previous definitions, Johnson and Lederer (2010) define mutual understanding as a level of agreement between individuals on a given topic. Aside from successful strategy creation, their study demonstrates the positive effect of mutual understanding on strategic alignment. In other words, mutual understanding leads to better strategy formulation and a higher degree of strategic alignment.

One can easily observe that mutual understanding may have a major role in business development, however, literature identifies two types of mutual understanding: perceived and actual mutual understanding (Levkov, 2015). With this lies the problem: individuals seem to perceive a higher level of mutual understanding than its actual levels. This leads to individuals thinking they understand one another when in fact they are referring to different concepts (Levkov, 2015). To account for this risk, this study offers a few methods for reaching mutual understanding. One very easy to implement method is simply to exchange information and ask questions in order to reach agreement and develop shared meaning. (Ta, Babcock, & Ickes, 2016). When misunderstandings are identified, one elimination method can be to ask all members to express their definition of the term in question and either settle on the most popular or remove all definitions and form a new one (Spencer-Oatey). In their book, *Joining Together,* David Johnson and Frank Johnson present seven methods that individuals can use in order to make decisions. In the case of mutual understanding, it can be argued that reaching it is, in essence, the realization of a decision. As a simplistic example, when a group is actively discussing the meaning of a term, say "mission" or "vision", in order to reach agreement, and thus mutual understanding, a decision must be made on the meaning of the respective term. (Johnson & Johnson, 2014) The following is a real example: when trying to develop their strategy, the members of the Dutch Student Investment Fund (DSIF) were faced with the problem of disagreement on the terms "mission" and "vision". In order to overcome this and reach agreement, the decision by consensus method was applied. After each member has expressed his opinion, a decision was made to stop using the old terms and adopt new terms which will better illustrate their nature: "vision" was changed to Point on the Horizon (PoH) and "mission" was changed to Way to Get There (WGT). This way the team was fully committed to the terms and they could carry on with further developing the strategy. The seven methods presented by D. Johnson and F. Johnson are as follow: decision made by authority, decision made by expert, decision made by averaging opinions, decision made by authority after group discussion, decision made by minority, decision made by majority vote, decision by consensus. A full description of each method can be found in Appendix 3. Seeing that, by definition, mutual understanding can only be achieved between two or more individuals, the first and second method can be safely excluded and the fifth method (decision of minority) can be avoided for important decisions, as it involves a minimal number of participants and can used in an abusive way. This leaves us with four practical methods of reaching mutual understanding. Two of them require that a meeting is set up for discussion and decision (made by authority after group discussion and consensus), while the other two can allow

members to decide remotely (averaging of opinions and voting). It is up to each team to decide, depending on the situation, which method is best suited to meet their needs. If quality can be sacrificed for time then a majority vote or averaging of opinions can be useful. When a high quality output is required then group discussion or consensus may be the optimal choice.

As concluding remarks, mutual understanding relies on individuals communicating using concepts which have the same definition (meaning) for all involved parties. Thus, mutual understanding is achieved as communicators share concepts with the same meaning.

2.3.3 The importance of managing power asymmetries between organisations

Power asymmetries tend to emerge within dyadic relationships in which one partner is more powerful than the other. In the case of this study, the startup organisation will be more dependent on the established organisation than vice versa. More dependent here can refer to dependency on several items, among which: resources, employees, knowledge (proprietary, tacit, etc.), capital, larger network, larger geographical spread, etc.

When this unequal dependency emerges, and it will implicitly emerge, the more dependent partner will be dominated by the less dependent. This so framed "domination" comes mainly in the form of unequal dependencies between the two organisations, as a start-up organisation would be more dependent on the established organisation than vice versa. (Zhao & Cao, 2015)

Along with this domination, sourced from unequal dependencies, come power asymmetries. And this is somewhat intuitive, seeing that a large, already established organisation would have more or vastly more power than a start-up. These power asymmetries can ultimately harm the weaker partner (Gulati & Sytch, 2007) as they can negatively impact, either directly or indirectly, risk factors pertaining to the project undertaken by the two organisations. Portny (2010) identifies risk factors as "a situation that may give rise to one or more project risks". A risk factor would not be directly responsible for project failure, however an increase in risk will ultimately increase the likelihood of project failure (Portny, 2010). A series of factors are identified; however, we will limit ourselves to three potential risk factors, most relevant for this study:

1. Project strategy: There is no declared project strategy (or the strategy of the two organisations is not aligned).
2. Team trust: No effort has been made to ensure team identity and focus.
3. Relationship stability: No effort has been made for establishing procedures for conflict resolution, decision making and maintaining communications.

Zhao & Cao (2015) argue that, to avoid the risks mentioned above, the two cooperating organisations must have a clear identification of each other's power position. In other words, power asymmetries need to be identified, ideally before the project begins. To recognize these asymmetries, the two organisations can assess the *essentiality* and *substitutability* of their resources and services (offered to each other). Here essentiality refers to how crucial the resource or service is to

project completion and substitutability refers to whether the resource or service can be acquired from a different source. (Jacobs, 1974) This circles back to the concept of business capabilities, which bring resources and services together to perform a business-related action. Therefore, one can argue that **business capabilities can be used to recognize power asymmetries, by assessing resource/service essentiality and substitutability**, as coined by Jacobs (1974). This would in turn lead to more efficient risk management (managing risk factors such as strategy, trust and stability) which would ultimately lead to less domination risk on behalf of the startup organisation.

3. DESIGN: THE INFINITY MODEL

The aim of the following section is to describe how the goal of this paper is achieved. The proposed method aids with formulating and implementing strategy. It also contains a pre-formulation phase, focused on reaching mutual understanding and managing power asymmetries. With this method, decisions are made with respect to both strategy
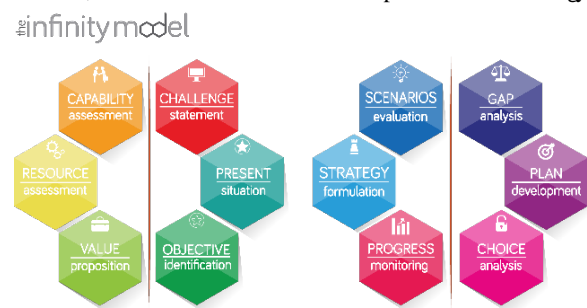

Figure 2. The Infinity Model

(what a business aims to do) and capabilities (what a business can do at a given moment). The model **ensures that a high level of mutual understanding is achieved early stage (before strategy formulation) and maintained throughout the implementation process, as well as ensuring that power asymmetries are managed to reduce project risks.** Ideally, this will lead to successful strategy formulation and a higher degree of strategic alignment.

Having previously defined what Capability Based Planning and Strategic Planning are, as well as defining business capabilities, we can now explore the possibility of combining elements from the two planning methodologies. The result has been named "The Infinity Model" mainly due to the large number of challenges which can be approached by employing it, as well as its visual shape (similar with the mathematical symbol of infinity: ∞). The model combines business capabilities (CBP) with two strategic planning phases, formulation and implementation (SP), into a new planning methodology which is meant to assist managers with a large variety of challenges and issues, form strategy elaboration to evaluating and implementing new business ideas. The model consists of two iterating loops, with 6 phases per loop (for a total of 12 phases). However, we must make note that when approaching a project, one is not obliged to pass through all 12 phases (although all phases could be utilized for a more structured solution). The model can be initiated from more than just one phase, however some phases are dependent on others. The usual path can

start from the "Challenge" phase, iterate throughout the first loop, continue with the "Strategy" phase and finish with the "Progress" phase. Table 2 below shows a summarized description of each phase. A more detailed description can be found in Appendix 4. The first and fifth phases (challenge and objective) are focused on determining what problem is being faced and how it should be solved. The next three phases (capability, resource and value) are the phases during which mutual understanding should be reached and power asymmetries should be revealed and managed. This is the pre-formulation phase mentioned earlier. It will be followed by the strategy formulation phase (present and strategy) and

strategy implementation (scenario, gap and choice). The last phase is in place merely for monitoring purposes.

One key aspect of the Infinity Model is that reaching mutual understanding and managing power asymmetries does not come from the combination of all phases. As mentioned above, this is achieved via the use of business capabilities. Therefore, the number and order of phases will vary from challenge to challenge and will be established by the team facing them. The Infinity Model aims to help with achieving mutual understanding and then providing a set of steps until project completion.

Table 2: Infinity Model phases

Phase	Business Tool	Starting / Dependent	Outcome
CHALLENGE statement	5WH Challenge Analysis	Starting phase	One page 5WH Analysis
CAPABILITY assessment	Capability Map	Starting phase	Comprehensive capability map
RESOURCE assessment	Resource Map	Dependent on previous	Comprehensive resource map
VALUE proposition	Value proposition mapping	Dependent on previous	Business value map
OBJECTIVE identification	5WH Objective Analysis	Dependent on previous	5WH analysis
PRESENT situation	SWOT & BMC	Starting phase	Complete BMC and SWOT
STRATEGY formulation	Balance Scorecard, Strategy Map	Dependent on previous	Balance Scorecard
SCENARIO evaluation	MoSCoW & TOWS	Dependent on previous	MoSCoW
GAP analysis	Gap Analysis	Starting phase	Gap analysis
PLAN development	Kanban Boards	Dependent on previous	Fully developed plans in Kanban Boards
CHOICE analysis	MCDA	Dependent on previous	Decision on choice of action
PROGRESS monitoring	Kanban Dashboards	Dependent on previous	Functional dashboards

4. DEMONSTRATION

4.1 Case 1: Eden 365

Scope: Eden 365 is working together with Spark BV, a Dutch based company (Spark BV being a placeholder name) to build container farms (shipping containers equipped with semi-automated farming technology). The aim of this case was to use the Infinity Model to develop a business strategy which could be followed by both organisations together. **Method:** for this a four hour meeting has been organized during which the strategy for the next year has been developed. During the meeting data was collected via direct observation. Participants consisted of three members of Eden 365 and three members of Spark BV. **Results:** a thorough assessment of the present situation was made before starting. This presented the current status of food deserts and increasing food miles around the world and how Eden 365 can help solve these issues by moving farming into the cities. This was followed by the development of capability and resource maps. The team mapped together all capabilities and resources which are relevant to the project. During this stage, a few matters of mutual understanding arose mainly related to the capabilities of innovation and business modeling. The team took some time to commonly define the two capabilities and decide who will be responsible for each of them. Together we established that innovation is "the ability to (develop) a new technology or a combination of technologies to solve a perceived or unperceived problem" and business modeling is "the ability

to take an innovation and bring it successfully to the market, given minimized waste". Please note the *minimized waste* addition here, which is not part of the common definition of business modeling. This reflected the degree to which the two teams understand each other and the effectiveness/importance of mutual understanding. It is probable that this definition might not have been similar if the two organisations would not have tried to commonly develop their capability maps. Capability and Resource mapping was followed by strategy development. The team decided to make use of the value discipline model and focus on product leadership at first. This would allow the team to bring the best possible product to the market. This was followed by a strategy statement which represented the apex of the meeting. The strategy statement that both companies have decided to focus on was "Free food. Anywhere". The team purposefully wished on having a short and effective strategy statement which can be used for marketing, as well as for keeping the team on track when hurdles arise. **Discussion:** the introduction of the Infinity Model was announced one week before the meeting, however the model itself was not introduced until the start of the meeting. This was done to allow members to get into the mindset of trying a new methodology and to ease its introduction. All members seemed to be pleasantly surprised by the Infinity Model, however concerns of complexity arose from the very start. After the model was explained, the team felt comfortable to skip the in-depth explanation and begin using the model straight away. Surprisingly, even from the beginning, the team seemed to have a similar mindset when

it came to the status of the present situation. As mentioned, a complication quickly arose in the mapping stage, but the team overcame it without difficulty. Unfortunately, the meeting was over before the team got the chance to delve into the business model canvas. This had to be done individually by each team and combine them at a later stage.

4.2 Case 2: Pineapple Studios BV

Scope: Pineapple Studios BV is working together with Brilliance BV, a Dutch government software provider. The companies are developing software for municipalities, used to ensure a more streamlined communication between the municipality and citizens and more importantly allow citizens to come in contact with the municipality with more ease. Presented with the current lack of mobile applications which ensure this type of communication, Pineapple Studios BV and Brilliance BV are making use of the Infinity Model to implement a new business idea (in the form of a mobile/web application). **Method:** the case was developed over the course of four weeks, having as participants two members of Pineapple Studios and a varying number of members from Brilliance BV (with a minimum of three members per meeting). During this time data was collected via observations. **Results:** briefly after the Infinity Model was introduced, the team, due to lack of time, decided that it will not be necessary to pass through all phases in the Infinity Model. The team skipped the challenge statement phase, as they joined plenty of previous meetings during which the challenge was discussed. The team wanted to delve directly into the capability and resource assessments. Compared to the first case where the team drafted these together, in this case the teams first drafted them individually, then coming together for discussions and conclusions. No issues arose here, as each team seemed to be conscious of their capabilities and resources. This phase was followed by the strategy formulation phase, during which the teams encountered a hurdle. Interestingly this was not between Pineapple Studios BV and Brilliance BV, it was between members of the Brilliance BV team as they could not decide to develop an application for municipalities, housing corporations or both. After lengthy discussions, both internal and with clients, the Brilliance BV team decided to focus on developing an application for municipalities. The next phase was scenario evaluation during which a MoSCoW analysis was developed. Here, mutual understanding was achieved by consensus, as the teams seemed to be very much aligned on the features which they wish the application to have. This was followed by choice analysis during which the teams created a MCDA matrix. However, lengthy discussion arose here as well, as team members wanted to assign different weights to different criteria. In the end, the teams appealed to the expertise of the sales department, which sent over one of their best salespeople to assist us with finishing the MCDA analysis. From here on, the two teams entered the development stage, during which the actual application was developed. **Discussion:** although developing the application will span over a period of 12 months, passing through the Infinity Model required 2 meetings in a span of 4 weeks, before the project was started. When the model was introduced, it was received with a quite high degree of skepticism by the software developers at Brilliance BV,

however it was pleasantly received by it sales and marketing staff. From the perspective of Pineapple Studios BV, since we had meetings with Brilliance BV prior and post using the Infinity Model, we have noticed that the Brilliance BV team was treating us more as equals to their development staff rather than just two students. Of course, this was a mere observation and cannot be demonstrated here, however one can argue that using the model may have had an impact on the power asymmetry between the two organisations. At the same time, this could also be a result of the teams getting more accustomed with one another.

5. EVALUATION

The aim of the following paragraphs is to present questionnaire results, contextual differences and improvements suggested by users. Column 1 of Table 3 below represents the respondent number. Respondents are categorized as follows: R1 and R2 members of Brilliance BV, R3 and R4 members of Spark BV, R5 from Eden 365 and R6 from Pineapple Studios BV. **Performance expectancy:** 5 out of 6 users would expect using the model to positively impact their job performance. All users expect to find the model useful in their job, and this is somewhat understandable, as users were familiar with most of the used tools. However, when asked if they expect the model to allow them to complete tasks more quickly, 4 users expressed that they do not know while 2 expressed that it wouldn't. This can be explained by two factors: a steep learning curve and general unfamiliarity with the model (as users had the chance to work with it only in a few meetings). Lastly, when asked if they believe the model would increase their productivity, the same pattern as above emerged, which can be explained by the same two factors. **Effort expectancy:** generally, users expected to expend a low amount of effort. This was mostly due to the fact that the users we're familiar with some, if not most, of the tools used by the Infinity Model. An interesting result is that most users (4) would find it easy to become skillful at using the model, except the users who indicated that they wouldn't find the model easy to use (2). This indicates that their answers (at least with respect to effort expectancy) where consistent. **Attitude towards using technology.** User's attitude was counted as mostly positive, with 5 out of 6 users stating that using the Infinity Model is a good idea. However, users were unsure if the model would make their work more interesting, mostly due to increased complexity and a steep initial learning curve. One user mentioned that his work would certainly not be more interesting, but rather more structured, which he greatly preferred. **Facilitating conditions.** Most users believed that they do not have the organisational infrastructure required to use the model. This is a somewhat surprising result given the fact that the Infinity Model could be used with simple pen and paper. However, users had a tendency of thinking of the Infinity Model as an organisational wide software tool. However, two of the youngest users (both members of startups) believed they have very good facilitating conditions. An interesting result emerged from asking whether the model is compatible with other models users utilize, with 4 users stating that it is clearly not compatible. Again, this could indicate that users automatically thought of the Infinity Model as a software tool used by the entire organisation and questioning its

compatibility with other planning tools they may use. **Anxiety.** Two of the six respondents seemed to have a very high level of anxiety towards using the model, both members of Spark BV. This was mainly due to the fact that the model contains a large number of phases and tools to be used at each phase. The same users also expressed concern with respect to the risk related to using the model on a larger project. And this is understandable, given the massive scale of projects Spark BV is involved in (e.g. building communities and cities). Users from Brilliance BV had a very low anxiety towards the model and this is mainly because they are familiar with software development which tends to be a somewhat volatile field with respect to new tooling. **Behavioral intention to use the model.** Here results are split between three users with very high intention to use the model, two users who did not know if they would use it and one user who clearly stated that he would not use the model in the future. Users from Eden 365 and Pineapple Studios BV both expressed a high intention to utilize the model in the upcoming months. This can be explained by their recognition of good facilitating condition, as well as willingness to be exposed to new tooling with steep learning curves (we keep in mind that both are technical students, computer science and engineering).

With respect to contextual differences, the most noticeable one was that start-up users received the model better that users from already established organisations. There are a few possible explanations for this, among which age, the fact that they were more technically inclined and the fact that they activate within a start-up. However, one must keep in mind that it would be far easier for a start-up to begin utilizing the model than for a bigger organization, mainly due to flexibility and less risk.

Table 3. Open questionnaire results

R	Performance expectancy	Effort expectancy	Att. to. use	Facilitating conditions	Anxiety	Intention to use	Additional comments
1	high	low	positive	very poor	very low	neutral	Simplified views for the model
2	neutral	neutral	neutral	poor	very low	very high	Reinforce the idea of using capabilities as a vocabulary; make relation between capabilities/resources and values more clear
3	high	neutral	positive	very poor	high	neutral	Simplify the model; explain the advantages of using capabilities
4	high	very low	positive	poor	high	neutral	Overview of outcomes for each phase
5	high	very low	very positive	very good	low	very high	
6	very high	very low	positive	very good	very low	very high	Too detailed for a research paper, but very practically made for non-academics

At the end of the questionnaire a space was left for additional comments. Users were encouraged to leave any comments they might have, regardless of topic or nature. Two users expressed their wish of having a more simplified model, a certain way of knowing which phases they should pass through depending on the situation they are facing at the moment. One user commented on the unclarity of the link between capabilities/resources and the created value proposition. Lastly, one user appreciated the fact that each phase had its own specific outcome, concentrated in one page. Generally, users appreciated the structure that the Infinity Model can provide to inter-organisational project teams, especially to those who are not very familiar with using business tools such as SWOT and Business Model Canvas. Another appreciation was related to the fact that the Infinity Model provides somewhat of a guideline for a project, specifying where to start and where to end, what business tools to use and in what order. Lastly, users appreciated that the model was not focused on creating new business tools, but already making use of existing and proven tools. However, the biggest point of concern was the complexity of the model and the steep initial learning curve. Users feared that too much time must be dedicated to using the model at its full potential. Surprisingly, none of the users questioned the model's ability to tackle matters of mutual understanding or power asymmetries. The open questionnaire made no inquiry with regards to mutual understanding and power asymmetries (as it focused more on user acceptance). However, observations made in meetings during which the model was used, point out that the Infinity Model directly contributed to achieving mutual understanding. This was done via business capabilities, especially during the capability and resource mapping phases. Case 1 presents one situation in which making use of business capabilities leads to mutual understanding between the two teams. During the mapping stages, teams commonly defined two capabilities (innovation and business modeling) and decided which organisation will be responsible for each of them. With common agreement, they established that innovation is "the ability to (develop) a new technology or a combination of technologies to solve a perceived or unperceived problem" and business modeling is "the ability to take an innovation and bring it successfully to the market, given minimized waste". Case 2 presents a different matter of mutual understanding, which is internal mutual understanding (internal to Brilliance BV). Here

Brilliance's team could not decide on the different weights for different criteria in the MCDA analysis. Mutual understanding was achieved after consultation with sales experts and not directly via business capabilities, however, business capabilities were brought in as arguments for weight assignment. Mapping business capabilities together (urban farming) or separately (software development) seemed to have no impact on reaching mutual understanding, as long as teams shared and commonly agreed upon them in the end. From observations (in both cases), it appeared that members from sales and marketing viewed the Infinity Model with less skepticism compared to members from development. One other observation was that the developers wished to focus more on capability/resource mapping than on building strategies and assessing challenges. With respect to power asymmetries, based solely on observations, we can only mention Case 2, where members of Pineapple Studios BV felt treated as equals to the development team of Brilliance BV. However, this result cannot be directly counted as a benefit from using the Infinity Model, as Pineapple Studios had interacted with Brilliance BV before using the Infinity Model.

Seeing the above situations, one can argue that the Infinity Model has potential in tackling matters of mutual understanding, although more research is required before generalizing results. Aside from this, using the Infinity Model did not seem to have any direct effect on power asymmetries, although theoretically possible. A more extensive study, spanned over a longer period of time would be required to investigate the full effects on power asymmetries.

6. CONCLUSION

This study has focused on developing a new planning methodology, by combining elements of CBP and SP. The scope of this new methodology is to assist inter-organizational teams with reaching mutual understanding and managing power asymmetries prior to strategy formulation. The study explores why mutual understanding is important and how it can be reached within teams. This is followed by an exploration of power asymmetries, how these emerge, how they can be managed and most importantly why it is crucial to manage them. The case studies show how the model can be used to develop a strategy between two organizations, reach mutual understanding and possibly manage power asymmetries at the beginning of their relationship and how to begin collaboration on a new business idea. Ultimately, the study can act as a starting point for showing how a startup and an already established organisation may achieve a higher degree of strategic alignment, by making use of business capabilities to achieve mutual understanding and manage power asymmetries. Results indicate that the Infinity Model could be used as a planning methodology and has potential in helping teams reach mutual understanding. However, results do not yet show a strong link between the Infinity Model and managing power asymmetries, nor that using the Infinity Model would lead to higher levels of strategic alignment, although both are theoretically possible.

7. LIMITATIONS & FUTURE RESEARCH

The first limitation to arise is the fact that this study, by itself, cannot demonstrate that using the Infinity Model would lead to higher levels of strategic alignment. This is due to the fact that the study was not performed over a period of time which would allow for the assessment of strategic alignment between the two organisations. As the Infinity Model is designed to be used over a period or months, if not years, a lengthier investigation would be required, on a business partnership which has made use of the Infinity Model from its infancy until maturity. Secondly, the Infinity Model contains no means of quantifying strategic alignment, mutual understanding nor the extent to which power asymmetries are managed. Lastly, the study was conducted on the relationship between Dutch companies, therefore the results cannot be generalized to include other business cultures. Aside from this, since the study was conducted on the relationship between startups and already established companies, the findings cannot be generalized to other types of business relationships. One other limitation is the lack of a control, a relationship in which the Infinity Model has not been used. For this reason, we cannot state that mutual understanding would not have been reached without the use of the Infinity Model.

With respect to future research, a few ideas emerge:
1. As observed during case study meetings and from open questionnaires, the complexity of the model is somewhat daunting to users. Having to pass through 12 phases (although not all obligatory) seemed a little overwhelming. Therefore, future research could focus on reducing the number of phases.
2. An alternative to reducing the number of steps would be to create challenge based templates. These would act as guides, indicating which phases they should pass through depending on the situation they are facing.
3. Research can be aimed at placing emphasis of the differences between using the Infinity Model and not using it, with respect to achieving mutual understanding and managed power asymmetries.
4. Research should be undertaken to equip the Infinity Model with tools for quantifying levels of strategic alignment, mutual understanding and/or the extent to which power asymmetries are managed.
5. The Infinity Model could be developed into a software tool and tested with a larger pool of organisations.
6. A study spanning over a longer period is required to study the effects of the Infinity Model on power asymmetries.

8. ACKNOWLEDGEMENTS

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Appendix 1 – key concepts

Resources are tangible or intangible assets of an organisation. They are used in combination with business capabilities to achieve a goal or target. Resources can vary from raw materials and cash to human resources and time.

Strategic planning refers to the three-stage process, consisting of strategy formulation, strategy implementation (Mintzberg, 1990) and strategy control (Hunger & Wheelen, 2011). Strategy formulation entails that an organisation possesses a well-defined mission and a clear set of goals, the ability to analyse the situation and to develop a strategy (Slater, Olson, & Hult, 2006). Strategy implementation refers to designing a structure for the organisation, writing the objectives and placing implementation incentives. (Cater & Pucko, 2010). Lastly, the strategy control phase is in place to provide feedback and check for alignment with the environment, both external and internal (Hunger & Wheelen, 2011).

Strategic alignment is referred to as an action taken by organisations in order to link their competitive position and their active organisation structure. Alignment is defined as "the degree to which the needs, demands, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component" (Baker & Jones, 2008).

Mutual understanding has been defined in multiple ways across literature, however most definitions have the same core elements. In the field of Social Psychology, it is defined as depending on partners using the same words in essentially the same way (with the same meaning) (Ta, Babcock, & Ickes, 2016). Within the field of Information Management, it is defined as a degree of agreement between individuals on a topic (Johnson & Lederer, 2010). A more detailed debate on the matter of mutual understanding will be presented in Sections 6 and 7.

Please note that mutual understanding does not refer to individuals understanding each other from an emotional point of view (understanding and acknowledging that the other individual shares a different opinion). **In this paper, mutual understanding will solely refer to individuals understanding the same concepts in the same way** and maintain those concepts as a reference point (e.g. shared meaning or shared understanding). For this reason, business capabilities are a good example of concepts which can be used to achieve mutual understanding.

Further on we present the concepts to be found in the model (method) which combines CBP with Strategic Planning. The presented tools and concepts are used in various stages within the model. A more detailed overview of how these tools are used and in which steps will be presented in Section 9. The method has been named *"The Infinity Model"*

Business Capability Maps: having already explored what a business capability is**,** capability maps can be thought

of as repositories which contain most, if not all, business capabilities of a firm. The SOA Consortium, a group of Enterprise Architects from large companies such as the Bank of America and IBM, state in their white paper that business capabilities can be mapped in order to spot and eliminate inconsistent or duplicate capabilities and also raise awareness on capability gaps. (SOA Consortium, 2010). Alongside the SOA Consortium, Burke, Yu and McKenna have developed a capability map for the Telecom industry and have identified that the map can be used in the implementation of enterprise transformation. (Burke, Yu, & McKenna, 2014)

Business Resource Maps: much as capability maps, resource maps are used in order to have a repositoy of business resources. However, one must keep in mind that resource maps are concerned with mainly inventorizing and not performing individual resource assessments. Resource maps can be an invaluable tool in strategic decision making (Kunc & Morecroft, 2009). Making a resources analysis is a crucial phase in the process of formulating and implementing strategy, as managers must identify the necessary resources and also how to ensure their steady supply. (Woodcock & Beamish, 2002)

Value proposition: within businesses, value is created as a result of capability use. It can be argued that resources play a very important role here as well, as most times value is generated by a capability which uses a certain resource (e.g. a lumber mill has the capability of sawing wood and by applying that to logs it produces planks which have greater value). Business capabilities can be enhanced by new skill development or by using a new resource. Capability enhancement is regularly required to develop new value or maintain the current value generation levels, especially in highly volatile business environments (Sirmon, Hitt, & Ireland, 2009).

The 5WH Analysis: this type of analysis allows users to create a clear image of a current or future (desired) situation. The tool is mainly based on asking questions such as what, why, who, where, when and how (hence the name "5WH"). For example, when facing the challenge of falling sale numbers, in order to assess the situation, a manager could ask questions such as "what is the cause of falling sales?", "why are sales falling for us, but not for our competition?", "where are sales falling (region or product range)?", "when did sales start falling?", "if sales are falling for competitors as well, how could we use this to our advantage?", etc. Of course, the possibilities are limitless and managers are free to explore as many as needed. This tool has been inspired from the Zachman Framework for Enterprise Architecture, which acts as an easy to use generic framework for describing and analyzing anything (Zachman, 2003).

MoSCoW: the acronym stands for "Must Have, Should Have, Could Have, Won't Have" and is a commonly used tool for identifying user requirements and needs. Hatton (2008) identifies MoSCoW as easier to use and less time consuming than other methods (AHP, $100 or Simple Ranking). Aside from this it also provides higher user confidence in the result (Hatton, 2008). In the context of the Infinity Model, this tool would be used in describing scenarios, the ways that the organisation can achieve its goal.

SWOT: the name of this well-known tool for strategy development stands for "Strengths, Weaknesses, Opportunities, Threats". Literature identifies that SWOT is seen as the "go-to" model for "kick starting" the process of strategy planning. Helms & Nixon (2010) mention that a business can have an advantage from developing a customer perspective oriented SWOT. Advocates of SWOT dismiss claims that the model is too simple and mention that organizations can make use of the tool's assessment capabilities when used under a focused methodology. (Helms & Nixon, 2010)

Business Model Canvas: Alexander Osterwalder's BMC is one of the most popular tools used for business model innovation. The canvas consists of nine distinct elements, each representing a part or aspect of the organisation (Osterwalder & Pigneur, 2009):
1. Key partners – represent the alliances and contracts made with other business entities in order to gain a competitive advantage or minimize risk.
2. Key resources – these are the resources crucial to creating and delivering value proposition to the customers, as well as maintaining relationships with them and earn revenues;
3. Key activities – the activities without which the business cannot operate efficiently; contains value creation, value delivery and other activities which allows the company to solve the customers' problem and deliver the solution;
4. Value proposition – represents the product or service which the organisation offers in order to solve a customer problem. It is also the reason for clients to choose the organisation over competitors
5. Customer Relationships – details how customers are handled (can be personal or virtual), how customers can get in contact with the organisation and how their complaints are resolved;
6. Channels – this will describe how customer is reached; the interface with the customer;
7. Customer segments – represents a multitude of individuals and groups which the organisation aims to serve or fulfill their needs;
8. Cost structure – the multitude of costs incurred by the organisation while creating and delivering value and/or managing customers;
9. Revenue Streams – reflects how revenues enter the organisation; this can be achieved through direct sales, subscriptions, advertising rent, etc.

In the context of the Infinity Model, the Business Model Canvas will be mainly used to perform an assessment of the current situation. The output of this model will help identify gaps and inefficiencies and better define the desired situation.

Strategy Canvas: its scope is to visually map the current strategic environment and the future environment. In a single graph it shows what the current strategy landscape of an industry is, along with its factors of competition; what most players are doing and what top performers are doing. This can raise awareness of changes that need to be made by an organisation in order to achieve a higher degree of responsiveness to changes in the strategic landscape (Kim & Mauborgne, 2002).

Value disciplines model: the role of this model is to assist managers with deciding on where to focus an organization's efforts: customer intimacy, operational excellence or product leadership. The outcome is usually a strategy statement which depicts which discipline will be followed and for what reasons. Organizations which choose to follow one of these disciplines (and push its limits) while making efforts to keep industry standards for the other two usually have a greater competitive advantage. This can lead to the competition being unable to keep up, as managers have achieved alignment throughout the entire operating model in order to serve one discipline (Treacy & Wiersema, 1993)

Balance Scorecard: a strategic planning and management tool, widely used in most types of organizations which permits the implementation of long term strategy. It serves the purpose of aligning business operations with an organizations' vision and mission, as well as monitoring performance and comparing progress with organizational goals (Kaplan & Norton, 1996). It allows the setting of goals, measures (how to measure progress), targets (when has the goal been achieved) and initiatives (how will the goal be achieved) within all four organizational perspectives: financial, internal, external and growth.

Strategy Maps: assist users with plotting all organizational goals in order to view the connections between them. In this way strategy can be easily communicated to the entire organisation (Kaplan & Norton, 2000), as all departments and employees are able to see how their work impacts the success of the business.

TOWS: as opposed to SWOT (the letters in the acronym stand for the same concepts) the TOWS matrix has the purpose of observing interactions between the identified strengths, opportunities, threats and weaknesses. The matrix allows users to observe how opportunities can be taken advantage of with the help of organizational strengths, how can strengths be used to minimize threats, which weaknesses can be overcome by taking advantage of certain opportunities and what strategies are in place to minimize weaknesses while coping with threats. In other words, the matrix is a very feasible solution for identifying strategies which allow companies to take advantage of opportunities in their external environment (Weihrich, 1982)

Gap analysis: to properly explain the concept of gap analysis, we must first define what a gap is. A gap can be an inconsistency or missing element (skill, trait or resource) of an operational procedure, a missing technology or piece of knowledge (Langford, Franck, Huynh, & Lewis, 2008). As a simplistic example, when considering the previously mentioned lumber mill, we can assume that the mill would wish to start making furniture. With this in mind, we can easily recognize that the mill has a capability gap, as it lacks the capability of producing furniture. This is a very rough example, and in reality gaps may be much, much finer than this. The concept of gap analysis consists of comparing what the company is currently capable of doing with a general set of requirements (in our case the lumber mill would study the furniture industry to identify these key capability requirements). When a difference is identified it translates into a gap. In the commercial sense a gap analysis can be extremely useful in identifying a product's position in the market (Langford, Franck, Huynh, & Lewis, 2008).

Multi Criteria Decision Analysis (MCDA): the purpose of this tool is to allow the user to efficiently decide upon the scenarios generated for achieving a goal (assuming that more than two scenarios have been developed). In this sense a set of criteria is chosen in order to assess each scenario (solution), afterwards each criteria being assigned a certain weight (all criteria weights must add up to 1 or 100%). Finally, each scenario will have a certain score, and thus the highest score will represent the best solution (according to the criteria and their weights). MCDA is an excellent option for use during strategic workshops, as companies develop strategy and make decision upon strategic options and choices. (Montibeller & Franco, 2010)

Kanban Boards: in its pure sense, Kanban was not designed for progress monitoring. It was initially developed as a technique for materials management which allows for perfect alignment between what is needed downstream and what is delivered from upstream (never delivering more than is needed, by monitoring consumption patterns). This technique was borrowed from supermarkets (shelf stocking) and stands at the core of just-in-time (JIT) manufacturing. In software development Kanban Boards are used in order to monitor progress. There are usually three to four Kanban Boards: *To Do, Doing, Needs Review* (optional), and *Done*. Each board contains project tasks, labeled in order of priority, with assigned members and allocated time and cash budgets. The goal is to move tasks from the *To Do* board to *Done* in order of priority. In the context of the Infinity Model, Kanban Boards are used to plan and monitor implementation. All necessary tasks are placed in the *To Do* Board, as mentioned above. When this is completed, team members must ensure that the tasks to which they are assigned are completed and moved from board to board. Besides allowing the team to efficiently divide tasks and monitor activity, Kanban Boards also have the role of limiting the number of tasks that can be running at a given time. (Wang, Conboy, & Cawley, 2012)

Kanban Dashboards: these are very much similar to Kanban Boards, however they do not serve the purpose of planning, but more the purpose of monitoring. They are designed to offer at first sight only critical information (the type of information that a manager can quickly view in order to receive a clear picture of the current state). Therefore, Kanban Dashboards are only a visual monitoring tool, with no possibility whatsoever to execute any modifications to an implementation plan.

Appendix 2 – additional figures

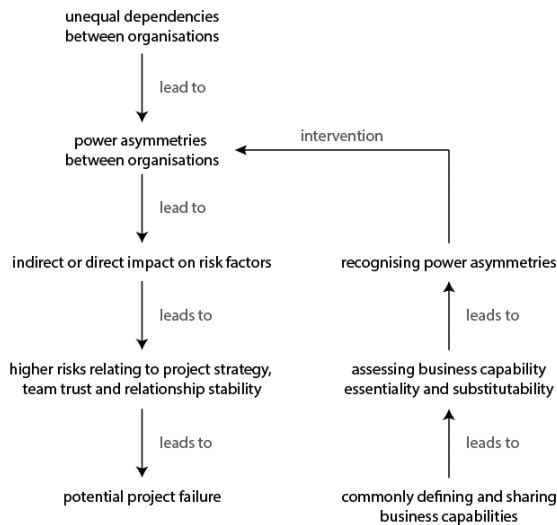*Figure A1. Connection between mutual understanding and project failure.*

Figure A2. Relationship between business capabilities, power asymmetries and potential project failure
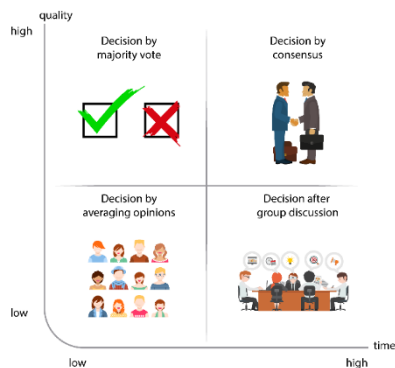

Figure A3. Decision making methods plotted against required time and quality output

Appendix 3 – decision making methods

Decision made by authority: usually made by a leader or responsible, without consulting any group members. This is a very common method in organisation and as much as it is efficient, it is also somewhat ineffective. The decision takes only the leader's perspective into consideration and ignores the fact that team members are the one who must act upon it.

Decision made by expert: made by the team member with the most experience in the matter of discussion. One of the issues with this is deciding which member has the most expertise.

Decision made by averaging opinions: each member is asked his/her opinion and in the end the most popular opinion becomes the group's decision. Note that the leader (or responsible) asks for opinion and presents no choices to the members. This can lead to a multitude of opinions and in most cases the winning opinion will most certainly not have 51% of votes. The advantage with this method is that extreme opinions tend to cancel each other out. The disadvantage is that the opinions of very knowledgeable members may be canceled out by the opinion of the not so knowledgeable.

Decision made by authority after group discussion: with this method, the leader will usually set a meeting date with all group members, listens to all opinions and debates and then informs the group with regard to the decision that he or she has made. Although group members are involved in the discussion, they are not involved in the process of decision making. This can lead to members either competing to impress their leader or just telling what he or she wants to hear and also to a low implementation commitment.

Decision made by minority: this represents two or more members (but under 50% of the group) who make decisions on behalf of the group. One legitimate way of making a decision is for the minority to act as a council or board. An illegitimate way is *railroading* which occurs when two or more members quickly decide on a decision, present it to the group and ask for objections. If nobody is fast enough to object, the decision is carried on without further thought or discussion. D. Johnson & F. Johnson mention that this is not a very suitable method for decision making and can lead to conflicts within teams.

Decision made by majority vote: this is the method most commonly used in the U.S. A discussion is carried until 51% of members agree with the decision, point at which the decision passes. Its disadvantage comes from possible damages to group relations and absence of full team commitment for implementation.

Decision by consensus: this is the most effective method of decision making but also the most resource consuming. With consensus, all members of the team will agree on the same decision. Thus team commitment to implement the decision is at its highest. Johnson & Johnson set a basic guideline for this method which contains the following steps:

1. Seek out difference of opinion as they will bring more information on which to base the decision
2. Present your position as clearly and logically as possible
3. Critically analyze the other positions

4. Encourage all group to present the best case possible
5. Change your mind but do not avoid conflict
6. Avoid conflict reducing procedures (voting, coin tossing, etc.)
7. Keep the goal of reaching the best possible decision for all members

Appendix 4 – The Infinity Model – detailed explanations for each phase

The following paragraphs focus on presenting each phase of the Infinity Model. In order to have a consistent presentation each phase will contain the following elements: **Goal & Understanding (G&U):** the scope of this paragraph is to precisely describe what the goal of each phase will be and what roles mutual understanding and power asymmetries play in this phase. **Tools:** what tools business tools are used for each phase and what question will be answered with the help of these tools. Visual examples for most tool will be presented. **Typology:** this paragraph will concern itself with presenting whether the phase can be a starting phase (and some examples of the cases in which it could be so) or a dependent phase (and on which other phase it is dependent and why). **Methodology:** this paragraph will explain the steps which are necessary in each phase and the sequence of tools (if there is one) **Conclusion:** each phase will end with a conclusion, either written or in the form of a visual tool. Ideally each visual conclusion will fit on a single page, for easy assessment.

CHALLENGE statement: usually this is the starting phase (although it can be skipped if not required). **G&U:** its purpose is to help managers and teams engage in the process of gaining a better understanding of the challenge, problem or issues that they are facing or which needs to be addressed. In this phase mutual understanding is of high importance. If the problem is misidentified or team members do not agree on the nature of this problem, team commitment to identifying a solution could drop significantly. If time is available, the preferred method for reaching mutual understanding in this phase would be consensus. If time is of the essence a decision by majority vote can be made, assuming the risk of ignoring less popular (and possibly right) opinions. **Tool:** for this phase the proposed tool would be a 5WH Challenge Analysis, inspired from Zachman's Enterprise Architecture Framework. As explained earlier, the purpose of this tool is to repeatedly ask questions such as why, what, when, where, who and how in order to have a multi perspective approach on the challenge. example questions may include: why did it happen? why is this a challenge? when did it become a challenge? where did it occur? who is responsible? what are the underlying principles? how did it occur? how does it impact us? (note that "it" refers to the challenge or problem). **Typology:** this phase can be a starting phase and it is advised that the process begins with this phase as it will allow the team and manager to have a common starting and reference point. **Methodology:** this is an exploratory phase and, although not mandatory, we must note that ideally the challenge statement will be issued in the presence of the entire team. This will ensure higher levels of commitment towards solution implementation. **Conclusion:** the conclusion can be summarized via a one-page tool, as presented below. A recommendation would be to print the tool in such a way that team members can add their inputs on sticky notes. This will engage the entire team and stimulate the flow of ideas. Note that most tool visuals have been designed in such a way that they can be printed at large scales and filled in with sticky notes. The final outcome of the phase should be a complete or close to complete picture of the challenge at hand in the form of a clear and agreed upon challenge statement (seen in the middle of the tool).

Figure A4.1 The 5WH Challenge Analysis

CAPABILITY assessment: this is one of the most crucial phases but also one of the most time consuming phases. **G&U:** the focus on this phase is to identify everything (or close to everything) that the organisation is able to do. This phase is possibly the most time consuming phase with respect to reaching mutual understanding. Advisably this will be achieved via consensus, as capabilities act as core reference concepts. If these concepts are erroneously defined, the entire strategic process may suffer. **Tool:** in this case a Capability map is the most important tool to be used. This will be a map which contains all organizational capabilities, preferably on a maximum of three abstraction levels. **Typology:** this phase can also act as a starting phase and it is not dependent on any other phases. **Methodology:** opposed to the previous phase, this is not as exploratory as much as it is a mapping phase. At its core lie capabilities, and, as mentioned, defining those requires probably the largest effort in reaching mutual understanding. Once the organisation has successfully identified what it can do and has agreed on the definitions of its capabilities, this will act as a common reference point (e.g. as an organizational dictionary so to speak). **Conclusion:** the end result is a capability map as seen below. As with the previous phase (and most phases hereafter) ideally the outcome would fit on one page. The map can optionally contain a minor capability assessment by color coding each capability according to its relevance to key operational activities.
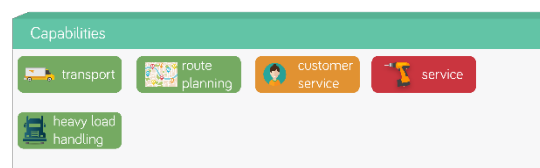

Figure A4.2 The Capability Map

RESOURCE assessment: this phase is identical with the previous one, the only difference consisting in the object of assessment. **G&U:** the aim is to identify everything that an organisation has at its immediate use. The resources can refer to assets, human resources (man power), raw materials, work in progress, cash or even time. With respect to mutual understanding, here it is not as crucial as above. This can be reached with either of the presented methods, provided that the resources in case do not have a substantial impact on business operations. **Tool:** resource maps are the main tool of use here. This will allow the organisation to possess a full repository of resources, which, as seen above, can be used in successful strategy formulation. **Typology:** although not advised, this phase can also be counted in as a starting phase and it is not necessarily dependent on other phases. **Methodology:** the phase does not require that the entire team is present for discussion and debates (unless resources are critical or have a high degree of scarcity). Usually the manager would map the resources (and possibly assess them in order of importance) and ensure that a steady supply can be established. **Conclusion:** as with Capability Maps, the conclusion will be summarized on one page. This will allow all team members to be aware of the most important resources and thus possibly prevent waste.

Figure A4.3 The Resource Map

VALUE proposition: following the Business Model Canvas, the Infinity Model borrows its Value Proposition element, however with a small change. **G&U:** the purpose is to map how value is created within the organisation. As presented in the theoretical framework, to maintain or increase value, one must appeal to capability enrichment. Capabilities can only be enriched by the addition of new skills and/or resources. Therefore, we can argue that value is created mainly at the conjunction of capabilities and resources. Turning towards mutual understanding, this phase is not as time consuming as the previous, as here mutual understanding can be reached via any of the presented methods. It is up to the team to decide the amount of time to be spent on this phase, as it will differ from organisation to organisation (some produce a significantly lower of value propositions than others) **Tool:** the proposed tool is a value proposition mapping tool. **Typology:** as we can easily observe, this phase is dependent on the previous two phases. For this reason, the process cannot begin from this phase. The only exception can be the case of reverse mapping, during which value propositions are known and the aim would be to identify which capabilities and resources are connected. **Methodology:** Essentially the tool will present all organizational capabilities on one side and all organizational resources on the other. By selecting and combining resources and capabilities, value propositions can be mapped in the middle (see figure below). **Conclusion:** the outcome of this phase is a complete map of value created by the organisation and its link to capabilities and resources.

Figure A4.4 The Value Proposition

OBJECTIVE identification: this phase is somewhat the opposite of the first presented phase (Challenge statement). **G&U:** the aim here is to create a clear picture of what the organisation or team wishes to achieve. Seeing that a challenge is being faced, the objective would naturally be to overcome the challenge. This phase allows teams to visualize the end result and how would the situation present itself upon overcoming the challenge. As expected, this phase requires a high degree of mutual understanding, as the entire team must be aware of the proposed objective in order to achieve a high degree of commitment. Preferably consensus will be used here in order to ensure a high degree of mutual understanding. **Tool:** due to the fact that this phase involves the assessment of a future situation, a 5WH Objective Analysis tool can be used. As with the 5WH Challenge Analysis, this would also be based on Zachman's Enterprise Architecture Framework. **Typology:** usually this phase cannot be a starting phase as it is dependent on the Challenge statement phase. One can argue that innovative and responsive organizations set objectives before challenges arise, however upon setting an objective, the challenge becomes overcoming it, therefore we can state that these phases could also be mutually dependent. **Methodology:** usually full team participation is required here, as high implementation commitment is required from all members. The team will ask questions such as what do we want to achieve? when will we achieve this? why do we want to achieve this? who will help us achieve it? where will we gather resources to achieve this? etc. **Conclusion:** the conclusion would be a one-page summary of the objective to be achieved, which must be a mutually agreed objective.
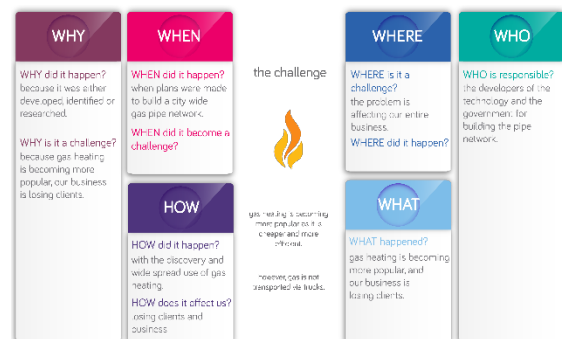

Figure A4.5 The 5WH Objective Analysis

PRESENT situation: as its name suggests, this phase concerns itself with the assessment of the current situation. **G&U:** the purpose of this phase is to monitor the business environment (both internal and external) for major changes. Once a major change is identified (for example a resource becomes highly taxed or ceases to exist) the entire first loop would require a new iteration. However, these changes are somewhat rare, so we do not expect to reiterate the first loop more than once every six or twelve months. With respect to mutual understanding, this phase is not time consuming, except when a major environmental change occurs. At that point, it is advisable to involve most team members in identifying the change and proposing a course of action to increase profits or avoid losses (reiterating the first loop). It is up to each team to decide which of the proposed methods are most suitable for each situation. If a simplistic change occurs, majority vote should prove sufficient, compared with a complex change where consensus or group decision may suitable. **Tools**: for this phase, two distinct tools can be used to monitor the current organizational situation: SWOT and the Business Model Canvas. Aside from these, the Strategy Canvas can also be used to map the business environment of a particular industry. **Typology:** this phase can act as a starting point for organizations which wish to have a clear picture of their current standing in order to identify new challenges. Otherwise this phase will mostly follow the Objective identification phase. **Methodology:** depending on the needed type of assessment, an organisation could use either or both proposed tools. **Conclusion:** the outcome will again consist of one-page summaries of the proposed tools. This will allow the organisation to be aware of its current standing and thus be able to compare it with the previous situations, as well as with the ideal situation in which the objective has been achieved.
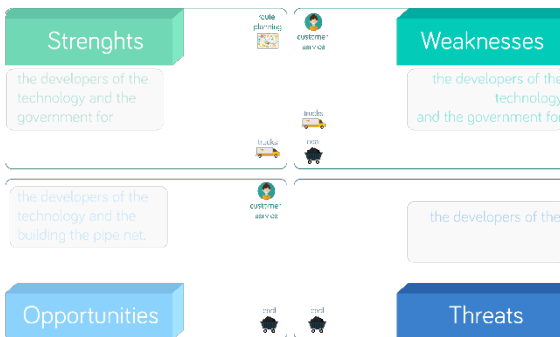

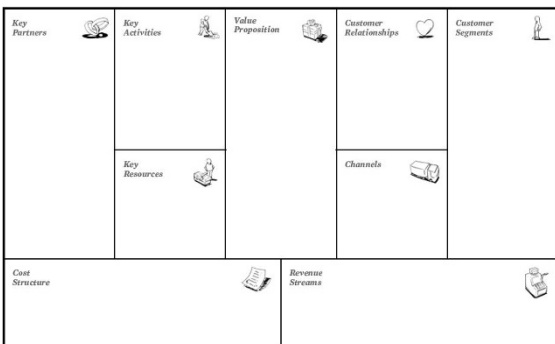
Figure A4.6 The SWOT Analysis

Figure A4.7 The Business Model Canvas

STRATEGY formulation: this is the first phase of the second iteration loop. At this point, by parsing all previous phases there should be enough available information and already established mutual understanding to allow for efficient and successful strategy formulation. **Goal:** this phase concerns itself with formulating the entire strategy for overcoming a challenge. Thus it will allow for the formulation of mission and vision statements, as well as goals, initiatives, measures and targets. Regarding mutual understanding, this is a very important phase, as strategy lies at the foundation of all future phases. For this, high team participation is required and, ideally, the used tools will be the ones to return a higher quality decision. **Tools:** this phase makes use of three main tools: the Balance Scorecard, the Strategy Map, and the Value Disciplines Model. **Typology:** this phase is dependent at least on Challenge assessment and Objective identification and usually cannot be used as a starting phase for overcoming a challenge. **Methodology:** in order to create a vision, the team will map all organizational inputs and outputs and establish the core values of the organisation (the reason it exists). Once that is achieved, a mission statement can be issued. Afterwards, the Balance Scorecard can be filled in with goals, initiatives, measures and targets and the organisation can pick which of the value disciplines it will pursue. Finally, a Strategy Map can be compiled to observe how organizational goals are connected to each other. **Conclusion:** the end result for this phase will be a fully developed strategy. Please note that ensuring a high degree of mutual understanding for this phase is highly crucial. Therefore, this phase must be parsed with as many team members as possible.
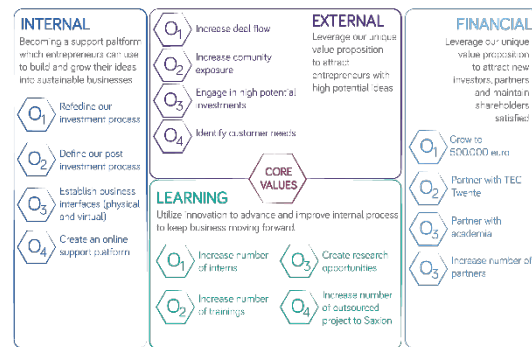

Figure A4.8 The Balance Scorecard

Figure A4.9 The Detailed Balance Scorecard

SCENARIO evaluation: once an objective has been set and the strategy has been formulated (including a vision and mission) the team can start developing scenarios on how to get there (note that there is always more than way). **G&U:** the aim of this phase is to develop at least 3 scenarios of how

the team can achieve its proposed objective. This doesn't necessarily need to involve the entire team, as no decision is made here. Therefore, the needed level of mutual understanding is not as high as with, for example, Strategy formulation. **Tool:** in this case, MoSCoW and TOWS are two suitable tools. Although MoSCoW is mainly used for identifying user requirements, it can also be argued that in this case the team is the user and they have requirements as to how the objective can be reached. **Typology:** this phase is dependent on the Objective identification phase and cannot be used as a starting phase. **Methodology:** members will plot their requirements with respect to the four fields: Must have, Should have, Could have and Won't have (referring of course to the way of reaching the set objective). However, unlike a usual MoSCoW analysis, each requirement will also be accompanied by one or more ways of fulfilling it. **Conclusion:** the final result will be a clear set of requirements and fulfillment plans which can be coupled in multiple scenarios.

Figure A4.10 The MoSCoW Analysis

GAP analysis: after scenarios have been developed, they will be analyzed for gaps or inconsistencies. **G&U:** to identify all possible gaps in each scenario. Gaps can be missing or obsolete capabilities or resources, underdeveloped capabilities or ultra-scarce resources. This phase requires that a high level of mutual understanding is achieved in order to properly identify gaps. If this is failed, and the wrong gaps are identified, the outcome of scenario implementation would most likely lead to loss of profits. **Tool:** for this we propose a Gap analysis tool, very similar to the proposed Value Proposition and Core Value identification tool. **Typology:** in special cases this phase can act as a starting phase, usually when there is a signal from outside the organisation that a gap has been identified or otherwise predicted. In all other aspects this phase is dependent on the Scenario evaluation phase. **Methodology:** members will plot in the tools middle the change that needs to occur (the scenario or part of the scenario) and on the sides all capabilities and resources required to achieve the goal of implementing the scenario. Resource and Capabilities bounding boxes are divided in two parts to represent current and needed situation. Underdeveloped or missing capabilities or resources are marked with red and orange (depending on the severity of the matter). **Conclusion:** the outcome of this stage is to identify all gaps. This will allow the team to plan gap fulfillments and make a decision in the next phases.
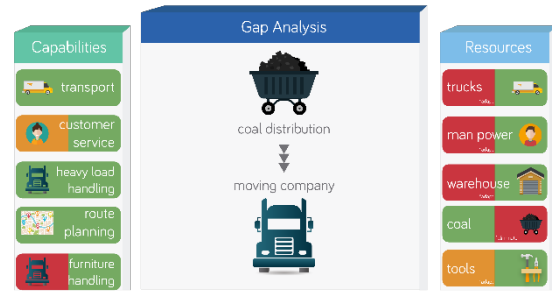

Figure A4.11 The Gap Analysis

PLAN development: once gaps are identified, each scenario is planned. Note that with the development of more than three scenarios, it can become overwhelming to plan each scenario, therefore, it is advisable to have a pre-screening process in case more than three scenarios are developed. **G&U:** the aim of this phase is to fully plan the implementation of each scenario. The required level of mutual understanding is not as high as in the next phase, as no decisions are made here. **Tool:** in this case, although not specifically designed for this, Kanban Boards should prove very useful. **Methodology:** Each scenario is divided into tasks, with allocated resources, budgets and deadlines. Of course, at first, all tasks are place in the To Do board, however, by using Kanban Boards at this point, we ensure an easier monitoring phase (as Kanban Boards are usually used for project monitoring). **Conclusion:** the outcome of this phase are fully planned scenarios with complete cost structures.
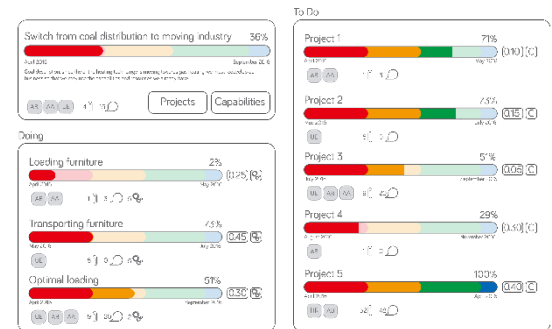

Figure A4.12 The Kanban Boards

CHOICE analysis: with already developed and planned scenarios, what follows is making a decision on a future course of action. **Goal:** they key aim here is to decide which scenario (solution) would represent the best choice with respect to a multitude of criteria. High levels of mutual understanding are essential in this phase, as a course of action is chosen here. Preferably, this course of action would be decided upon following a consensus meeting. **Tool:** one way to achieve this is to make use of the Multiple Criteria Decision Analysis. This tool can be very useful when faced with such situations. **Methodology:** At first the team must decide on the criteria on which the solution will be assessed, usually the solution will be composed of some elements of the MoSCoW analysis. A next step would be to decide the weights of these criteria (they can all have equal or different

weights, however, for easier calculations, all weights should add up to either 1 or 10 or 100). **Typology:** this phase is dependent on Plan development. **Conclusion:** the final outcome is the course of action. This answers "How will we achieve our objective?" and ideally the answer would be a complete implementation plan, with assigned tasks, human resources, budgets, deadlines, etc.

Figure A4.13 The MCDA Analysis

PROGRESS monitoring: in order to ensure that the solution is properly implemented and progress stays on course, both managers and teams must have the ability to monitor progress. Although not strictly part of the planning process this phase is essential and must not be overlooked. **Goal:** as its name suggests, this phase is focused on monitoring progress. Mutual understanding in this phase must be mainly maintained, as, ideally, the model would have allowed the team to progress to this phase with high levels of mutual understanding. Managers and teams must ensure that mutual understanding is maintained in order to keep track of implementation progress. **Tool:** in this case, we can make use of Kanban Boards (the same we have presented and discussed above) and Progress Bar Reports (these contain summarized information for managers to quickly identify current status). **Methodology:** there are no special steps to be taken here, other than making sure to maintain the team on track. **Typology:** this phase is dependent on Choice analysis. **Conclusion:** the outcome is a fully and regularly updated Kanban Dashboard, from which data is fed into the Progress Bar Reports as seen below. These reports have the role of allowing the manager to see what has happened, what is happening and what will happen.
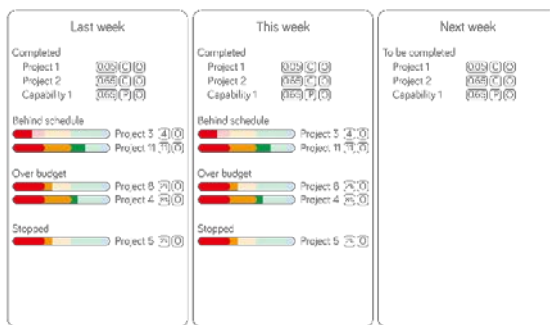

Figure A4.14 The Progress Bar Reports

Appendix 5 – open questionnaire

Performance expectancy:
1. I would find the model useful in my job.
2. Using the model enables me to accomplish tasks more quickly
3. Using the model increases my productivity

Effort expectancy:
4. My interaction with the model would be clear and understandable.
5. It would be easy for me to become skillful at using the model.
6. I would find the model easy to use.
7. Learning to operate the model is easy for me.

Attitude towards using technology:
8. Using the model is a good idea.
9. The model makes work more interesting.

Facilitating conditions:
10. I have the resources necessary to use the model.
11. I have the knowledge necessary to use the model.
12. The model is not compatible with other models I use.

Self-efficacy:
13. I could complete a project using the model if I could call someone for help if I got stuck.
14. I could complete a project using the model if I had a lot of time to complete the job for which the model was provided.
15. I could complete a project using the model if I had just the built-in help facility for assistance.

Anxiety:
16. I feel apprehensive about using the model.
17. The model is somewhat intimidating to me.

Intention to use:
18. I intend to use the model in the next 12 months.

Additional comments: