Requirements for Investments in Innovative Digital Technologies for Learning

A Study at Volvo Group University

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Abstract

In recent years a number of digital technologies have emerged, radically altering both teaching and learning. This has not just affected schools and universities; it has also affected corporate educational providers. Some corporate educations are driven by external actors who solely work with selling corporate education whilst some are driven by the companies themselves, through their own universities. Volvo Group University (VGU) is such an organisation who works with producing and delivering education solely to the Volvo Group. VGU are currently experiencing the pressure to increase their knowledge and efforts regarding working with digital technologies but are struggling to do so. This due to that they have little in-house knowledge regarding advanced digital technologies, such as Virtual Reality and Gamification, and that there are few guidelines on how employees should work with such technologies. Therefore, the purpose of this thesis was to understand what requirements are needed in the organisation in order for VGU Management to assess and decide on innovative digital technologies for learning (IDTL).

To perform the study 40 semi-structured interviews were conducted whereof 30 at VGU and 10 at relevant benchmarking companies, in addition a literary study was performed. Through the literary study it was understood that the most common way of assessing investments was via the concept of a business case. Also, that there are a number of prerequisites needed to facilitate both business case building and evaluation. In addition to a business case a number of other prerequisites are needed to enable the process of investigating and developing innovations.

In combination with what was found at the benchmarking companies and by studying the current state at VGU, the master thesis arrived at a number of findings. It was discovered that the processes available at VGU for working with IDTL currently are not functioning, there is a lack of information on what needs to be prepared and that a number of vital prerequisites are missing. This resulted in recommendations of firstly, implementing a business case adapted to IDTL to standardise what should be prepared for an investment decision regarding an IDTL. Secondly, prerequisites to ensure that investments can be decided on and driven in the manner of resources such as time, money and creative processes are suggested. Lastly, surrounding prerequisites enabling an innovative culture and improvement suggestions on current organisational processes for IDTL are given.

Keywords: Digital technologies for Learning, Innovation Management, Innovation Prerequisites, Corporate Education.

List of Abbreviations

AR = Augmented Reality

ERP = Enterprise Resource Program

EVP = Executive Vice President

ID = Instructional Designer

IDTL = Innovative Digital Technologies for Learning

IT = Information Technology

LPM = Learning Program Manager

MR = Mixed Reality

NPV = Net Present Value

ROI = Return on Investment

SID = Strategic Investment Decision

SVP = Senior Vice President

TDP = Training Development Process

VGU = Volvo Group University

VR = Virtual Reality

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1. Introduction

This chapter is an introduction to Volvo Group and Volvo Group University (VGU), which is the organisation that this master thesis has been performed on behalf of. Furthermore, it is an introduction to the topic of Innovative Digital Technologies for Learning (IDTL) and the perceived problem VGU is facing, which lays ground for the purpose of this master thesis. The problem described is connected to that VGU have explicitly stated in their strategy that they strive to increase their number of innovations, however, employees perceive that guidelines on how such initiatives should be prepared, presented and supported are vague. This is perceived to be discouraging efforts regarding IDTL from being pursued at VGU and will be described in further detail in Section 1.2. In addition, this chapter will include stating research questions and delimitations.

1.1 Background

This section includes a general description of the organisational structure of the Volvo Group together with VGU. A detailed description of VGU's complete structure can be found in Chapter 4, Current State.

1.1.1 Volvo Group

Volvo Group is one of the leading corporate groups worldwide that produces trucks, busses, marine engines, industrial engines and construction equipment. The company is divided into ten different business areas and three truck divisions. The business areas are the following; Volvo Trucks, Renault Trucks, Mack Trucks, UD Trucks, Group Trucks Asia & JVs, Volvo Buses, Volvo Penta, Volvo Construction Equipment, Arquus and Volvo Financial Services. Whilst the three truck divisions include Group Trucks Technology, Group Trucks Operations and Group Trucks Purchasing. However, there are also group divisions such as Group Human Resources (HR), Group Communication and Group Finance, where under the group division HR lies the sub-division VGU. VGU are managing the educational development for the competences needed within the Volvo Group. The described structure can be seen in Figure 1 (Volvo Group, 2019). In total, Volvo Group reported a net sale of near 400 billion SEK in 2018 and has just over 100 000 employees worldwide (Volvo Group, 2018).
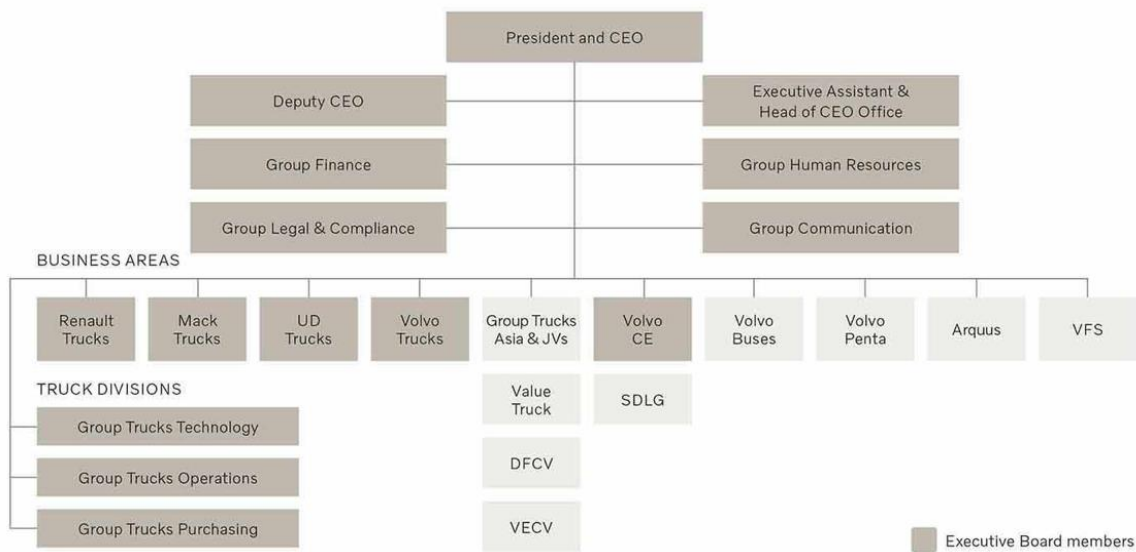
Figure 1. The Volvo Group Organisation. (Volvo Group, 2019).

1.1.2 An Introduction to VGU

VGU is as previously mentioned a sub-division under HR and is responsible for educating personnel within the Volvo Group, hence creating educations for the whole organisation. VGU was inaugurated in 2014 with the purpose to consolidate Volvo Groups educational efforts to continuously be able to offer leaders and employees top of the line education, but also to create economies of both skill and scale. Furthermore, Volvo Group strove to increase their independence from external educational suppliers and more efficiently handle their educational resources. VGU was founded to become a centre of excellence, supplying educations that have a widespread need throughout the Volvo Group. VGU has grown to be an organisation with 160 employees and a yearly turnover of approximately 280 million SEK.

VGU solely offers education to the Volvo Group and does not provide any of their products to external companies. However, the Volvo Group can choose where to buy their educations from, meaning VGU must compete with external education providers. Though, the competitive advantage VGU has, is that they possess great knowledge about how the Volvo Group works and its' needs. VGU mainly focuses on education that results in large-scale effects within the organisation, is of strategic importance to the Volvo Group business and education that is specifically adapted to wide spread needs in the Volvo Group. However, VGU also produces certain small-scale training offers on request from local organisations.

There are four Academies at VGU which are each responsible for educational programs within different knowledge areas. Most employees within the Academies have the position known as Learning Program Manager (LPM) which entails managing communication with the business stakeholders, maintaining an educational portfolio and developing new trainings. Thus, LPM's work both with project leading new trainings and program management of existing trainings. Along with the four Academies there are also a number of other functions; Learning Expertise, VGU Sites, Business Office, HR and Communication. Business Office, HR and Communication are supporting functions within VGU whilst Learning Expertise, the VGU Sites and the Academies are the main functions working actively with the educational programs. Within Learning Expertise most employees work as Instructional Designers (ID),

who work with the LPMs when maintaining and developing new trainings, by supporting the LPMs with graphics, learning solutions, texts etc. The IDs can therefore be seen as format specialists. Moreover, the Delivery function is VGU's operative function, meaning that they ensure delivery of the trainings developed at VGU globally. Learning Expertise, Delivery (VGU Sites) and the Academies include employees, one or several Group Managers and a Vice President (VP), where the employees report to the Group Manager and the Group Manager reports to the VP. In turn, the VPs report to the Senior Vice President (SVP) at VGU, who reports to the Executive Vice President (EVP) at Group HR. This structure is displayed in Figure 2.
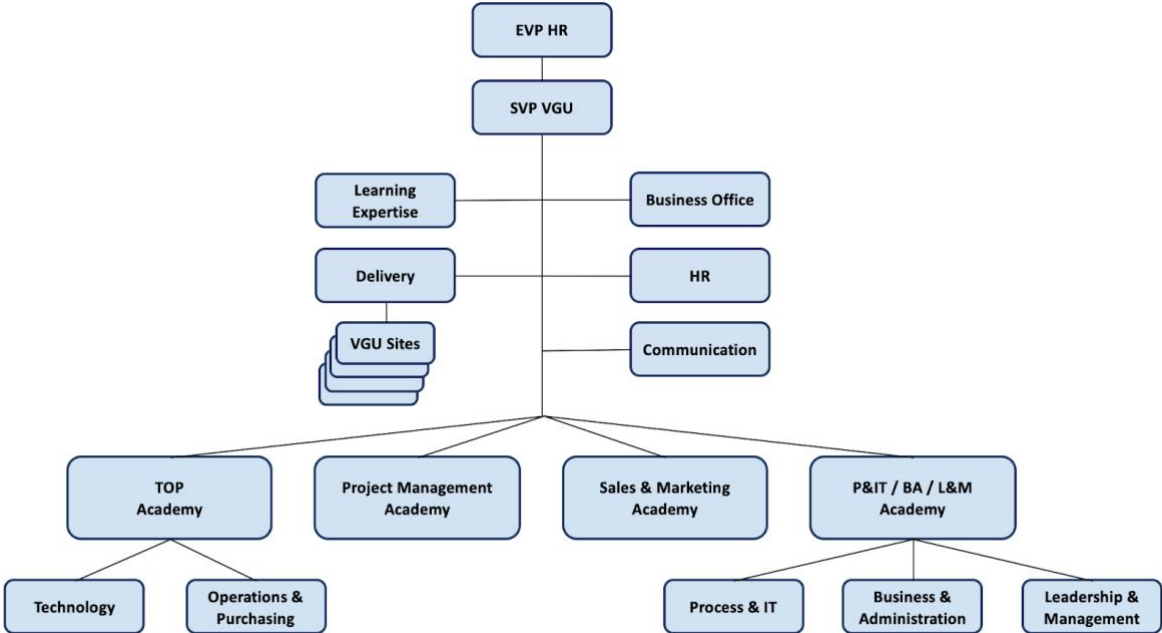
Figure 2. VGU's Functions and the Four Academies.

The workflow of VGU's main business, to develop education, is displayed in Figure 3. Where a continuous dialogue takes place between LPMs and Business Stakeholders, who are found in the different Business Organisations. These Business Organisations represent the different business areas and truck divisions and are therefore VGU's primary customers. When a need has been expressed by a Business Stakeholder, in one of the Business Organisations, this is discussed and received by a LPM in an Academy. The LPM then reports this need to its' Academy where a decision is taken on if the need shall be met and a training shall be developed. If the need is to be met, and a training is to be developed the LPM initiates the development of the training through VGU's Training Development Process (TDP) which will be further described in Chapter 4. This TDP includes working together with Learning Expertise and when the training is complete, it is launched through VGU's Delivery function.
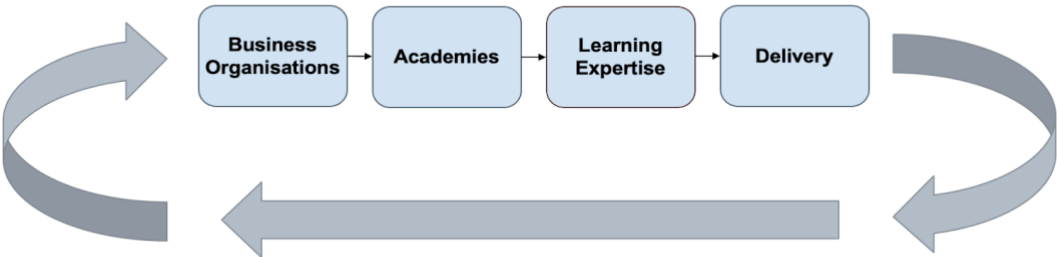
Figure 3. VGU's Workflow.

1.2 The Perceived Problem

Many learning companies have started to implement IDTL such as Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) in education. VGU is also interested in increasing their usage of new technologies in their trainings. In order to be on the forefront regarding technological development within education, and to remain competitive in comparison to external educational providers. New technologies are seen to have the potential to enhance learning and increase the value of educational offerings. A previous study by Kindmark & Thunberg (2018) at VGU prevailed several benefits from using digital technologies in education, and further showed that usage of technology within education increases both learning and the overall satisfaction of the learning experience.

Moreover, one of the seven main strategic goals that VGU has, is to take active steps in digital transformation. The problem VGU is facing however, is that it has not been stated or communicated how this should be operationalised, nor how they should enable development of IDTL, which is seen an essential part of this goal. Currently VGU uses a process when developing trainings, known as the TDP, which is suitable to use in their business as usual with developing new trainings. However, the regular TDP is not perceived as suitable to use for developing innovative ideas, as it is adapted for development of trainings, and not exploration of IDTL. Further, sometime ideas regarding solutions for the trainings arise in the development phase of the TDP, which is experienced as too far along the process to correctly be able to evaluate a solution that is connected to an IDTL. This leads to using a pre-existing solution instead of an IDTL as neither the pre-set budget covers possible additional expenses nor is there enough time to work with the previously unused solution. Thus, if an employee has an idea concerning an IDTL, or some other innovative idea that is out of the ordinary, there are according to the employees, no clear guidelines to follow. Even though VGU has recently developed an Innovation Framework that can be used, this can only be used if the idea is connected to a strong business need expressed by a business stakeholder. In addition, employees are unaware of how and when this Innovation Framework should be used. It is also experienced that there is no clear information on how eventual prototyping in the Innovation Framework should be performed nor financed, or how time should be allocated for such activities nor what decision structure should be used.

The previously mentioned TDP is divided into several phases, which is displayed in Figure 4, where the first phase is known as the Pre-Study Phase. This phase implies that an employee needs to gather information on a business need and create a project scope including a number of stated criteria. When this has been completed, the employee needs to decide on if the project should either be put through the TDP or the Innovation Framework. Currently, employees feel unsure on how they should proceed if either there is no specifically expressed business need, and the idea regards and IDTL, or the business need is seen to possibly be met with an IDTL. This is in turn is discouraging employees from suggesting IDTL and leading to that most employees opt for a classical solution for the training that already exists.
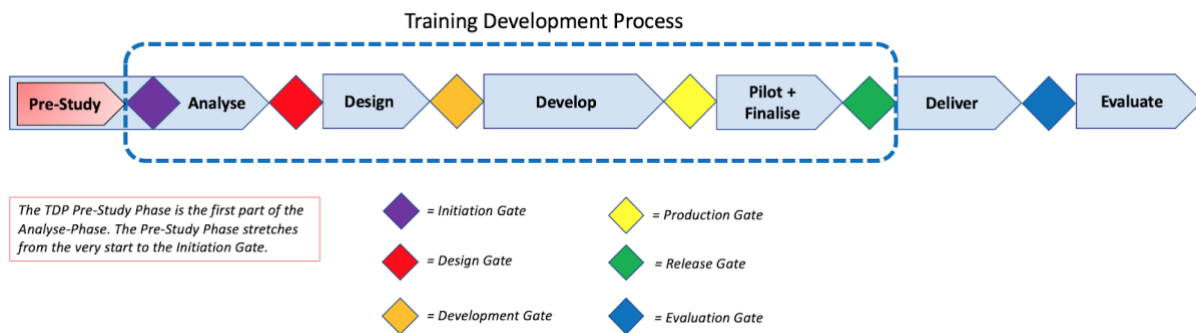
Figure 4. The TDP and the Pre-Study Phase.

Thus, for VGU to achieve their strategic goal in taking active steps in digital transformation, it is of most importance to firstly, provide employees with prerequisites needed to facilitate innovation. Secondly, deliver clear information on how an IDTL should be taken from idea to a potential investment decision. Thirdly, if the IDTL should be pursued through the Pre-Study Phase, Innovation Framework or other found processes. Lastly, what should be presented in order for VGU management, also referred to as the VGU Management Team, to be able to perform an investment decision.

1.3 Purpose

The objective of this master thesis is to state the requirements needed in order for the VGU Management Team to assess and decide on a proposed IDTL.

1.4 Research Questions

In order to obtain the given purpose of the report, a number of vital questions have been constructed.

RQ1. What factors do the VGU Management Team state that a business case regarding an IDTL should include? What should an IDTL business case include in comparison to theory and the benchmarking companies?

RQ2. How are IDTL currently discussed within VGU? What resources and prerequisites are available for exploring them and how have previous IDTL efforts been pursued?

RQ3. What skills are currently available within VGU to prepare and present an IDTL business case?

RQ4. What organisational processes are currently available for working with IDTL? What are the experienced problems when an employee wants to pursue an idea regarding an IDTL?

1.5 Delimitations

No consideration will be taken to:

- The IDTL technologies themselves.
- Specific economical calculations.
- Possibility for implementation of the master thesis in Business areas outside of VGU in the Volvo Group.
- Actions taking place after the investment decision is made.

2. Theoretical Framework

This section presents a number of research papers and literature concerning topics found relevant for the project scope. When choosing these, the purpose and research questions were used, where it was found important to understand; how business cases for investments are made, why and when a business case should be used, what a good business case includes and if there are parameters in a business case that need estimation or calculation. This in order to master how a typical investment could be motivated, what parameters are important and to assess the current guidelines that might already be existing at VGU.

Furthermore, the topic of the IDTL business case covers digital technologies, meaning that there is need to grasp what sets digital technology investments apart from other investments. Thus, touching upon; how are investment decisions usually made regarding digital technologies, are there any differences or difficulties when creating investment decision material for digital technologies compared to other investments and what type of prerequisites are needed in an organisation for successful evaluation of investments.

Lastly, to assess VGU's current prerequisites for pursuing innovation efforts it was seen imperative to observe theory regarding; what innovation means, what a creative process entails, why companies need to innovate and what type of barriers can be found in education for innovative efforts. The theory was then used, in combination with findings from benchmarking, as a base in Chapter 3, Analyse, to understand how the company works in comparison to the ideal according to the literature.

2.1 Building a Business Case for Investment

As a large part of the study is on investment decisions on new digital technologies a common way of creating decision support is through a business case. Therefore, literature on why business cases are important, what good business cases include, what prerequisites are needed to judge business cases and how business case parameters are estimated is described.

2.1.1 The Importance of Building a Good Business Case

In 2011, Keen wrote a book aimed at helping people who want to increase their capabilities on creating business cases for technology investments. A business case can be described as a type of paper or presentation that is created for top management to guide their decision making, from a business value perspective, on a certain investment. Usually it will be created in a narrative manner and include an assessment of risks, present business value and future business value. The main ingredients of a business case will typically be assumptions, relevant data, economic calculations such as cost-benefit analyses, motivation and hypotheses. One of the difficulties with creating a good business case is the perception of the term "value". This as value is highly subjective and can have different meanings dependent on the situation and time frame. Still, value is the key to ensure the success of a company.

Therefore, before even starting to create a business case it is important in an organisation to have a common language. This to ensure that when presenting a business case that all attendees receive the same information and understand it in the same way. It is common that typology differs between persons and organisations, opening up for the possibility of errors and

misunderstandings. One example of a common misunderstanding in a firm is displayed in Table 1.

When someone mentions "ROI," she or he could actually mean ...
...a formula called:
Return on Investment (ROI) (which different people may calculate in different ways*)
...or a document, which someone else might call a:
• Business case
• Cost-benefit justification
• Benefit analysis
• Benefits realization
• ROI analysis
• Value analysis
...or a process, which someone else might call:
• Value management
• Benefits determination

*The Glossary shows the formula mostly commonly used for return on investment. However, there are many variations of this formula.

Table 1. A Typical Misunderstanding of a Certain Typology. (Keen, 2011).

Furthermore, it is also important to ensure that there is a common best-practice method in place for certain activities. These being creating business cases, conducting value-based program decisions and a procedure for following value results. If there are not set best-practice methods for certain procedures, there is a risk that valuable time is wasted on reinventing the wheel. Moreover, it is important to stress the use of visual methods to inform on the business case to ensure a high level of consensus with different types of stakeholders. Generally, a business case should also incorporate currently used practices such as performance management tools, which can enable understanding but also increase the presented inputs and outputs (Keen, 2011).

Likewise, Ward, Daniel & Peppard (2008) wrote an article on how to better adapt business cases to information technology (IT) investments. They studied over 100 European organisations to understand how their business case strategies were connected to the success of their IT investments. Overall, it was discovered that 96% of the companies they had surveyed were obligated to present a business case when requiring funding for an IT investment. Also, it was found that 68% of the companies saw the business case as a vital part to ensure that the IT investment delivered value. Further, the authors discovered that 64% of those interviewed considered that if a business case lacked validity and did not come across as convincing. This decreased the chances of obtaining vital management support which was needed to certify that the investment would be successful.

2.1.2 The Components of a Good Business Case

When certifying that possible simpler pitfalls previously mentioned have been handled, Keen (2011) stresses that to maximise return on investment (ROI) a company needs to ensure the

production of both reliable but also believable business cases. Further, the indication of a trustworthy business case is that it expresses logic and convincing arguments. A way to evaluate these different quality indicators can be done by using "The Seven C's of Content Quality", which looks at the following factors;

1. **Correct** adaptation to the proposed judgement being conducted. Hence that the investments' extent and effect is properly reflected in the business case.

2. **Concerns** of actors participating have all been determined and displayed in the decision criteria. This meaning that all stakeholders and their interests have been identified.

3. **Complete** investigation has been conducted on both tangible and intangible value areas. Thus, entailing that all aspects both regarding costs and benefits have been covered. It is also of importance that assumptions taken are displayed.

4. **Connections** between business goals and IT characteristics. Meaning that the important features found in each possible investment are connected to the company's business goals. Which is important to ensure that investments reinforce business goals and a cause-and-effect can be provided in order to present how.

5. **Credibility** of the inquiry. Hence being able to prove that the analysis, calculations and possible assumptions taken are credible. This can be done through, for example, involving subject-area experts.

6. **Consciousness** of explanation. That the business case is not too long and adheres to given instructions by decision makers. A standard guideline being that a business case should not exceed 15 pages excluding appendices.

7. **Compelling** use of narration. This meaning that the business case drivers ensure that the case is understandable for all parties through using stories to highlight main pinpoints. The overall guideline given is to ensure that there is at least one case story is used to emphasise each major theme.

In comparison to Keen (2011), a report from PWC (2016) researches how business cases should be built when regarding transformations in organisations. The example in this report is aimed towards tax companies wanting to digitalise certain in-house operations. It is argued that after a company has set a clear strategy and ensured to specify certain focus areas relevant for change, the company needs to build business cases for each area, where PWC (2016) define a number of vital components;

1. **Project Overview -** Should summarise the current situation of the business, its market position and what future challenges the company faces. Further, this section should incorporate the suggested action and how the company meets it.

2. **Strategic Objectives & Critical Success Factors -** Includes reflecting on the company's strategy and how it is promoted by the exemplified action. In addition, factors seen driving the needed investment should be stated such as how the investment addresses identified possible shortcomings with current practices, how costs can be reduced or what risks it may mitigate. Also, a summary of the conducted analysis should be displayed together with identified important factors for success. It should

furthermore be presented how the action can produce a widespread effect in other parts of the business.

3. **Project Outputs & Business Outcome -** A more detailed definition of the project including costs over time, when benefits will be obtained and clearly define the non-financial and financial aspects of the project. Further, who has ownership of the project and who is responsible for delivery should be stated in combination with possible identified restraints. Also, if third party interaction is seen needed this should be displayed.

4. **Project Strategy & Implementation Approach -** Defines how the action will be managed, what governance structure is seen appropriate, time plan and what are seen as key outputs. Moreover, the overall scope should be defined together with prospected resources and vital management roles.

5. **Comparison of Alternatives -** Here, different alternatives that were considered should be displayed connected to what could be expected if nothing was done. A statement should be included demonstrating the most viable solution.

6. **Stakeholders & Responsibilities -** This section should include the responsibilities and roles that have been identified for the project, covering both ownership and delivery. Further, the business sponsor subject to ensuring delivery of key factors, the project manager in charge of driving the project to success and both internal and external stakeholders should be clearly displayed.

7. **Dependencies -** Regards stating how the project can affect the overall business and other units and should include third-party reliance seen need.

8. **Project Risk & Key Assumptions -** Should clearly display possible risks threatening the success of the project together with identified assumptions needed for execution.

Moreover, PWC (2016) state that this material should be presented for key internal stakeholders who are well informed on company objectives and goals. In addition, there are a number of other important internal stakeholders who must be included, such as, finance, operations and IT.

In addition to the factors described by PWC (2016) and Keen (2011), Ward, Daniel & Peppard (2008) found that near 96% of businesses use business cases for IT investments, however, near 65% experienced that their company's business case model was not able to display all possible benefits with proposed investments. Therefore, based on their research, the authors propose a business case focused on analysing and investigating the investment's proposed benefits. The proposed business case differs from a classic business case for a number of reasons; it covers both financial and non-financial benefits, it creates measurements for all types of benefits such as qualitative and subjective, proof for the estimated size of benefits are to be demonstrated, each benefit is given an owner, business changes seen needed to realise benefits are specifically stated and business changes are also given owners responsible for delivery. The proposed business case by Ward, Daniel & Peppard (2008) includes the following steps;

Step 1: Define Business Drivers & Investment Objectives

The first part of a business case should incorporate what current issues are found within the organisation that need to be mitigated. This meaning that the business case should explicitly state the business drivers. Furthermore, this step includes identifying and presenting what the proposed investment is to attain, and how this will benefit the organisation. Thus, connecting this to the previously presented needs and stating the investment objectives. The authors stress that drivers can be found both externally and internally.

Step 2: Identify Benefits, Measures & Owners
By conducting Step 1, the business objectives, or the overall goals with the project have been stated. From there it is possible to estimate what the possible forthcomings could be by realising these goals, resulting in a number of benefits. Usually by realising the objectives not only one group within the organisation will experience benefits, instead it will probably bring different types of benefits to different types of employees. Therefore, if there are two to four objectives, these are expected to result in several more benefits. When these benefits have been found it is important to give each benefit a measurement and an owner. What is meant by measurement is to explicitly define the benefit so it can be measured, such as "increased sales to specific customer segment" would be given the measurement "sales to target segment". In addition, an owner should be assigned ownership of each benefit as it both increases project commitment but also states the significance of the investment. This owner is not specifically responsible for realising the benefit, but should help with their relevant area of expertise to establish a roadmap enabling the benefits realisation.

Step 3: Structure the Benefits
Instead of creating a list of all the benefits found under Step 2, the authors suggest a specific framework for structuring them, which is presented in Figure 5. This as it then is possible to rate benefits according to how much is known about the benefit and what business change drives the benefit. The benefits are then spread out over the framework and enables both financial and qualitative benefits to be displayed together, which facilitates discussion and comparison when working on prioritisation.

Degree of Explicitness	Do New Things	Do Things Better	Stop Doing Things
Financial			
Quantifiable			
Measurable			
Observable			

Figure 5. The Benefit Structure Framework. (Ward, Daniel & Peppard, 2008).

Step 4: Identify Organisational Changes Enabling Benefits
When dividing benefits into the three columns of "doing", the authors stress that some benefits will be easier to categorise than others. Do new things, refers to employees being able to perform new tasks that were not possible before the investment. Do things better, refers to actions the company still needs to conduct but that can be improved. Stop doing things, are actions not needed after the investment is made, for example when moving from using paper phone books to intranet-based telephone directories. This led to no phone books needing to be

printed nor handed out through the company. If a company is struggling to understand how business changes are connected to benefits, the authors recommend the Benefit Dependency Network method.

Step 5: Determine Explicit Value of each Benefit
Based on the information that has been gathered on a benefit it can be divided into four different categories of explicitness, which are the following;

Observable **-** Benefits that are assessed on assumptions and expertise, which usually are benefits seen as subjective or qualitative. Examples are; increased moral of in-house employees or increased customer satisfaction. These benefits can be measured over time, but are hard to estimate initially. However, after finishing the project a logbook including factors used to judge these benefits and statement of who were seen qualified to assess this should be noted.

Measurable **-** These are benefits that already have a set measurement in the business or are easy to set a measurement on. However, these are benefits that are hard to estimate on the scale of improvement even though there is a current baseline. Those benefits that are given measurements should be explicitly discussed and adjusted to reasonable initial levels.

Quantifiable **-** Benefits that already have a measurement, or that easily could have, and that have a set level before the investment are quantifiable measures. What differentiates them to the category above is that their level after the objectives have been attained can be estimated. Important to note however, is that this forces companies to predict the future, which should be performed with caution. A level of legitimacy needs to be reached which can be difficult, hence making it difficult for companies moving benefits from measurable to quantifiable. The authors suggest a number of approaches including modelling, piloting, benchmarking and reference sites to facilitate in this estimation.

Financial **-** Includes those benefits that can be defined in monetary terms. However, only benefits that have reliable data and use trusted financial formulas enabling verification should belong to this section of benefits. If done correctly these financial benefits can be used in formulas such as ROI and payback to motivate the potential value of the investment.

Step 6: Identify Costs & Risks
Finally, the last step covers assessing costs and risks connected to the investment. This as the financial value of the benefits then can be weighed against the perceived costs to conduct a financial assessment. Costs that should be included are; purchases, development, infrastructure, business change and ongoing costs. When regarding estimating risks, the authors recommend a number of categories that should be assessed; financial, technical and business and organisational change. However, they recommend companies to decide which risk evaluation methods are seen suitable for their specific situation. In summary, these steps therefore lead to a business case including the following factors;

1. **Business Drivers**
2. **Investment Objectives**
3. **Benefits**
4. **Project Costs**
5. **Risk Analysis**

2.1.3 Comparing the Components Found to Build a Good Business Case

When comparing Keen (2011), PWC (2016) and Ward, Daniel & Peppard (2008) on what they consider should be included in a business case there are several similarities but also a number of differences. All authors touch upon the importance of proclaiming the investment's overall effect and extent on the business, where Keen (2011) includes this as a factor concerning correctness of a business case whilst PWC (2016) and Ward, Daniel & Peppard (2008) choose to combine this with encouraging the business case builder to connect this to the company's overall strategy and business goals. Keen (2011) also lifts the importance of connections to business goals, but separately, and argues that this should be found throughout the business case and should further focus on intertwining these with IT characteristics. PWC (2016) and Ward, Daniel & Peppard (2008) instead stress business case builders to place a larger focus on highlighting how the proposed investment helps the company to attain their given business goals and to specify what is seen driving the investment. Further, PWC (2016) and Keen (2011) emphasise the importance of identifying stakeholders connected to the investment where Keen's (2011) main focus is on identifying their interests whilst PWC (2016) stress that stakeholders are closely connected to responsibilities. PWC (2016) are alone with underlining that ownership of certain activities should also be delegated to certain stakeholders, whereas Ward, Daniel & Peppard (2008) define ownership in regard to benefits to increase commitment and realisation of them.

All authors are nevertheless found to underscore the importance of identifying and estimating possible benefits, where all emphasise both tangible and intangible benefits. However, to estimate these differs slightly between the three. PWC (2016) simply states that the benefits should be clearly defined with no given methodology whilst both Keen (2011) and Ward, Daniel and Peppard (2008) present techniques to estimate them. Keen (2011) both underlines the importance of working with external subject-area experts and presents a framework for supposing intangible benefits, which is presented in Section 2.1.4. Whilst Ward, Daniel and Peppard (2008) present a framework for both identifying, structuring, enabling and explicitly valuing benefits pushing that conducting a proper investigation of possible benefits is of highest importance. Furthermore, all three authors are found to feature cost in their recommendations for building business cases. Though, cost is just mentioned as a part of producing a complete investigation by Keen (2011) whilst PWC (2016) mention both cost as something that should be measured in the company to find benefits motivating the investment, and as something that need to be defined in detail for the proposed investment over time. Ward, Daniel & Peppard (2008) propose the most detailed emphasis on what costs should be covered in the business case and state that costs should be used to weigh against the financial benefits found for the investment, in order to perform a financial assessment. Moreover, both PWC (2016) and Ward, Daniel & Peppard (2008) are found to enforce the importance of estimating risks connected to the proposed investment. However, PWC (2016) highlight the importance of stating risks connected to threatening the success of the investment, whilst Ward, Daniel & Peppard (2008) highlight risk connected to what risks the investment entails technically, financially, for the business and regarding organisational change.

To ensure that good business cases are spotted and successful Keen (2011) stresses that it is important that there are a number of processes in motion. These processes regard how business cases are suggested, chosen and followed-up. Thus, entailing that there is a need for a process that enables the submission and creation of new business cases. There should also be a process available that describes how business cases are chosen, who takes the decision and how funds are divided between projects. There should also be a process that shows who is responsible for

following-up on progress through a comparison of investment value versus actual value. If these different processes are not in place, several unwanted situations can occur. For example, an IT investment that could have generated high returns is missed due to a lack of process being in place, in order to generate a proper business case for the investment. Or a well worked business case is created but overlooked due to that there is no consistency in decision making. PWC (2016) also emphasise similar processes seen needed and specifically underline that a governance structure needs to be set beforehand. They further stress that ownership of benefits, similarly to Ward, Daniel & Peppard (2008), should be set and that vital management roles found connected to the investment should be stated. However, PWC (2016) are the only of the three to state that a business sponsor should be set as responsible for ensuring that key deliverables are attained which is argued to increase overall commitment to the investment. They are also alone when proposing companies to set a time plan with key outputs to create prerequisites ensuring that the investment is kept on track which can be seen as similar to Keen's (2011) example of an investments failure where the failing factor was the lack of follow-up, to enforce the importance of monitoring the fallout of the investment. However, Keen (2011) puts a larger emphasis on continuous follow-up which enables actions to mitigate the problem can be put in, to ensure that the investment continues to produce success for the company after the initial investment.

Lastly, there are a number of components suggested for good business cases that are only found stated by one of the three authors. Firstly, Keen (2011) is the only author to emphasise the importance of keeping the business case short, on-point and to provide the reader with compelling narration through storytelling. Secondly, PWC (2016) are alone with mentioning comparison of alternatives hence indicating that decision makers should be presented with the different alternatives that have been assessed for the investment connected to presenting decision makers with information and possible risks if the investment was not pursued. PWC (2016) also highlight the importance of not just describing stakeholder interests, but also stating important dependencies. This to both facilitate in understanding how the investment can affect other parts of the business, but also, to ensure that third-party reliance's are highlighted and how these affect the different parts of the investment. Lastly, Ward, Daniel & Peppard (2008) are the only authors who touch upon categorising benefits into four categories instead of just dividing them into intangible and financial.

2.1.4 Estimating Intangible Benefits

When decisions are to be made regarding a technological investment of some sort, a general approach is to weigh costs and benefits against each other. However, as some benefits cannot be touched nor measured these are hard to estimate. Examples of business success are given where management decisions have not been based on measurements and instead a gut feeling was used, such as General Motors' decentralisation and Walmart's' discounting tactic. It is stressed that technological investments need to take intangible benefits into consideration in order to properly assess their potential. Some intangible benefits can easily be transferred into what management usually prefers, which is tangible and hard money benefits, whilst others are near impossible to calculate. There is no given standard for calculating the hard money benefit for the increase of happiness for 100 customers (Keen, 2011).

Similarly, to Keen (2011), PWC (2016) state that some investments are perceived as relatively simple to create a cost-benefit analysis for but that these estimations seldom incorporate all costs and benefits that could be connected to an investment. Therefore, an analysis of other non-financial costs and benefits should be performed to ensure that all factors have been

accounted for when assessing possible investments. However, they give no specific guidelines on how these non-financial factors should be estimated or measured but this is something that both Keen (2011) and Ward, Daniel & Peppard (2008) do.

Keen (2011) proposes a methodology to assess intangible factors of technological investments and refers to the DNA of tangibility. The process is displayed in Figure 6 and consists of five elements to evaluate. The first being premise, implying that there is an existing assumption around a believed benefit. This premise can then possibly be translated into a value ladder, sensing a logic cause and effect relationship between two factors. The third step towards tangibility can then be found in a mathematical formula, which indicates that it is possible to calculate a reduction or saving of some sort. Further, the fourth step entails assigning values to variables hence translates the found reduction into a monetary value. Lastly the concept of proof, involves ensuring citations or proof to support the claims of the previous steps.
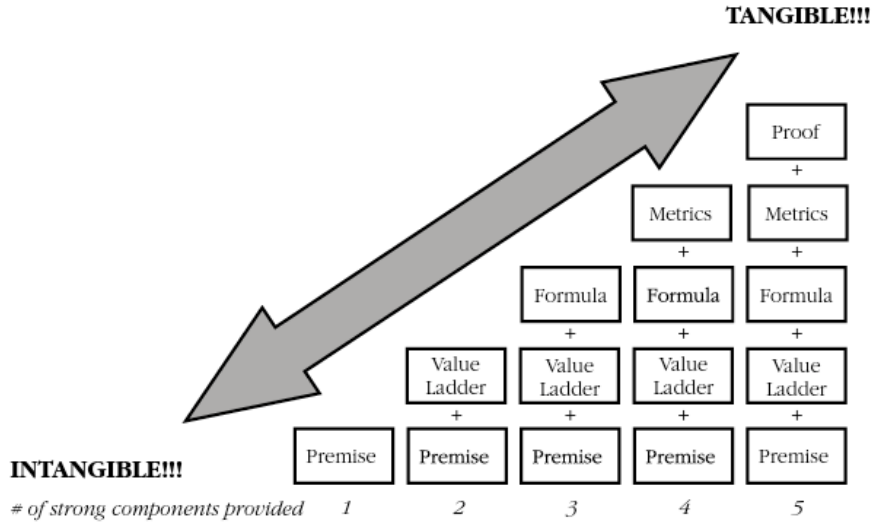
Figure 6. The DNA of Tangibility. (Keen, 2011).

Keen (2011) stresses that in order for the DNA of tangibility to succeed it is important to have a cross functional decision team conducting the procedure. By using the tool, it is easier for decision makers to understand the full potential of the investment and a benefit is overall more socially accepted if it is tangible.

Ward, Daniel & Peppard (2008) enlighten the problem of quantifying important intangible benefits where they claim it is essential to gather evidence. To gather this evidence, they propose a number of actions that can be taken, where the first is to model the benefit. The authors give an example of a police force who want to invest in a new crime and incident recording bureau, where an external supplier is involved to be able to simulate similar call patterns. This enabled the investor to understand the size and prerequisites needed to handle the current volume of calls to be able to estimate probable benefits with outsourcing the calls. Secondly, the authors suggest using benchmarking and reference sites. When highlighting benchmarking it is discussed that benefits can be quantified through observing other industries best practices. However, to truly be able to use the information gathered it is vital to find a reference site where a similar investment has been made, to understand that company's starting point, but also to understand how much of their success story can be adapted to the context of the researching organisation. Lastly the authors suggest pilot implementations. This is discussed to both enable technology testing but also to assess how new systems can benefit being changed. It is therefore argued to be based on using a control group still actively working

as per usual in comparison to another control group working in the new way. By performing this type of comparison, it is possible to measure operations and efficiency effects, hence enabling estimating possible intangible benefits. In the study, the authors found that 45% of companies that were successful with their IT investments used reference sites for quantifying benefits and 35% practice benchmarking (Ward, Daniel & Peppard, 2008).

Nevertheless, Keen (2011) states, some benefits cannot be translated to tangible and therefore there is a need for some other tool - such as the scoresheet. Together, the decision team needs to put together relevant decision factor when assessing a certain business case. Typically, a beneficial classification is contemplated in four categories; financial, customer, process and employee learning & growth. These four categories then need to be appointed different weights to show how important each category is. The weights are then divided and scored for each intangible benefit found for a certain investment in each category. Under each category, there should also be a row for assessing possible risk. An example of the scoresheet can be found in Table 2.

Decision Criteria	Weights	
TANGIBLES		
Return on Investment (ROI)	50	A: Tangible criteria
TOTAL TANGIBLES	50	= 50 points
INTANGIBLES		B: Intangible criteria
Financial	10	= 50 points
Match to Key Business Strategies	5	(10 + 15 + 15 + 10)
Enhance financial performance	3	
Risk of Lack of User Acceptance	2	
Customer	15	
Improve Quality of Group's Output	6	
Improve productivity of staff	4	
Risk of resistance to data sharing	5	
Process	15	
Improve staff productivity	6	
Expand usage of enterprise knowledge	6	
Risk of security exposures	3	
Employee Learning and Growth	10	
Improve IT staff productivity	4	
Reduce IS project costs and complexity	3	
Risk of learning new technical skills	3	
TOTAL INTANGIBLES	50	
GRAND TOTALS	100	

Table 2. A Scoresheet for an Example of a Business Case Submission. (Keen, 2011).

Important to note, is that intangible benefits can even with tools still be difficult to estimate. Keen (2011) therefore presents a number of recommendations, other than the previously given tools, to aid companies in valuing their technological investment benefits. Firstly, he emphasises that it is important for companies to increase their research skills. This as it is common that technological investments are delayed due to the company having difficulties in finding metrics which are needed to conduct hard money calculations. Companies therefore need to increase their way of researching metrics by conducting interviews with experts or searching for relevant guidance in publications. Secondly, increase the use of interviewing within the company. This is needed to understand possible bottlenecks that employees are experiencing or costs that are arising due to inefficiencies that could be mitigated with the proposed business case. Thirdly, ensure enough time is given to find all the information that

may be needed to create metaphors, formulas and metrics. These things may take time and not allocating enough time for this might affect the final decision. Fourthly, resistance should be expected were some certain arguments against tangible estimations are common. It is therefore important for business case drivers to be prepared to answer this criticism. Where the first typical example of criticism is given regarding labour savings, where decision makers can propose that employees always need to be payed, hence labour savings are not accountable. A good answer regarding this statement is to demand a long-term perspective, where cost savings are often more plausible in the long run when comparing labour savings. A second example given regards metrics, where a typical objection could be that there are no metrics to support parts of the business case argument. Plausible answers should include conservative guesstimates further ensuring that they are supported by good logic and stated assumptions (Keen, 2011).

When rounding up to the final analysis, even if all recommendations have been understood and a brilliant benefit calculation conducted there is still no guarantee that a business case is granted investment. There are several other factors that also will affect the decision makers and enhance the decision making, where Keen (2011) specifically stresses the method of ROI storytelling.

2.1.5 Building a Story Around the Business Case

According to Keen (2011), a main reason for business cases failing is that those bringing forward the case have foremost focused on calculations and not spent enough time on justifying the importance of these numbers. Thus, the business case fails due to the proponent not succeeding in bringing forward the important message they want to display. PWC (2016), also touches upon the importance of delivering the business case and stress that the presenter must be able to prove "strong leadership, business partnering and communication skills". Furthermore, it is argued that the business case presentation must be tailored to the audience, demanding that the idea can be translated into un-technical terms. In addition, the overall benefit the investment will bring to the organisation should be presented, as decision makers listening need not be part of the organisational unit who are in need of the investment.

Keen (2011) argues similarly to PWC (2016) about the importance of how the business case is presented and stresses that by incorporating storytelling into the business case it creates more attention from decision makers. Further it has shown to be an efficient way of enforcing people to take action. Keen (2011) therefore argues that in order to create a good story there are a number of parameters that should be considered. Firstly, the business case proponent should reflect on the main goal. It is important to focus on only one goal per story and ensure that the main point of the business case is in focus. This could be to, for example, clarify ambiguous data. Secondly, the story has to be adapted to the audience. Hence, depending on who will be attending the business case presentation and who will be taking the decision. An example being if the Chief of Financial Officer usually is sceptical regarding data presented in business cases, then a credible and well worked ROI story written in a way to justify the data used might reduce the scepticism. Thirdly, even though business cases might need to be available in a hard copy for delivery it is important that the business case proponent has a number of strong storytelling lines prepared. This to be able to strengthen the business case when the opportunity arises, such as when meeting a key decision maker by the coffee machine. Lastly, there are a number of factors which should be accounted for when creating a business case ROI Story. The story should reflect the truth and if there are parts of the story that are of the more visionary kind, this should be clearly stated. Moreover, in order for the story to be understood by people from different backgrounds it should be formed in a universally compelling theme. Hence, the story

should reflect obtaining rewards, ensuring that great losses are avoided, strongly increasing the company image and connect to the business. Not to be overlooked, is also that the story needs to incorporate a compelling language and not be too long. Thus, a guideline is that the main message should be able to be read on one page and should be brief, punchy and precise (Keen, 2011).

2.1.6 Portfolio Management

Contrasting to Keen (2011), Cooper, Edgett & Kleinschmidt (1999) argue that businesses need to first decide on how to handle their portfolios in order to be successful. Therefore, it may not be enough to, just as Keen (2011) proposes, to come forth with an excellent business case - there is also need for space in the portfolio for the certain area the business case covers. In their study they let near 250 large American companies' rate and detail their portfolio management, where they found that the approach differed widely between companies. When then processing the information found, the authors were able to cluster firms approaches to portfolio management into four different clusters which are displayed in Figure 7.

High

• n = 22

Cowboy
Businesses

• n = 76

Benchmarks

Management Fit

Low

High

Overall Quality Rating

• n = 33

Duds

• n = 51

Crossroads
Businesses

Low
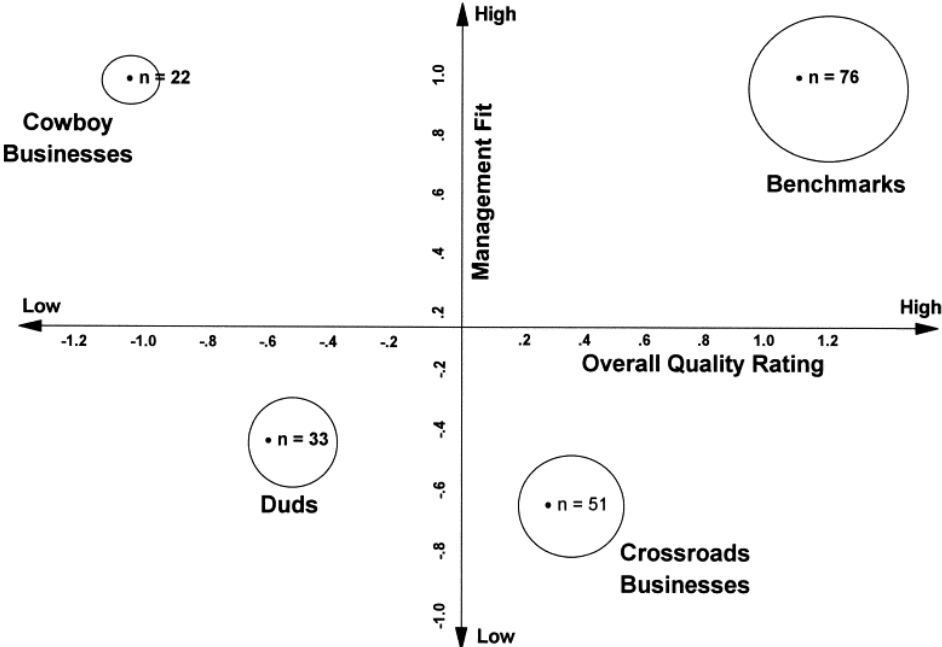
Figure 7. The Four-Clusters in Portfolio Management. (Cooper, Edgett & Kleinschmidt, 1999).

Cooper, Edgett & Kleinschmidt (1999) found four clusters of businesses that were based on two factors; firstly, how the company experienced the overall quality of their portfolio management method in relation to how well it was experienced. Secondly, how well the method fit management. In the top left corner in Figure 7, "cowboy businesses" can be found. These businesses work with project management in a spur-in-the-moment manner, where their approach has no set method, however this procedure is found to highly fit management. Yet cowboy businesses rate the quality of their approach as the lowest of all clusters, indicating that they would not recommend any other company to use their approach. Out of the 250 companies surveyed the cowboy businesses where near 12 % and therefore represent the smallest cluster. The direct counterpart of cowboy businesses being "crossroad businesses", indicates that they rate their portfolio method highly and would recommend it to other businesses. However, the

method is perceived not to be either effective nor efficient and management feels that the method does not fit their decision style. This cluster stands for 28% of the businesses surveyed.

Moreover, the next cluster can be found in the lower left corner in Figure 7 and is known as "duds". These businesses reflect companies who are found to have a low management fit and a low perceived quality rating. The method was seen to be inefficient and even experienced to be time consuming and the approach is not adapted to management style. Out of the 250 businesses studied close to 18% were found to be duds. The fourth cluster found was "benchmark businesses", which was recognised by businesses that compare themselves with others. This method was found to obtain the highest score in both quality and management fit. It was found to be realistic; the company would recommend it to others and it is actively used by management. Moreover, it was the approach that was found to be both effective and efficient. These benchmark businesses portrayed just above 40% of the surveyed businesses and showed to foremost stand for leading R&D firms in the USA (Cooper, Edgett & Kleinschmidt, 1999).

The next object Cooper, Edgett & Kleinschmidt (1999) wanted to display is which portfolio management method was most successful. This included studying factors such as strategic alignment, right number of projects, monetary allocation, strategy reflection, portfolio balance and cycle time. It was found that those firms most successful in all factors were benchmark businesses. They were found to have high-value projects, strategically aligned portfolios, a superior balance of high-risk and low-risk projects followed by the right number of projects in comparison to resources available in the business. The portfolio method was found to be set and formal, with clear guidelines. Furthermore, the method was found to be frequently used in all applicable projects and that all projects were considered in comparison to each other. Even though benchmark businesses were outperforming other clusters by far, crossroad businesses were found to be second best. This meaning that performance can still be expected to be relatively good even if the business has a highly rated portfolio method with a low perceived management fit.

Furthermore, the authors surveyed what type of techniques were used in portfolio management. Where it was found that no company relies solely on one method, rather, companies choose to combine a number of different methods. The most popular methods included financial methods, which near 80% of the businesses stated that they used, which includes looking at payback period, return on investment and economic value. In addition, business strategy methods where businesses have allocated buckets of money for different purposes are used to rate different proposals, where each proposal falls into a certain bucket. Close to 65% of the businesses surveyed used this method. Methods that were found common also included bubble diagrams, scoring models and checklists. In addition to displaying the methods, Cooper, Edgett & Kleinschmidt (1999) observe the most successful portfolio management efforts within benchmark businesses. They found that benchmarking businesses use a number of different portfolio methods and that companies that solely relied on a single method performed significantly worse. The poorest performance was found connected to only relying on financial methods, however those companies only relying on strategic approaches performed the best out of those relying on one method. Lastly, the authors highlight that a strong reason for benchmark business portfolio's success is due to how important management experiences portfolio management to be. Benchmark businesses management rates portfolio management of great importance which separated them greatly from the other clusters. The study showed that if management gives portfolio management high importance, it was directly connected to the portfolio's success.

2.1.7 Estimating Return on Investment

According to Philips, Brantley & Philips (2012), before a company can start estimating return on investment (ROI) there is need for a systematic data collection, objective analysis and a value forecasting. Furthermore, the data gathered and needed may widely differ in type and extent, and can therefore be divided into a number of different levels, which are displayed in Figure 8.

Level	Measurement Focus	Typical Measures
0: Inputs and Indicators	Inputs into the project, including indicators representing project's scope	Types of projects Number of projects Number of people Hours of involvement Cost of projects
1: Reaction and Perceived Value	Reaction to the project, including perceived value of the project	Relevance Importance Usefulness Appropriateness Fairness Motivational
2: Learning and Confidence	Learning to use the project content, materials, and system, including the confidence to use what was learned	Skills Knowledge Capacity Competencies Confidences Contacts
3: Application and Implementation	Use of project content, materials ,and system in the work environment including progress with implementation	Extent of use Task completion Frequency of use Actions completed Success with use Barriers to use Enablers to use
4: Impact and Consequences	The consequences of the use of the project content, materials, and system expressed as business impact measures	Productivity Revenue Quality Time Efficiency Customer satisfaction Employee engagement
5: ROI	Comparison of project's monetary benefits from project to project costs	Benefits/costs ratio (BCR) RO I(%) Payback period

Figure 8. The Different Levels of Data. (Philips, Brantley & Philips, 2012).

As displayed, Level 0 refers to the overall input to the project and factors surrounding the project. Thus entailing, the scope of the overall project, the level of commitment, the number of people engaged, time allocation and the overall cost. Level 1, looks into the term of reaction data. This meaning that it captures data on how persons in the organisation react to the given project idea, which could include stakeholder perception of the project but also capture employee reactions in order to measure how applicable, suitable and crucial the project is. Level 2, covers the learning component of a project, referring to understanding if there are any needed competencies or skills in order to ensure a successful project implementation. Stressing that it is extra vital for projects including a component of new technology or new systems. The measuring referred to in this level, is mainly focusing on soft skills such as knowledge, skills and available network of contacts. The third level relates to implementation, hence data collection on what type of hinders may occur, how will task completion be measured, how often are certain skills needed and what enablers are available. Therefore, level 3 provides the

information needed to understand if there is enough knowledge and skills available in order for a successful implementation (Philips, Brantley & Philips, 2012).

Moreover, level 4 demands data collection on impact and consequences. This imposing that there is a need to understand how the project will affect the overall business. Data collection needs to appeal to decision makers and should cover regarding factors such as revenue, time, customer satisfaction and productivity. The overall goal of this level is to prove why the project exists and how it will impact the overall organisation within different sectors and groups. This data is needed in order to both ensure project success but also to establish that the project is aligned with the business. The last level in the framework is level 5, which is the main step of the ROI calculation. A ROI calculation is seen necessary to compare project benefits with project costs and will usually include a payback period. The main calculation is based on two main steps, where the first is to translate the impact data from level 4 into a monetary value. The second being that the overall project cost must be estimated (Philips, Brantley & Philips, 2012).

The ROI Process Model

Philips, Brantley & Philips (2012), present a model that they stress is optimal to ensure the success of a ROI calculation. The model and its' steps are presented in Figure 9.
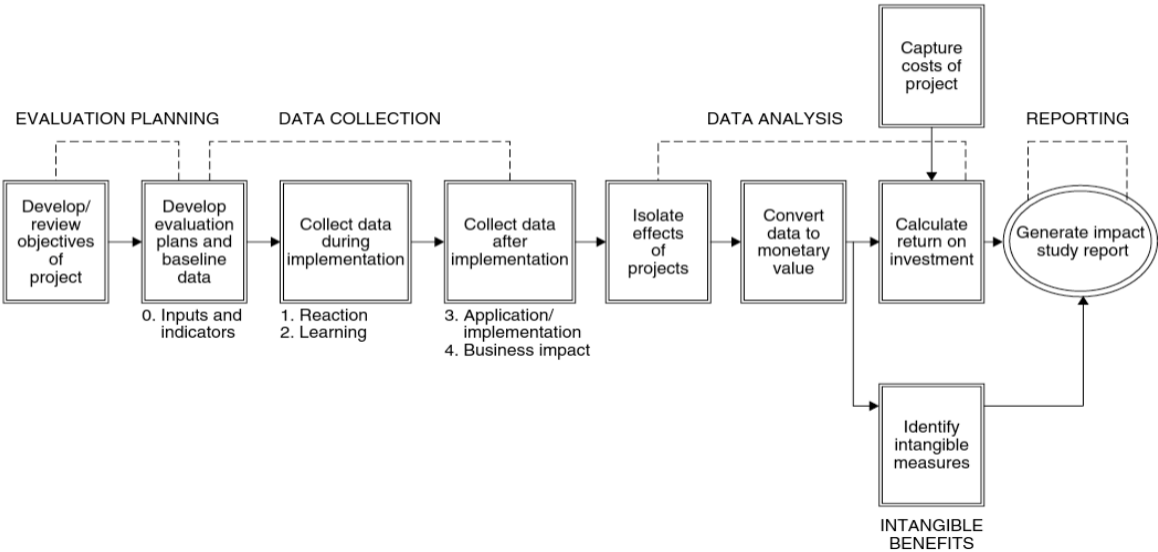
Figure 9. The ROI Process Model. (Philips, Brantley & Philips, 2012).

As seen in the picture, the main phases are evaluation planning, data collection, data analysis and reporting. Together, this process incorporates the different levels of data that were previously explained. The first phase regards planning and drawing up the main frame of the project. Further it will help in shaping the other phases on what type of data needs to be collected, analysed and reported. Thus, leading up to inputs and indicators for level 0. Furthermore, data collection includes both gathering soft and hard data which can be conducted through a number of methods. Important to note, is that different methods will yield different results and therefore it is important to select methods seen fit for the specific project. Examples of methods are surveys, interviews, business performance monitoring, tests and observations.

When stepping into the data analysis phase, it is first important to evaluate the effects of the proposed project. Evaluating effects refers to estimating how much output performance will be needed in direct connection to the project. By performing this step, it is possible to enhance the overall reliability of the ROI calculation and examples of methods for this can be control groups, senior management estimates, customer input and expert inputs. Moreover, the analysis includes converting data into monetary value thus adhering to the main calculation of ROI. Many methods are available for performing this calculation and include tools such as databases, manager estimates, historical costs and output data. However, it is vital to not surpass intangible benefits which are hard to convert to a monetary value. These could be benefits such as increased customer satisfaction, improved brand awareness and reduced conflict (Philips, Brantley & Philips, 2012).

Furthermore, when calculating ROI, a key issue is to measure how large project connected costs will be. Hence covering costs connected to areas such as cost for project materials, analysis cost, participant wages and administrative costs. When all factors have been analysed it is then possible to use a formula to calculate the ROI. Typically, when calculating ROI two mathematical formulas are used. Firstly, it is interesting to observe the benefit-cost ratio (BCR) which is the project benefits divided by the project costs. The second being the basic formula for evaluating most types of investments, where ROI depends on the ratio between net benefits and project costs. See Formula 1 (Philips, Brantley & Philips, 2012).

$$ROI\ (\%) = \frac{\text{Net Project Benefits}}{\text{Project Costs}} \times 100$$

Formula 1. The Formula to Calculate ROI. (Philips, Brantley & Philips, 2012).

The last step of the ROI process covers reporting, which is highly important to ensure the success of the project. When developing a report, Philips, Brantley & Philips (2012) stress the significance of developing a text that is short and on point. Further the report should be adapted to the audience to assure that the message that needs to be put forward is understood.

Parameters for Calculating ROI

Philips, Brantley & Philips (2012) claim that the reason for ROI being a main part of a project evaluation is due to that it has become a vital scale which senior management, customers and stakeholders demand. The reason for its' demand is due to that the ROI displays project pay-off through a formula that is similar to calculations used for other capital investment. However, it is not always clear what costs should be included but the authors stress that it is of importance that all costs possible are included. This in order to ensure that when the calculations are reviewed, there is not uncertainty on missed costs, which increases the overall reliability of the ROI. Nevertheless, focus should not just be put on the denominator of the equation but ensure that the benefits also are displayed and compared to the overall costs. Some benefits might not be possible to estimate in monetary terms thus meaning that companies might need to oversee how costs and benefits are communicated by other methods than the ROI calculation.

Overall, costs can be divided into two main categories; direct costs and prorated costs. This entails that some costs are directly connected to the project and its' execution whilst other costs are present along a longer time period, thus meaning that the cost should be portioned in proportion to the project. This as projects usually have a given time frame, where the cost will then extend beyond this time frame. Typical costs that are prorated are software development, construction and capital investments. Another factor important to incorporate is known as employee benefits factor, which is a percentage representing the cost of employee benefits in

comparison to their wage. This factor will usually be a well-known fixed percentage and is commonly a set percentage per country, where the US typically has 38%.

Furthermore, Philips, Brantley & Philips (2012) stress that there are a number of cost categories and that it is essential for project reliability that these costs are accounted for. The categories are described in Table 3.

Cost Category	Description
Initial analysis and assessment	The cost of conducting the pre-phase of the project which involves collecting data, solving problems, forecasts and assessments. Worth noting is that some companies do not demand this step and so the cost would be zero. However, there is a growing demand from top management and sponsors for this stage hence this phase could result in high costs.
Development of project solution/content	This category includes both designing and planning the project, but also acquiring equipment, technological solutions and other needed necessities for the project. Most of the costs in this phase will be directly connected to the project if the materials purchased cannot be used in other projects. However, if they can be used for projects then the connected costs can be spread out onto other projects.
Acquisition costs	Connected to some project solutions might be so called acquisition costs. These costs can be acquiring a new technological solution, or paying for user licences. Some projects have solely development solution costs and some solely acquisition costs, whilst some projects have both. Nevertheless, acquisition costs can also be prorated if the acquired objects can be used in other future projects.
Implementation and application costs	The largest cost is often found in this category due to that it includes objects such as wages, time, benefits and travel costs during delivery of the project. To estimate these costs, a standard median wage can be used depending on what type of job titles are involved. Moreover, costs connected to implementation such as case studies, surveys, licence fees and supporting hardware are found in this category.
Maintenance and monitoring	Costs connected to this category cover what is needed to ensure that the project solution can be sustained. This could be costs such as staff hours.
Administrative support and overhead	Most projects demand some sort of administrative support which are connected to costs which might not be directly connected to the project. However, they are still important to include in the overall cost calculation.
Evaluation and reporting	The last cost category that needs to be considered are costs connected to creating data collection, data analysis and report preparation.

Table 3. Cost Categories for Project Reliability. (Philips, Brantley & Philips, 2012)

Moreover, the importance of also studying the projects' economic effect on savings and increased profits are stressed. Most projects do present more possibilities for cost savings in

comparison to profits where benefits found in increased productivity, lower cycle times or increased quality can be found. However, cost savings can also be found in soft data, hence connecting to increased employee satisfaction, efficiency or time reduction. Therefore, it can be useful to use other ways to look at return on investment such as payback period. Payback period provides the time it will take to pay back the total investment compared to the annual savings the project will provide. Hence, payback period is calculated by dividing the total cash investment with the estimated annual savings (Philips, Brantley & Philips, 2012).

2.1.8 Risk Analysis

A risk analysis can concern many different areas, such as investing in new technology. Within classical engineering the risk analysis is divided into three core parts. These parts are risk assessment, risk management and risk communication. The assessment can be performed with a quantitative or qualitative approach (Modarres, 2006).

Risk Assessment
In risk assessment evaluation on the probability of a failure is used, along with what the consequences of such a failure could be. The risk assessment can concern both technological systems, human systems and investments. The assessment aims to answer three fundamental questions which are: What could actually go wrong? What are the odds that something goes wrong? What would the consequences be if it goes wrong?

When analysing the first question about what could go wrong, the assessment needs to regard identification of possible accidents. Question number two, concerning the odds, shall be assessed by analysing frequency and how likely it is that these accidents would happen. The third question is about estimating how severe the consequences would be.

When answering the first question and to identify possible accidents so called "initiating events" are carried out. Initiating events are events that can change the normal activity within a system and cause problems. When these events are stated, additional events are put forward and the sum of all events together identify possible accidents. Question two and three concerning the frequency and consequences, are calculated quantitatively or estimated qualitatively based on the sum of all events (Modarres, 2006).

Risk Management
Risk assessment is about trying to figure out what could possibly go wrong, how often and what the consequences would be. Risk management however is about how to manage these uncertainties. Managing risks and uncertainties is about steering and coordinating different activities that are performed in order to prevent failures from happening. Also, to control the failures if they occur and try to minimise the consequences. This is done by taking risk value, economical, technological, political and legal constraints into consideration. Where methods and techniques used within risk management are cost-benefit analysis, trade-off analysis, risk effectiveness, decision analysis, failure analysis and life cycle analysis. These tools shall help to continuously evaluate risks and aid in taking decision on what risks that are necessary to deal with and minimise. Management is the most important part in risk analysis since if it is correctly carried out good results can be met (Modarres, 2006).

Risk Communication
Modarres (2006) refers to risk communication as the nature of risk that the organisation has. The communication between management and stakeholders where they share data, information,

knowledge about risks, results and topics such as the company approach and options when dealing with risks. It is a necessity that the communication about risks is taken seriously and that the nature of risk is appropriate, that benefits of performing risk analysis is shown and that uncertainties are discussed.

Overall, the risk analysis is about estimating potential risks concerning a specific technology, investment or system. If there is previous data on failures for a similar system or process, then that data can be used for future evaluations of risks. If an investment has failed before, then that sets an example of something that can be analysed in order so see why it failed. However, if there is no previous data that can be used, the data needs to be estimated. The value of the investment and potential losses if failure occurs can be approximated by focusing on measuring the potential consequences. Further, when measuring and analysing the risk data, it is common to talk about quantitative and qualitative risk analysis. A risk analysis can be quantitative, qualitative or both (Modarres, 2006).

A quantitative risk analysis is about using probability and frequency to estimate the risk of failure. Quantitative risk analysis is the most appropriate analysis if there large amounts of data or other evidence to use. What is desired beyond the probability, is the frequency and the extent of the consequences if something goes wrong. However, this form of analysis is quite advanced, thus being time-consuming and expensive. It is therefore best suited for analysing extensive investments or processes. Qualitative risk analysis is the most common to use, which is due to that it is easy and fast to perform. It is relatively straightforward to use since no data is needed. Instead the qualitative risk analysis is based on different subjects and linguistic scales. When performing a qualitative risk analysis, a matrix is formed which can be used to make decisions and create policies. However, this simple form of risk analysis is more suitable for simple investments, processes or systems (Modarres, 2006).

Even though the aim with using quantitative risk analysis is to analyse both the frequency and the consequences based on data, and the aim of qualitative risk analysis is to analyse frequency and consequences based on quality measures, there is a possibility to mix the two of them (Modarres, 2006).

2.2 Organisational Decision Processes on Investment in IT

There are many factors that separate IT investments from classic investments, such as machinery, which creates the need to understand how and what differs. These differences and suggestions on how these should be overcome is presented in this section along with external factors that can affect investment decisions.

2.2.1 Beyond the Business Case: Making Strategic IT Investments

According to Ross & Beath (2001) firms often cluster all their IT investments into one pool, where both smaller incremental investments and large scale disruptive investments are found. However, the authors argue that this approach is in need of a change due to the the increased importance of IT investments is creating complex trade-off situations. This as companies are in need of estimating the benefit from both individual investments with requests on increased company capabilities, but also improve systems already in place and put new business opportunities on trial.

To understand how companies are changing their investment behaviour a study was conducted on thirty large European and American companies. There it was discovered that generally these companies relied on business cases to evaluate the potential of IT investments, however 90% of the companies had granted funds to projects lacking business cases that were seen as strategic musts. The argument arose that in order to act quickly on the market to ensure meeting changes in customer demands the existing investment process was not agile enough. Therefore, it was found that senior management had allocated the company with lump sums for investments in company-wide IT infrastructure improvements. Moreover, it was also found that near 50% of the companies had also constructed an isolated budget for experimental investments within e-business. Management was seen to steer away from business cases as companies were changing their perspective on that IT investments no longer are exceptions but a vital part of the increasing dependence on IT. Thus, in order to properly incorporate all factors needed for this new type of investment decision it was found that more than the business case approach was needed.

From studying the behaviour in these different firms, Ross & Beath (2001) were able to develop a framework for IT investments. Firstly, it is important to differ investments through two dimensions; strategic objectives and technology scope. A strategic objective looks at the trade-off amidst short-term profits in regard to long-term growth, whilst technology scope regards difference amongst infrastructure and solutions for the business as a whole. In order to cover both these dimensions companies need to divide their investments into four separate categories; experimental, process improvement, transformational and renewal. In Table 4 the differences and characteristics of these categories are displayed.

Investment Type	Drivers	Funding Approach	Probable Owner	Example Initiatives
Transformation	Core infrastructure is seriously inadequate for desired business model	Executive-level allocation	Entire firm or all affected business units	Implement an ERP Transform network to TCP/IP Standardize desktop technologies Build data warehouses Implement middleware layer to manage web environment
Renewal	Opportunity to reduce cost or raise quality of IT services Vendor pulls support of existing technology	Business case Annual allocation under CIO	Technology owner or service provider (usually IT for shared components)	Purchase additional capacity Enable purchase discounts Facilitate access to existing data Upgrade technology standards Retire outdated systems and technologies
Process improvement	Opportunity to improve operational performance	Business case	SBU(s) or functional area(s) that will realize benefits	Shift customer services to lower cost channel Allow employees to self-serve Shift data capture to customers Eliminate costs of printing and mailing paper reports or bills Streamline cycle times for processes Capture new data automatically
Experimentation	New technologies, new ideas for products or processes, new business models	Business or executive-level allocation	SBU or functional area	Test demand for new products Test cannibalization of channels Learn if customers can self-serve Test new pricing strategy Assess customer interest in new channels, new technologies Assess costs of new channels

Table 4. Characterising IT Investments. (Ross & Beath, 2001).

Telling these different types apart can be difficult, however Ross & Beath (2001) encourage companies to follow Table 4 as a guideline and stress that drawing lines between types of investments is important. Further the guidelines are also an important part of creating new investment habits regarding IT, where funds should be allocated between the four different investment types. However, this approach creates questions regarding how much should be allocated to each type and how should these different types be prioritised. Here it is stressed that companies need to connect the allocation with their core business processes. The example of UPS is given, where their four main processes are customer relationship management, packaging management, product management and customer information management. Hence, UPS should focus on comparing what existing capabilities they have in order to support these four areas with what capabilities they desire to have. Notably, these processes are interlinked, meaning that IT investments probably will be able to be shared, thus meaning that a higher cost efficiency can be reached.

Lastly, Ross & Beath (2001) note that companies may not follow the characterisation exactly but that the studied companies did conduct similar distinctions. What they also found was that companies typically fund these categories from different company areas. Especially when regarding experimentation they stress that funds were found to be coming from a wide range of different sponsors in companies. Examples found in the studied companies ranged from out of the CEO's pocket to coming from a business unit budget. A shocking finding was also that these companies had no standard way of estimating the value of learned benefits from a pilot

project, hence it is argued that experiments are usually created from drive and feeling from interested business managers or specific business units.

2.2.2 Strategic Decision Making

Few articles and books have yet been published regarding decision making and investment decisions regarding IDTL. However similar investment decisions in firms can be found regarding other IT solutions such as in enterprise resource systems (ERP). According to Wu & Liou (2011), when companies invest in ERP systems there is often large uncertainty and many viable options to choose from. Hence, calling for a method of evaluating these different options in order to understand both uncertain revenue and costs. It has been found that due to the large risks connected to investing in ERP-systems the demand has increased for strict assessment procedures from top management. These procedures order that the investment proponent can argue for initial expenses and display the estimated effects of the new system's impact on the organisation. Nonetheless, providing top management with this information has proven difficult due to both the shortcoming of available information on the different systems, but also due to the scarce number of applicable tools to estimate costs and benefits.

Wu & Liou (2011) claim that the most frequent tool found to be used is the basic cost-benefit analysis, but is found to be insufficient to cover the correct extent of the ERP-system investment. These cost-benefit analyses are often based on the method of net present value (NPV) which weighs costs against benefits. Thus, resulting in either a negative or a positive number indicating a shut-down decision or a move-ahead decision. However, a large problem is found with this method as it estimates that NPV is constant over time, hence costs and benefits are seen as unchanged during the whole investment lifespan. As the ERP-system investment is not actually constant over time, this makes the method less reliant and thus not optimal to use. Instead the authors argue that by combining other methods found in their research, they propose a mathematical model based on revenue and cost uncertainty which is displayed in Formula 1. The description of the different input parameters can further be found in Figure 10.

$$\mathrm{d}R = \alpha_R R \,\mathrm{d}t + \sigma_R R \,\mathrm{d}z_R.$$

Formula 1. The Mathematical Model Proposed for Investment Decisions on ERP- Systems. (Wu & Liou, 2011).

Parameter	Definition	Managerial language
$F(R, C)$	Option value	The value to exercise the option (i.e. the opportunities brought by the ERP investment)
$V(R)$	Project value	The value of the project
α_R	The drift rate of revenue	The growth rate of uncertain revenue per unit
σ_R	The volatility of revenue	Describes how revenues fluctuate in the life-time of the ERP project
$\delta_R = \mu - \alpha_R$	The convenience yield of revenue	For ERP investment, the convenience yield of the revenue per unit
α_C	The drift rate of cost	The growth rate of uncertain costs per unit
σ_C	The volatility of cost	Describes how costs fluctuate in the lifetime of the ERP project
μ	Discount rate	The annual interest rate for the ERP investment
$\delta_C = \mu - \alpha_C$	The convenience yield of cost	The convenience yield of the ERP investment, in cost per unit
ρ_{RC}	The correlation coefficient between cost and revenue	The relevance between revenue and cost

By using this mathematical model, decision makers are given a correlation between revenue and costs which then can be used in Figure 11 to help decide on if the investment should wait or it should be initiated.
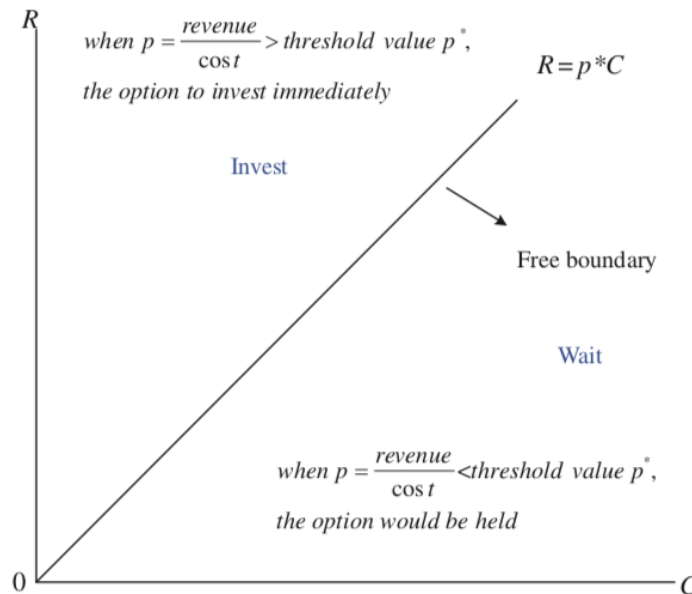
Figure 11. The Decision Rule for ERP Investment. (Wu & Liou, 2011).

Nevertheless, there are other researchers that have studied organisational behaviour on investment decision practices who argue differently. Carr, Kolehmainen & Mitchell (2010) emphasise that there are other factors than costs and benefits that can affect how top management decide on investments. Their study covers a wide span of companies who have described their process in strategic investment decisions (SID), where it was found that the interplay between strategic consideration and financial analysis can vary widely on a number of factors.

One being a dependency on the country that the company is located in. An example given is the United Kingdom, where it was seen that companies overall focus much more on the financial analysis than the strategic consideration. Whilst another example found was that German companies mostly focus their attention on strategic considerations and minimise the importance of the financial analysis. However, in the United States, companies are approaching SIDs with a combined approach examining both factors equally. This whilst in the case of Swedish companies, different approaches were found where some gave main emphasis on strategic considerations and some mainly on financial analysis. Hence entailing that the country context can have a certain effect on investment decision practices but that there are other factors that have affect as well (Carr, Kolehmainen & Mitchell, 2010).

Another factor identified by Carr, Kolehmainen & Mitchell (2010), was found to be it's already set strategic orientation. Thus, if the company has an orientation that is more focused on an entrepreneurial business strategy or if it is a conservative business strategy. The entrepreneurial direction has shown to lead to businesses being more focused a strategic orientation when taking investment decisions, whilst the conservative direction has shown to opt for a larger focus on financial analysis.

Further, a third factor being that companies were also found to be affected by what type of industry they were active in, and if that industry was a stable or disruptive environment. Capital budgeting techniques were more often found in companies working in stable business environments and larger emphasis was put on strategic considerations if the company was active in dynamic environments. Moreover, the volatility of the business sector was found to be closely connected to the attractiveness of the business sector. If the business sector was seen as attractive then companies were found to more widely focus on strategic considerations, whilst the opposite was relevant for companies in a less attractive business sector a larger focus was found to be put on financial analysis (Carr, Kolehmainen & Mitchell, 2010).

Carr, Kolehmainen & Mitchell (2010), conclude their study by proposing a framework to ensure a deeper understanding for how companies behave when performing SIDs. Which is presented in Figure 12. The framework is meant to describe company behaviour through relating market orientation and shareholder expectations.
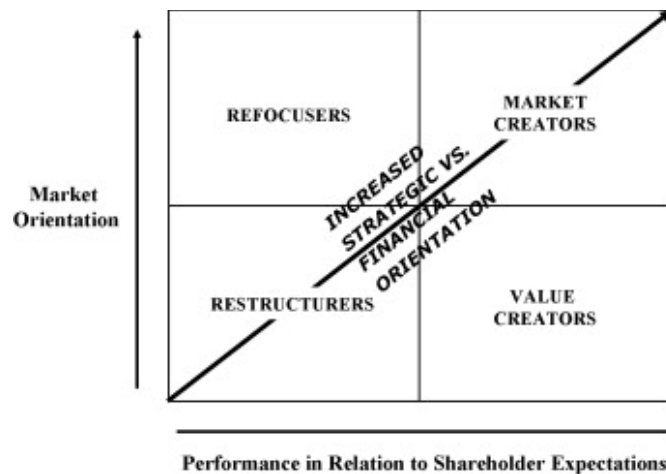
Figure 12. Contextual Framework for SIDs. (Carr, Kolehmainen & Mitchell, 2010).

The four positions found in Figure 12 are restructurers, refocusers, value creators and market creators which all have a different approach to SIDs. A restructurer, entails a company that is exposed to high short-term pressure and radical restructuring hence calling for strict financial objectives and a timid SID approach. A market creator on the other hand, will experience little short-term financial pressure thus being able to focus on their market array and development. This meaning that the market creator can opt for a large focus on strategic considerations when conducting investment decisions and need only loose financial objectives. The refocusers and value creators will in contrast to restructurers and market creators try and equally divide the impact of strategic considerations and financial analysis. Though the refocuser will have a stronger need for a more constrained strategic line, and a tighter financial frame. Which is due to that refocuser's experience increased short-term pressure to perform whilst needing to defend brands, technology and vital intangible assets. The value creators experience the opposite, hence entailing a high level of cost control in order to stress high value for their customers (Carr, Kolehmainen & Mitchell, 2010).

2.2.3 Valuing Different Types of IT Investments

As previously mentioned and argued by Wu & Liou (2010), most companies use cost-benefit analyses to understand if an investment is worth undertaking or not. A study in 2015 by Häckel,

Isakovic and Moser looked specifically at how companies work with valuing IT innovation investments both in the short- and the long-term. It was found that there is a distinction in research between valuing standard IT investment and valuing innovative IT investment. When considering standard IT investments, it is possible to seek both external knowledge but also gather information from best practice. However, when regarding innovative IT investments there is a difference as there is a part of the investment that holds a novel parameter which the company does not have best practices to refer to. Thus, meaning that it demands a deeper examination and estimation of resources, for example much needed technological skills and understanding. Moreover, innovative IT investments require larger short-term investment costs in comparison to standard IT investments and prove much harder to estimate the long-term impacts.

Häckel, Isakovic & Moser (2015), continue by stating that currently there is no optimal way to estimate long- and short-term impacts of IT innovations and that little coverage can be found in the literature. Nevertheless, the first part of assessing an IT innovation is seen to be understanding its connection to the IT portfolio. The authors argue that for companies to certify continuous value-creation they need to ensure that their strategy and IT investments are aligned. Thus, meaning that companies should have an IT portfolio, similarly to a financial portfolio, where the long-term IT innovation impacts are found, followed by short- to medium-term investments and solely short-term investments. The authors go as far as saying that IT is critical for success, and that an IT portfolio should be seen as an essential. This as IT innovation often has effect on not just the unit they are implemented in, but also on other units throughout the organisation.

2.3 Enabling Creative Processes in Large Organisations

Organisational creativity mechanisms are formal tools and approaches on how to work in a creative way within an organisation. It is important that innovative ideas receive a proper evaluation in order to uncover their potential. If no evaluations are conducted it is possible to miss good opportunities. However, to make a large organisation creative it is not enough to hire creative people, and it is not enough to just make sure that there are creative processes taking place within the organisation. Instead it should be a combination of both. It is also important to conduct research in teams to obtain a better understanding of learning and innovation within an organisation (Bharadwaj & Menon, 2000).

Motivation is one of the basic prerequisites for being creative, but also creative skills and domain knowledge. If people within the organisation are not motivated this will affect their creativity. Therefore, it is up to management to ensure their staff are kept motivated. It is also up to management to make sure that their staff get the right skills to express their creativity in form of different creativity tools (Adler & Chen, 2011).

2.3.1 What is Innovation?

Innovation is a term that has become increasingly common and is used in many different contexts. It is not uncommon to have different views on what innovation really means. That the meaning of innovation can vary depends on the context in which innovation is used, but also because the research conducted on innovation is interdisciplinary. According to Lorenz (2010), the term innovation comes from Latin where it means "to create something new". There are many different types of innovation and two varieties that are discussed at an early stage, but which are still highly current today, are the introduction of a new product and the introduction

of a new method or production. Which today are referred to as product and process innovation. Though innovation has been discussed as something important, both among business executives and politicians over the past 70 years, some researchers argue according to that there is no universal explanation of what innovation is (Lorenz, 2010).

However, Lorenz (2010) has developed a framework to explain innovation. This framework is based on three variables which are input, dimension of innovation and output. Inputs include invention, idea, creativity, culture, entrepreneurial action and process. Dimension of innovation is type, degree and perceived newness of innovation while the output is imitation, new product or process, implementation, new markets, value, change and diffusion. What can be seen here is a chronological system, since an innovation often starts with an idea and is analysed based in the character and then perceived by its value and so on.

Lorenz (2010) also highlights that innovation is not the same as an invention. This as an invention must first become commercial to be called an innovation. Which is something that is established for innovations, that an idea first becomes an innovation when it is realised. Therefore, not all ideas become an innovation. It is also emphasised that creativity is an important part of innovations, as creativity creates combinations of previously known information. Lorenz (2010) summarises that creativity is necessary for something to lead to an innovation. In addition to creativity, innovation needs to involve an innovative culture, an entrepreneurial action and a previous process. Innovation in itself is not a culture there is need of a culture that promotes being innovative in order to create an innovation. Part of this culture should contain an entrepreneurial spirit because if the creative idea is not dealt within an entrepreneurial way and realised, it will never become an innovation. The previous process refers to the fact that innovation is the process where one applies new ideas where the actual generation of ideas, acceptance and implementation is a big part of the actual innovation. This can in turn be linked to the culture that must promote such process (Lorenz, 2010).

According to Lorenz (2010) there are seven different types of innovation, which are the most common. These can be seen in Figure 13.

- *Product innovation*: A new or improved product being commercialised
- *Process innovation*: A new or improved process or production method being implemented
- *Organisational innovation*: Establishing a new organisational structure or implementing new practices or models
- *Business model innovation*: Innovation in products and services, methods of production, distribution or marketing, and markets (Schumpeter, 1934) and changing the way business is done in terms of capturing value (e.g., Dell, eBay)
- *Social innovation*: "Application of new social patterns of human interaction" (Holt, 1971, p.235)
- *Service innovation*: Similar to product innovation except that the innovation relates to services, which differ trough their characteristics intangibility, simultaneity, and heterogeneity from products (Johne and Storey, 1998)
- *Marketing innovations*: New developed methods and tools to market the products, (e.g., Amazon.com's one click online ordering process) (Chen, 2006).

Figure 13. The Seven Most Common Types of Innovation. (Lorenz, 2010).

Another important aspect is how "new" the innovation is perceived to be, and to whom it is new. Lorenz (2010) summarises that it depends on which perspective is chosen when observing

the innovation, and which perspective the person who created the innovation has. An idea can be new for everything from a person, to a company and so on, while it may not be new to someone else. Therefore, it may be an innovation for a party to implement an already existing technology or method, since the party in question has not been familiar with this technology before. Innovation does not therefore have to be new developments in itself, but it is the application of something new in a specific context that makes it innovative. Furthermore, there are found to be different degrees of innovation, which can be referred to as "innovativeness". The degree of innovativeness is determined by how new the innovation is for the party for which it is an innovation. For example, how familiar a person is with the new technology or market that the innovation includes (Song and Montaya-Weiss, 1998).

In conclusion, this means that innovation is an idea and a process that has been implemented and commercialised but also that innovation can be divided in type, degree and perceived novelty. However, innovation should also be a solution that adds value to the customer and user.

2.3.2 Creative Processes

Some examples of creative processes are Brainstorming, Da Vinci Technique, Gordon method and Mindmaps. In this chapter these different processes will be shortly described.

Brainstorming
One of the most known idea generating processes is brainstorming, where the aim of the process is to generate as many ideas as possible, hence quantity is superior to quality. Some ground rules that should be followed are: No critique is allowed against others ideas, try to elaborate on others ideas and all ideas shall be mentioned. After all the ideas are stated, a screening shall take place. This screening can be done by the idea generating group or by an external person. It is recommended that the brainstorming session takes place in a creative environment, and that all material that can help the creativity is provided (Pezo & Brasch, 2008).

Da Vinci Technique (Morphological Matrix)
The Da Vinci Technique, also known as the morphological analysis, is based on that there is a problem that needs to be solved. Compared to Brainstorming, where the ideas are more or less taken out of the blue, this morphological technique is based on a problem that it is necessary to generate ideas of solutions to. This is done by first specifying the problem, then separating the parameters based on the question "Would the problem remain if this parameter was taken away?". After this, each parameter is analysed and all variations connected to this parameter is stated. Finally, the variations from each parameter is combined in different ways and represents the possible solutions. This procedure is recommended to be performed in a matrix, where it is then possible to receive a structured overview of the different solutions. This is a simple, yet powerful, tool when it comes to analysing a problem in order to create new ideas and solutions (Pezo & Brasch, 2008).

Gordon Method
The Gordon method is a variant of Brainstorming but is not about creating as many ideas as possible, instead the aim is to come up with one supreme idea. This needs to be performed within a group and puts a lot of pressure on the group. Therefore, it is important that the people in the group are suitable for the task and have knowledge about the topic which the idea will be connected to. The group that performs this creative method shall be of four to twelve people with different competences, and the group should also have a leader and a secretary where only

the leader is aware of problem that needs to be solved. The leader creates a discussion concerning a topic that is central for the problem and gives the team parts of information along the discussion. When the leader experiences that the team is reaching a solution, the actual problem is revealed. After this, the group continues to work in a more conventional way and tries to create a customised solution (Pezo & Brasch, 2008).

Mind Maps

Mind Maps is a creative method that clearly illustrates the problem. Just like the name indicates, a map is drawn over the problem/idea with different branches of sub-problems/ideas that centre out from the main topic. This is a method that can be performed over a long time and is a map that can be put in a public space in an office where everyone can add their ideas. The map is often sketched like a tree with different branches of creative ideas (Pezo & Brasch, 2008).

These creative processes, if performed in groups within the organisation, will generate new ideas and highlight things that can lead to innovation and make the organisation develop. To be innovative the organisation needs to have a clear mission, aim high and let the user obtain fast access to new innovations and improve the solution afterwards. The company must search for ideas in all areas connected to all problems, processes and solutions. But also, to ensure that staff share everything concerning innovation and emphasise that no idea is too crazy. Furthermore, it is important to first create an idea and then back it up with data, not the other way around. Organisations should be ready to fail but learn from earlier mistakes (Juhlin, 2016).

2.3.3 The Importance of Innovation

Being innovative is vital for a company - no matter what business area the company is active in. Innovation enables companies to move into new markets faster and adapt to changed prerequisites that arise when new innovative ideas and solutions are created. Being innovative can also streamline the work concerning regular tasks and develop already existing solutions or services. Being innovative also entails being confident, taking risks and being productive. An innovative business structure will help the company to expand (Henderson, 2017).

According to a survey from Deloitte (2015), 66% of the respondents answered that they believe innovation is important for business growth. By being creative the company will be more competitive and stand out within their business area. The company will also be better at meeting customer needs, as if the organisation is agile to adopt to the latest demands in their market, the customers are more likely to stay loyal. A company that is innovative is more likely to attract the best employees as well. People that perform well at their jobs want challenges and the possibility to be a part of cutting-edge work (Tredgold, 2018).

Pradhan, et al. (2018) conducted a study on venture capital, innovation and financial development. According to their study, which is based on 23 European countries between 1989 to 2015, innovation contributes to economic growth over a long-term perspective. The variables that were measured were patents, trademarks, research activities and development which all are connected to innovation and have showed to contribute to economic growth. However, being innovative costs money and this sort of funding often comes as venture capital within small private businesses. Within larger organisations being innovative is something that is usually funded from within, meaning the corporation needs to be willing to spend money on innovative activities.

2.3.4 Barriers to Educational Innovation

There are many innovative options within education, however not many companies have started to apply the innovative possibilities out there. According to Kirkland & Sutch (2009) this is due to different barriers within the usage of educational innovation. These barriers can be divided into seven different areas;

Innovation

Innovation depends heavily on perception; it requires understanding from involved people especially when it comes to how it differs from today's solutions and what new innovative solutions enable. The understanding shall also cover how the innovation can be sustained in the future and how it can be applied.

Informal and Social Support Structures

Social environments and creative prerequisites are a necessity where new innovations, such as digital technologies, must be able to be tested in a safe environment. Enabling a strong social environment also benefits the collaboration linked to the innovation.

Formal Environment

The formal environment is the organisational part of the innovative environment. It is necessary to have a formal environment by having technical support and procurement. The formal environment shall also enable space for sharing the innovative work, support partnership, describe training for staff as well as making sure the overall working conditions are good for those who are motivated to work with innovative education solutions.

Risk Taking

Embracing new innovative ideas entails taking risks. It is not always clear what the outcome will be if such as a new technology is applied. However, in order to be innovative, risk is something that needs to be taken. This risk can make people unwilling to give innovative ideas a chance, meaning this barrier somehow needs to be overcome. However, this can be done by altering management's attitude to enabling employees to fail within reasonable limits. The fear of failure shall not be severe, and if it is, it can be something that stops educational organisations from being innovative. The best way to overcome this fear is by being motivated, both internally and externally. Management need to encourage and set up pilot projects that create prerequisites for being innovative.

Leadership

Leadership has the possibility to decide what culture that the educational organisation shall have concerning innovation. If leaders strive to be innovative and open up for pushing the boundaries, it will lead to an innovative culture. Leadership can empower employees on different levels, share responsibility throughout the innovative work and can also carry out innovative policies.

Shared Vision

If the overall perception is that innovation is something beneficial to have within education, a shared vision of being innovative can be created. A shared vision gives a clear structure of the purpose and in which direction the innovative process shall move in. If the involved people together can formulate this purpose, and envision it, the result will be an enhanced and thorough creative practice. By developing and formulating the vision together, a feeling of co-ownership is reached, which also stimulates employee motivation.

Change Management

Overall the innovative process works best if it is a continuous part of ordinary work. Therefore, innovation cycles should be implemented at the workplace. However, this means that time needs to be dedicated to the innovation processes, along with money and necessary skills. Everyone in the organisation must also understand the shared vision of being innovative.

By overcoming and finding solutions in these different areas, innovation will be more likely be implemented within education (Kirkland & Sutch, 2009).

2.4 Reflection on the Theoretical Framework

In order to fulfil the purpose of this master thesis it is seen of importance to understand the basics of building a good business case. This in order to combine information gathered from interviews regarding RQ1, what management wants to see in a potential investment proposal, with what is theoretically recommended to include. In the literature on building a business case for investment, theory on portfolio management is presented, which is seen as an essential factor when assessing prerequisites for exploring and obtaining funding for investments. This can be connected to RQ2, where what prerequisites are seen as important in theory can be compared to prerequisites currently available at VGU regarding IDTL. To ensure that a proper analysis can be conducted on what possible additions could be needed to facilitate IDTL in the future. Furthermore, to answer RQ2 it is of importance to understand organisational decision processes regarding digital technology investments. This to both estimate complex components of an IDTL investment and what specific prerequisites that are needed for them, compared to more classical investments, such as tools and machinery.

Building a business case for investment can also be connected to what skills that are needed from employees to prepare potential investment decisions. By interviewing employees, it is possible to grasp their current knowledge on components needed in building a business case for investment compared to the theory presented. Thus, leading to ensure a fair analysis if possible educational efforts of employees are needed to ensure that the business case can be understood and correctly utilised. Further ensuring that RQ3 can be answered and an assessment can be conducted on employee skills for preparing investment decisions for an IDTL.

Moreover, RQ4 is to be answered by combining answers to interview questions regarding the organisational processes available for IDTL, and the overall perceived problems with pursuing IDTL efforts, with theory on how organisations need to be structured to facilitate innovative efforts. This is seen important in order to identify possible barriers in the current processes hindering the development of IDTL and to assess if any changes are needed to increase the possibility of working with IDTL in the future at VGU.

3. Methodology

This chapter describes the procedure of how the work was performed during this study. Further, it includes what steps that were taken and how the theory was used. This chapter aims to give the reader an understanding of both the working process and the methods themselves.

3.1 Research Method

According to Bryman & Bell (2013), there are two main options when choosing a strategy for approaching a research problem. This either being a deductive or and inductive approach, where the first is closely connected to a quantitative research approach and the second to qualitative approach. The deductive method is based on utilising theory available in the given area to deduct a hypothesis to build the research on. Hence meaning that a data collection is shaped by the chosen hypothesis, which is based on theory. The final step of a deductive approach does however involve an inductive step, where the researcher recalls the theory used to create the hypothesis to investigate what meaning their findings have for the initially used theory (Bryman & Bell, 2013). The second approach for a research study is an inductive, meaning that the observations and findings instead develop theory. A common inductive approach is known as "grounded theory", which is a structured way of generating and analysing qualitative data to produce theoretical ideas. This approach is an iterative way of working and entails the process of mutually collecting and analysing data (Bryman & Bell, 2013).

The approach during this study was mainly of an inductive manner, but with some deductive elements. This due to that some approved theory was seen as needed, in order to be able to fully understand and analyse the further parts of the study mostly focusing on qualitative methods such as interviews. Thus, the study was based on first formulating a number of research questions, performing an extensive literature search on theory found relevant on the problem scope, followed by iteratively performing interviews whilst examining further literature found to be needed from these interviews. The analysis was then cohesively conducted by both comparing to found theory but also by creating theory found from the qualitative data collection. Lastly, relevant documents containing information on work procedures and company policies found to be relevant for the study were also used in combination with ethnographic studies in the relevant environment.

3.2 Phase I - Current State and Data Collection

This section presents the methods for the first part of the study where large amounts of data were collected. Primarily this was done through a literary study, benchmarking and interviews. However, methods such as document study and on-site observations were also used. Furthermore, motivation for these methods and how they have been adapted to the specific problem is presented. In total 40 interviews were conducted, were 30 of the interviews took place with VGU employees and 10 interviews were performed as part of the benchmarking.

3.2.1 Literature Study

According to Bryman & Bell (2013) the literature review is seen as one of the most important parts of a thesis. It both aids in creating the research design but also increases the researcher's knowledge on how to create an appropriate way of data collection and how to properly analyse findings. The authors further stress that the process of selecting relevant literature can be

challenging, and that depending on the boundaries of the given subject, a researcher may need to perform several choices on what material to utilise. In order to perform these choices, it is recommended to firstly have examined literature that already exists on the given area and then perform a systematic literature review. Thus, meaning that the researchers have a clear understanding of the subject and the areas closely related in order to create a broad and objective literary search. This search should be both documented and structured to ensure that the process can be repeated, hence ensuring that ways of working are completely transparent.

In order to follow the recommended steps of Bryman & Bell (2013), the initial stage of the study was to explore the possibility to find literature on similar studies and research areas. This to understand if there already were insights found to be effective on improving decision processes that could be possible to implement at VGU. Moreover, a widespread literature study was conducted to gain a deeper insight into relevant areas connected to the problem area. This study incorporated both external literature from search engines such as Science Direct, Research Gate, Google Scholar and the Chalmers Library Search Engine but also covered internal documentation from VGU on basic processes and ways of working.

Examples of used search-phrases: Foundations for investment decision making, project risk analysis, evaluating new technology investments, business cases for disruptive technology, how to create a cost-benefit analysis, decision making, how to pitch an idea, how to validate an idea, how to simulate ideas and educational innovation.

3.2.2 Document Study

Furthermore, Bryman & Bell (2013) emphasise that a document study focused on organisational documents can ensure that the researcher gains an understanding of the relevant background leading up to the current state. It can also help the researcher in understanding previous decisions taken and to create a timeline over organisational changes. The authors stress that specifically researchers focusing on observational and interview methods can gain large benefits from these types of studies which can provide rich data. However, it is important to stress that internal documents from companies are usually both authentic and relevant, but that researchers should be attentive when working with published company documents. This as these documents, such as company annual reports, do not always display the correct picture of the organisational perspective as the internal actors perceive it.

The researcher should nevertheless always be attentive with all types of company documents, even when internal, as the information will probably only display the information from one point of view. It is therefore important to both understand who has written the document and what their position in the company is, to be able to properly assess the information. It could also be beneficial to interview the document authors to understand how it was planned to be understood and how it actually is interpreted. Furthermore, researchers should always critically inspect documents they use to ensure both reliability and credibility (Bryman & Bell, 2013)

In this study the documents used have either been provided by employees from VGU or have been obtained through the internal database. Further, when examining documents Bryman & Bell's (2013) guidelines on this have been used.

3.2.3 Interviews

One of the most important channels to obtain information from was through interviews. Since the study was carried out at VGU, and the desirable result mainly affects the internal organisation, it was of highest importance to interview people on site. The interviewees were therefore mainly from within VGU and were chosen based on their area of expertise and responsibility. Hence, meaning that the interviews were semi-structured and elite. An elite interview implies that the interviewee is not chosen at random, instead they are chosen due to their specific corporate title, expert knowledge or just due to who they might be (Hochschild, 2009, p.2). A structured interview is when each interviewee is asked a set of predetermined questions, whereas an unstructured interview is an interview where the questions arise during the conversation and nothing is prepared beforehand. Semi-structured interviews, on the other hand, are a crossing between structured and unstructured interviews, meaning that a few questions are predetermined while some of the questions arise based on the answers from the set of predetermined questions (Martic, 2018). Semi-structured interviews were performed based on the belief that they lead to the best responses regarding the study scope. If there is no flexibility, or too much flexibility, in an interview it can lead to not obtaining answers on what is important and that vital information is overlooked.

Overall, interviews were held privately and were, if accepted, recorded. This to be able to analyse the content subsequently. No matter if recording was permitted or not, answers from the interviews were documented through writing, but interviews were not transcribed. Issues and topics varied and changed over time, depending on answers from those interviewed before and in combination with the researchers knowledge growing on problem area. Examples of interview questions can be found in Appendix I to IIII. Important to note is that initially, the chosen interview persons were found through a list of recommended persons from the supervisor at VGU. Nevertheless, the rest of the interview persons were found according to the theory on elite interviewing as previously mentioned. Some interviews were conducted at other corporations, in order to collect information about external successful implementations of digital learning solutions and also to collect what parameters are seen important to sell digital learning solutions. These interviews were performed in the same manner as those conducted at VGU.

3.2.4 On-Site Observations

The best way to get "behind the scenes" and understand the true picture of how work is performed at VGU, was by using ethnographic methods such as observations. Observations were conducted by observing and talking with employees at most functions within VGU. This provided a picture of the daily work, how and on what employees communicate and gave an understanding of informal hierarchies that affect decision making. According to Bryman & Bell (2013), by being engaged in a social setting for an extensive time period it is possible to obtain an understanding of new parts of the social system that would not be found in for example structured or semi-structured interviews. Also, it is stated that by conducting ethnography the researcher obtains an insider view on the organisation and uncovers relevant issues that would not been visual for an outsider.

3.2.5 Benchmarking

According to Elmuti & Kathawala (1997), benchmarking is a way for firms to improve their practices by taking inspiration from others. Thus, benchmarking can be seen as a comparison of best practice or observing how one company works in comparison to another, that currently is performing better. The authors proclaim that benchmarking helps companies in generating ideas and finding improvement potential for processes which results in companies better succeeding in meeting customer requirements. Furthermore, there is an important difference between exceeding and satisfying customer requirements where exceeding them will come at a certain cost. Benchmarking is argued to provide a number of benefits. One being that companies increase their productivity and improve their individual design, as companies, through observing an external partner, can find improvements in their ways of working. Another being a strategic tool, where if a company chooses to benchmark it might be able to solve an issue that their competitors currently also are struggling with. Thus, meaning that the company that conducts the benchmark manages to find new strategies to overcome the problem and gains a leap ahead of the competitors. A third benefit being that companies gain a tool to measure continuous improvement, where it was found that companies doing so had economic savings of near 30-40%. This as when benchmarking measurement methods, companies compare both output units and cost which gives an understanding of how budgeting and capital planning can be changed (Elmuti & Kathawala, 1997).

Moreover, there are four different ways companies can benchmark. The first type being internal benchmarking where companies compare functions at internal business units. Usually the outcome is finding certain business units that have a superior way of working, which then can be transferred to the other units and increasing their overall performance. The second being competitive benchmarking referring to when companies benchmark with direct competitors, to see how performance differs. Depending on the situation, information on competitor performance might be easy to reach whilst some companies work hard on ensuring that their information is difficult to find. The third type focuses more on the overall industry where the benchmarking initiative is focused on looking on leaders of certain industries. Hence meaning benchmarking companies are chosen based on their performance and what type of technologies are used in combination with market characteristics. This type of benchmarking is more open and sharing due to companies not being competitors. Lastly the fourth type of benchmarking is a generic alternatively process focused benchmarking initiative. Thus, instead of choosing the company based on industry or technology, the benchmarking counterpart is chosen based on similar functions or processes (Elmuti & Kathawala, 1997).

For this study both internal benchmarking, functional and process benchmarking was used. Since it is prohibited by the Volvo Group to benchmark against competitors, no such benchmarking was performed. Instead, benchmarking was functionally focused by finding at least one company having similar market characteristics with VGU, by working with intangible products and not classical product hardware development. This company was also perceived to have high performance on their innovation efforts and are not in direct competition with VGU creating an openness in sharing information. Further, the process benchmarking initiative was performed by choosing a company who had reshaped their innovation structure and processes due to similar problems as described at VGU. Furthermore, an internal benchmarking was performed toward other divisions within the Volvo Group, who have been working with similar issues connected to digital technologies. In addition, companies working with selling advanced digital technologies were used in order to understand the requirements from customers buying similar solutions.

The benchmarking representatives of the the companies working with innovation were found through personal contacts. Whereas the benchmarking representatives of the companies selling advance digital technologies were found online through search engines. In addition, the benchmarking representatives from the internal units at the Volvo Group were recommendations from interviewees. All the interviewed persons were either contacted through e-mail or by telephone.

3.3 Phase II - Analysis and Improvement Suggestions

In order to produce relevant recommendations for VGU it was seen important to combine the literary study, gathered data from VGU and information from the benchmarking initiatives. This due to that if only two of these were combined either the recommendations would not be adapted to the situation currently, or the proposals could be untested theory, or there could be a risk of proposing recommendations that had no proven effect on companies that have used them. Therefore, the base for the analysis was to investigate the different sources of information, map them and find solutions which both would fit VGU but also that had support in theory and had similarities with successful benchmarking companies.

In order to understand and display the Current State but also to generate solutions and recommendations, a dual approach was used. Firstly, a project backlog was created aligning with methods found in grounded theory. Secondly, the aim method was used a base to cluster information on problem areas and help develop creative solutions.

3.3.1 The Grounded Theory Inspired Backlog

Throughout the project a backlog has been used to keep track of important findings but also to enable reflection. The backlog has been used as a project diary where key takeaways from interviews, findings and benchmarking experiences have been noted. From these notes the authors have been able to highlight essential parts found to be of importance for both generating solutions, but also in order to create a true picture of the Current State at VGU. It has further helped to generate new questions for critical interviews. The concept of backlog is seen as an important part in grounded theory and can be seen as Charmaz (1996) describes it as a systematic approach to gather, merge and analyse qualitative data. Furthermore, the process of merging data collection with data analysis and theory collection is highlighted to aid researchers in reviewing, clarifying and creating their ideas and instincts. Such an approach is described as optimal when shaping a study on an interpretative analysis where the focus is on understanding the world of the persons working in a specific situation or environment.

Charmaz (1996), continues to describe the grounded theory approach by highlighting that researchers when working with both data collection and analysis guides the research in a certain direction. This direction shapes new themes and questions on a focused area, leading to avoid unnecessary volumes of irrelevant data being gathered. Furthermore, it leads to the researcher creating a number of focus areas which are created directly from the empirical world being studied. Throughout the study the main focus was put on the four research questions, however as Charmaz (1996) also claims, new themes and questions did arise. However, these themes aided the researchers in creating a deeper understanding around the four research questions and led to being able to understand secondary affecting factors. As grounded theory is based on positivist and interpretative assumptions it leads to an analysis which is as according to Van Maanen (1988) "dispassionate and objective". Hence implying that the researchers present a result that is an objective view of the studied environment disconnected from themselves.

3.3.2 The Aim Method Inspired Data Analysis Structure

The Aim Method is a tool used to organise facts concerning a problem that needs to be solved, where there are different facts and opinions present. The process aims to involve everyone that is affected by the problem at hand, since the method and solution combines facts from individuals. The solutions to the problem are based on a shared view of the problem. The

evaluation step that is a part of the process does however, for many people, commonly change the view of the root cause of the problem. The Aim-Method is usually performed in ten different steps, based on writing ideas on post-it notes and visualising information in a clear way in order to arrive at a solution (Alänge, 2017).

This method was used as a base when displaying the Current State at VGU through using information from employee interviews, gathering all interview data, mapping it on paper, clustering information and working on finding root cause issues. Furthermore, the method enabled a cluster of solutions to arise. It also ensured that when performing the analysis that information from employees, could be connected to both findings from benchmarking companies and to relevant theory. Further, it ensured a structured and organised way to analyse and evaluate the gathered data, in order to arrive to a number of key conclusions.

4. Current State

This chapter will reflect how VGU are currently working and provide information based on an internal document study combined with information gathered during interviews and on-site studies. In total 40 interviews were conducted, where 30 of them were with people employed at VGU.

4.1 VGU in Detail

Founded in 2014, makes VGU a relatively young entity which has gone through a large transformation journey since the start. There were many reasons why VGU was founded, where one of the main reasons, was that Volvo Group wanted to converge all the education that was previously widely distributed within the Volvo Group. This to create an educational hub that was not solely dependent on external sources and that could simplify accessibility to education within the Volvo Group, but also to quality assure the content of the courses. VGU quality assures the content, development and delivery of their trainings by measuring the effect of the courses and reviewing the effectiveness of the development. Another reason being to ensure that all courses are valid regardless of which part of the Volvo Group an employee works in, hence that he or she can benefit from the training even if they change work positions within Volvo Group. In addition to educating the entire Volvo Group, VGU is an important part of Volvo's branding, by showing that Volvo has a centre of expertise.

The main task for VGU is to develop new trainings for the whole Volvo Group based on the needs found from their business stakeholders. Their business stakeholders work as sponsors to VGU by supporting VGU with finances, and in exchange, VGU develops the trainings needed in each business stakeholder's area. It is VGU's task to understand what their business stakeholders' educational needs are and how they shall be met in the best way, where VGU develops the trainings needed together with experts from each business area. In addition, VGU aims to be a corporation that supports and develops the core business of the Volvo Group, which are the main products from each sponsor. VGU therefore only creates trainings that somehow meets a need from the business stakeholders and that will create an effect that the Volvo Group can benefit from. This also means that VGU only works with creating and offering educations within the Volvo Group.

4.1.1 Organisational Hierarchy

The organisational hierarchy of VGU can be seen in Figure 14. LPMs and IDs report to their Group Manager, who in turn reports to the VPs of the Academies. The VPs of each Academy then report to the Academy Advisory Board and SVP. VPs take decisions together with two different units known as the Academy Advisory Board and the Reference Group. The Academy Advisory Board is a set of people that represent the business stakeholders' interests on behalf of the divisions in Volvo Group that order educations from VGU. The Reference Group is just like the Academy Advisory Board representing the business stakeholders, however this function is hierarchically one level below the Academy Advisory Board. Thus, the Reference Group explains the business stakeholders' interests and needs in detail, while the Academy Advisory Board is managing the financial aspects and approving or denying sponsorship for certain educational developments.
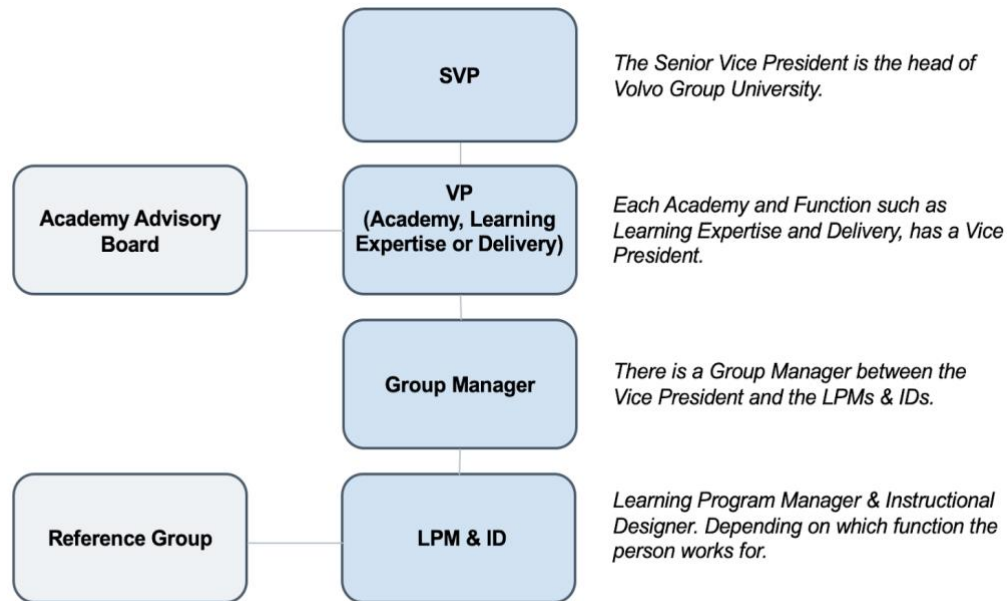
Figure 14. The Organisational Hierarchy of VGU.

The Reference Group consists of the business stakeholders that have direct insight into what trainings that are needed and therefore often have direct contact with the LPMs. The VPs have contact with both the Reference Group and the Academy Advisory Board, where the Academy Advisory Board comes together four times per year. The focus of these meetings lie on taking decisions concerning strategic and financial priorities, whilst the Reference Group is gathered on a regular basis and discusses topics concerning operational questions and business needs.

Employees experience that the communication between LPMs and the Reference Group works well, where employees also presume that the communication between VPs and the Academy Advisory Board works well. However, LPMs experience having low insight in the decisions that are taken during the Academy Advisory Board meetings and what topics have been discussed. The communication between the two levels, Academy Advisory Board to VPs and Reference Group to LPMs, is therefore perceived as it could be clearer for employees and decisions taken during meetings justified.

4.1.2 Organisational Structure

If an LMP has an idea concerning the development of a new education, it needs to go through an extensive communication process, where the idea can come either from the LPM themselves or from a business stakeholder. The idea could regard a new educational topic or a new digital technology that could be used within a new or current training. Often, if it concerns a new educational topic, it is described as fairly easy to get management onboard, especially if there is business stakeholder that has a strong need and are willing to sponsor the idea to be actualised. Though, if the idea concerns a topic or technology that the LPM feels is important, but there is no direct demand from a business stakeholder and no clear picture on if the investment will pay back instantly, it is experienced harder for the LPM to receive funding and realise this idea. This also adheres to if the proposed solution to the educational need is to use some sort of IDTL. The difficulty is described to be connected to that many LPMs do not know what information is needed when such exceptional ideas are suggested, and which persons should be consulted.

The communication flow from an LPM having an idea, to the idea receiving funding, to the idea being developed and delivered is presented in Figure 15. For small-scale investments the decision can be taken solely by the Academy VP, by using the Academy's budget. If the investment is larger it needs to be discussed with the Academy Advisory Board.
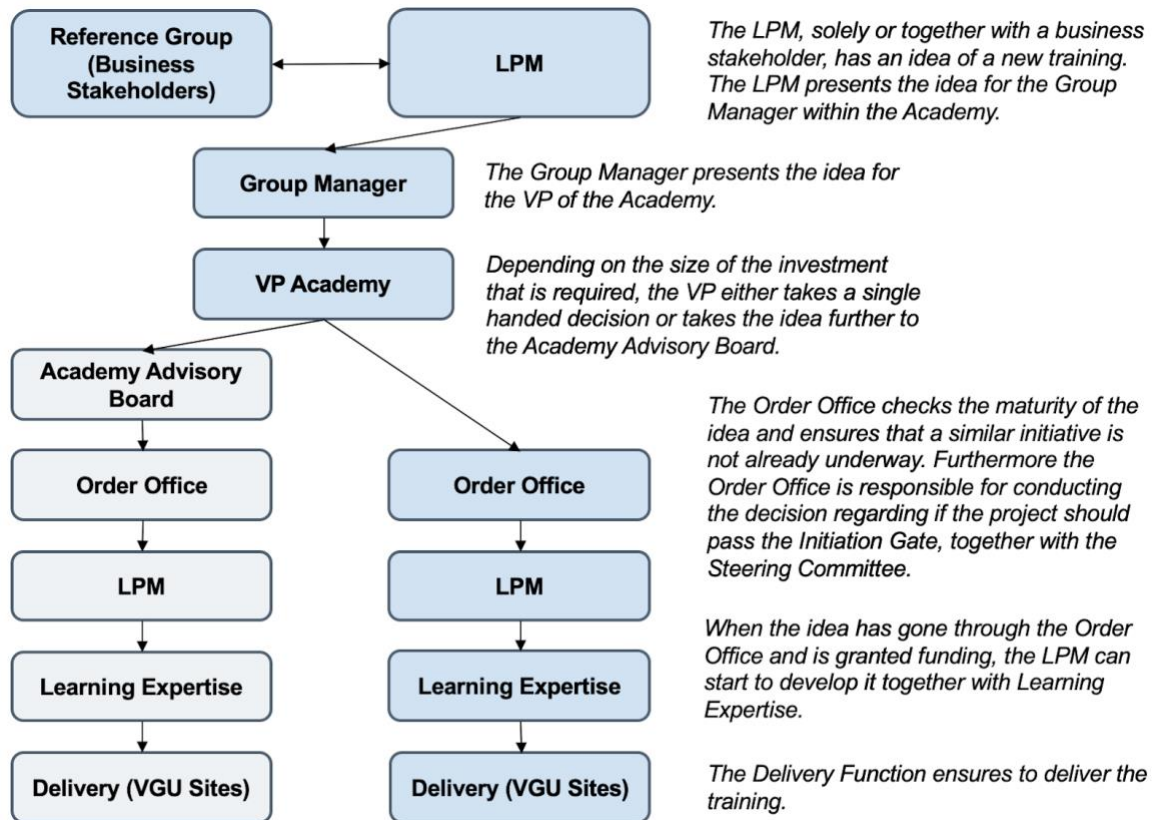
Figure 15. From Idea to Delivery of the Developed Training.

4.1.3 Economical Structure

The finances enter VGU through two channels, one channel being through central funding and one being through participation fees from VGU educations. Each Academy at VGU has a close collaboration with business stakeholders and the Academy's task is to develop education that the business stakeholders need. By having this collaboration, the business stakeholders fund the Academies with a specific amount of money each year that goes to developing new educations which results in the post of central funding. The other monetary channel from participation fees, means that each participant taking a VGU education needs to pay for their training, which is foremost financing the administrative costs that VGU has. VGU's monetary flows are displayed in Figure 16.
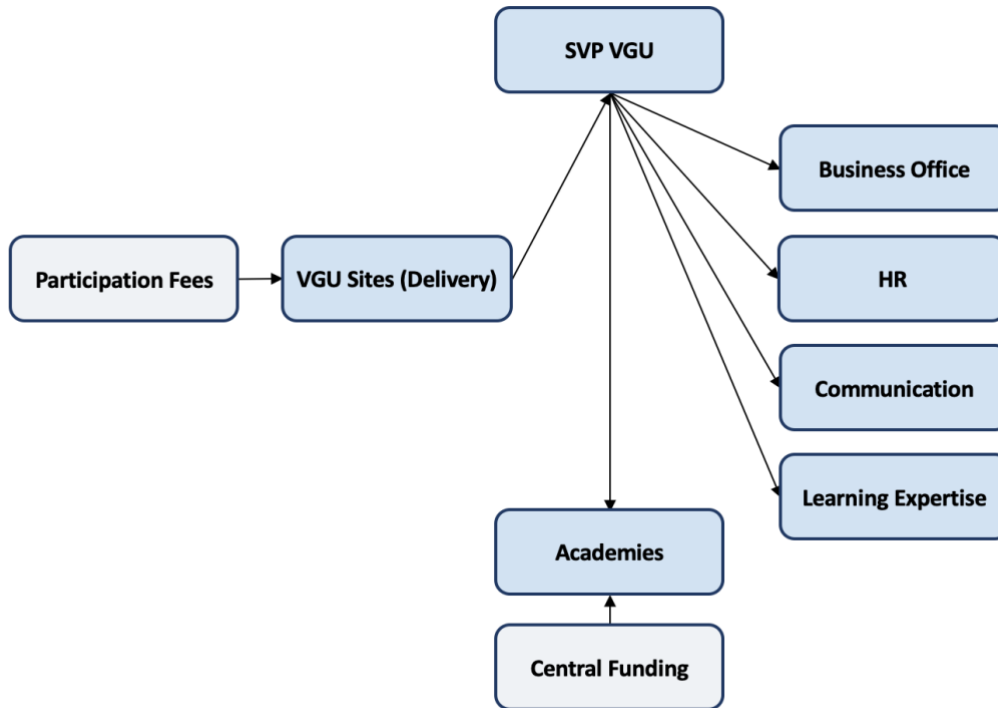
Figure 16. Monetary Flowchart VGU.

Each Academy sets their budget together with their strategic goals for each year, which are developed together with the Academy Advisory Board and Reference Group. New projects can however arise during a working year, which can then lead to the need of rearranging monetary resources. This is performed together with the Academy Advisory Board who are foremost engaged in strategic and portfolio priorities. Nevertheless, the main person setting the ground laying budget is each Academy VP which then has the main responsibility for staying within budget.

Regarding specific monetary allocations, employees are not aware of how this is performed. However, through interviews with management it is understood that there is no money specifically allocated for topics such as innovation. It was argued that to place monetary efforts on innovation would demand that an idea driver puts forward an idea, with a clear business need and a supporting business stakeholder. Depending on the size of the monetary effort needed would then either demand a reorganisation of the Academy budget or a decision from the Academy Advisory Board to re-prioritise the initial budget.

4.2 The TDP Pre-Study Phase

In this chapter the TDP and the TDP Pre-Study Phase are explained. Firstly, the TDP is explained in order to obtain an overview of the process and its' different phases whereafter the TDP Pre-Study Phase is described. These are both described according to the guidelines given in VGU documents. Thereafter, the TDP Pre-Study phase is displayed from the descriptions given in the interviews.

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4.2.1 Internal Guidelines on the TDP

The TDP is entered after the Initiation Gate has been passed, where the Initiation Gate implies that a decision is taken on if an idea shall be developed into a new training or not, and if it is granted funding. This idea usually refers to a new educational topic that is needed from a business stakeholder within Volvo Group. VGU develops both e-learnings, self-guided online courses and videos, and face-to-face courses in classrooms where the TDP must be used for all new developments. The TDP includes the steps Analyse, Design, Develop, Pilot + Finalise, where Delivery and Evaluation of the developed training is seen to be outside the scope of the TDP. These steps can be seen in Figure 17 and will now be described in detail.
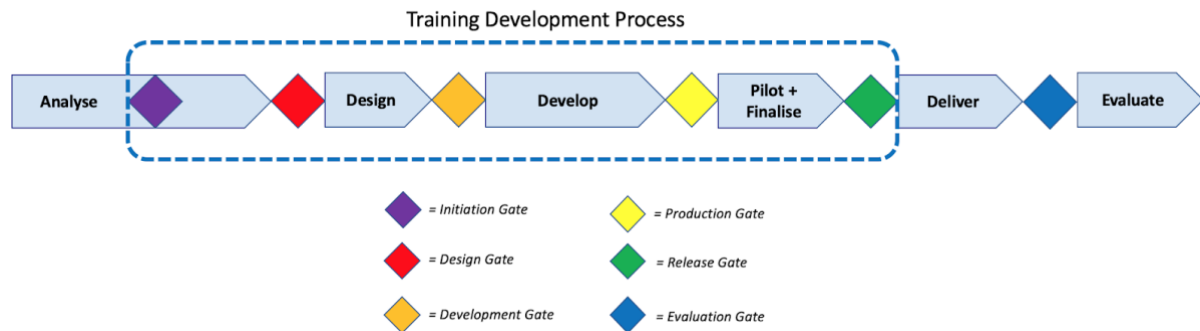
Figure 17. The TDP.

Important to note, is that before a training proposal is put through the TDP it needs to be registered in the cost function at VGU known as Order Office. Here, the LPM who has been approached with the business need will fill a certain template containing rough estimations of resources, describe the business need and motivate why the training proposal should be developed. Order Office then takes a decision on if VGU has the resources to spend on the specific proposal, and together with the Steering Committee, decides on if the training proposal should be initiated and enter Analyse. In detail, the step Analyse is split into two parts, where one is excluded, and one is included in the TDP. The excluded part, which is before Initiation Gate, includes the LPM communicating the possible concepts of the idea and the educational needs with the decision makers within the Academy at VGU and IDs in the Learning Expertise Function. The included part, which is after the Initiation Gate, however is used to create detailed input to the Design and Development phases. This means creating elements such as a detailed time, budget and resource plan. The TDP then continues into the Design and then Development after achieving the goals of each respective gate, which entails a detailed based of the concept from a design aspect and Development including developing the concept and creating content. This is then approved by stakeholders, produced and tested. The training being developed experiences further testing during the Pilot + Finalise where small adjustments are made before final approval and the project is appointed to delivery.

4.2.2 Internal Guidelines on the TDP Pre-Study Phase

Generally, when discussing new ideas at VGU, an idea is usually about a new development or further development of an e-learning or regular face to face training. Ideas that do not apply to a new e-learning or face to face training can of course also arise. However, the TDP and the TDP-Pre-Study Phase framework is created for being applicable for solely new education. In order for an idea to reach an investment decision or the so-called Initiation Gate, the idea must undergo the analysing Pre-Study Phase.

In this phase, the idea is analysed by discussing it with a large number of stakeholders along with comparing the idea against some thoughtful standardised questions that are stated in the framework. The evaluation study of the idea is performed internally at VGU and is verified by, in addition to answering the mentioned questions, by creating a business case, formulating a purpose, gathering competencies and clarifying the learning outcomes that could contribute to it. Then, a decision is taken within the Academy if an idea request shall enter the Initiation Gate, where Order Office are responsible for performing the evaluation of the idea. Thus, the TDP Pre-Study Phase is the beginning of Analyse shown in Figure 18 and is the process that takes place before the Initiation Gate where a go- or no-go decision is taken for the new idea that is concerned. The different phases of the TDP requires also filling certain information into a number of Excel templates that are used throughout the TDP.
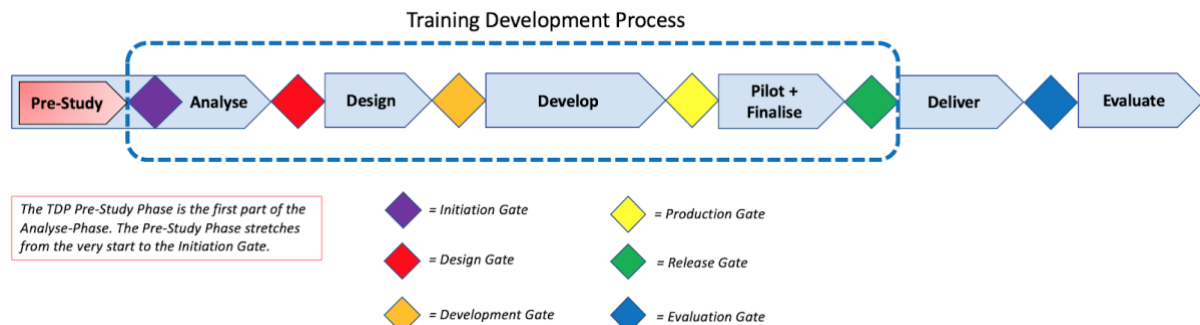
Figure 18. The TDP and the Pre-Study Phase.

Business Case

A part of the Pre-Study Phase is to formulate a business case, which is seen as necessity to be able to make a decision at the Initiation Gate. The business case includes clarifying the reasons why a new education should be developed, ensure that the potential investment improves VGU's performance and the customer's experience. The VGU business case includes first, looking at positive effects that can be linked to their business and the values that VGU has. How to do this exactly is not specified. Here, it is stated to "consider areas" such as "specific business objectives" and "process efficiency and operational improvements" along with new requirements etc. Here, there is a collection of questions and areas that should be analysed and is the framework given to support the creation of a business case. But how this should be done more specifically is not stated. The framework also recommends being "as specific as possible" and "think from the future" and to look for "credible effects".

In addition to positive effects within the business case, the VGU guideline secondly includes a recommendation to review how large the total investment would be in order to achieve the goal, that is, to develop and implement the new education. In this part, the person conducting the analysis is to look at how many man-hours would be required to produce the education, the cost of delivering the education to each individual who will undergo it, the development cost of software (if it is an e-learning) and to evaluate if external competence needs to be bought. Just as the recommendations for when to review the positive effects with the education, there are only a few questions and areas in the framework that the work should be based on. There are no detailed instructions on how to do this.

Purpose

A purpose with the new idea should be stated according to the Pre-Study Phase guideline. By purpose meaning that the employee needs to clarify why this new education needs to be developed in connection with learning outcomes, how it will create value for the person undergoing the training, how it is creating value for VGU and how this new education will fit

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into and contribute to VGU's current training portfolio. The purpose should also clearly explain how the new education meets financial goals, gaps in the current portfolio and what competences it should give to the person undergoing the education. Further, the guideline emphasises the importance of the purpose being well-formulated to give inspiration, motivation and understanding. It also divides the writing of the purpose into three parts, in order to simplify for the person who is to formulate the purpose. Step one is a recommendation that the VGU employee should review the requirement specification, the business goals and focus on two to three most important parts of the result that is desired when implementing the new idea. Step two is a recommendation to focus on expectations with the education, where it is stressed that the expectations should be reasonable. While step three is to formulate the expectations.

Competencies

Competencies are about what knowledge, skills and attitudes an employee should have acquired after having completed a training. Knowledge, skills, attitude, confidence and commitment are the expectations that the scope, content and design of the training is recommended to be based on. It also states that in order to meet VGU Approved Criteria it is of importance that the training is related to business competencies. Academies have, together with stakeholders, listed competencies needed where three to five of these competencies should be addressed by the developed training.

Learning Objectives

Learning Objectives regards what skills and knowledge the new education is aiming to deliver. The objectives shall connect the purpose of the new training to the participants of the training, and should be described in a way that makes it easy for the participants to understand the expectations of the training and what they should have learned after completing the training. By stating the learning objectives during the Pre-Study Phase, it is described to facilitate developing the training when a decision has been taken that it will be developed. In the VGU framework for the Pre-Study Phase there is an example of how learning objectives can be formulated.

Initiation Gate

To enter the Initiation Gate, the Academy needs to evoke the initiation, thus meaning that the Academy presents the idea to Order Office. The idea is then evaluated, together with a Steering Committee, which delivers a go- or no-go decision. The main purpose of this gate is to start the study of the intended learning initiative, to ensure cohesivity with the Academy's development plan and to certify project requirements. Present at this gate meeting will be the LPM, who is responsible, Order Office representatives and the Steering Committee. Which usually consists of Head of Academy, Head of Learning Expertise, Head of Delivery and Head of VGU (when needed). During this meeting a number of decisions are made based on an excel based tool which provides the gate criteria. These criteria include providing direction on; project plan, identified stakeholders, replacement of existing training, target date for release. Furthermore, the Initiation Gate aims to gain approval of the project governance i.e. classification.

Overall the meeting aims to conduct an evaluation analysis, which contains a number of factors concerning; indicators to business portfolio, critical behaviours, primary target group and required drivers. The decisions to be made then covers confirming project character, confirming stakeholder analysis, confirming the project's purpose, reviewing the business case, reviewing competencies needing attention and reviewing proposed learning objectives. There are a number of different levels of decisions that are taken in gate meetings which have different meanings. The first, review, entails informing the Steering Committee so that the issue can be

reviewed. Secondly, confirm, entails an acceptance or an agreement from the Steering Committee on a proposed issue. Thus, meaning that the final decision will be performed at the following gate. Thirdly, approve, is that the Steering Committee takes a final decision regarding an issue. When the Initiation Gate is completed, Analyse is continued with the aim to deepen the knowledge about details on the project.

4.2.3 How Employees Experience Working in the TDP Pre-Study Phase

According to the existing guideline, as previously mentioned, employees should prepare a business case in the TDP Pre-Study Phase. This business case is stated to be used for convincing the LPM's own Academy that the business need that the business case regards, is an idea that should be taken further and to be developed. It should also be used when filling out the formal request that is sent to Order Office, after the Academy has agreed on take the idea forward. The communication flow, from an LPM talking to their business stakeholder, to a go- or no-go decision is taken by Order Office and the Steering Committee in the Initiation Gate, is illustrated and explained in step 1-6 in Figure 19.
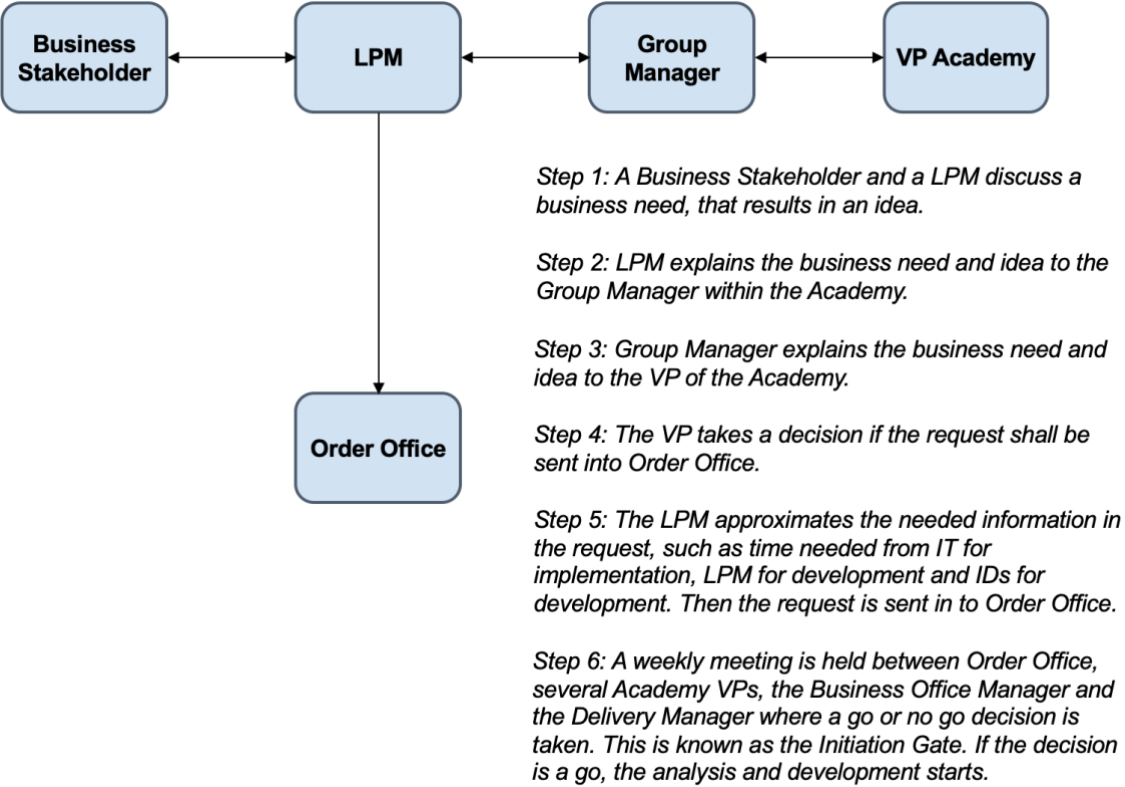
Figure 19. From Idea to Order Office.

What has been perceived however, is that this guideline on how to create a business case, is used differently between employees and often not at all. In some cases, employees have developed their own guidelines for a business case, where the described reason being that the existing guideline does not bring any extra value, nor help the LPM, to present the idea to its own Academy. The formal request that LPMs send to Order Office, after approval from the Academy VP, is perceived to be mainly about approximating variables. Examples of these variables are time needed from the LPM themselves when developing the training, time needed from IDs and possible time needed from IT when implementing the solution. A clear majority of the interviewed LPMs experience that these variables are simply guessed and would need to

be updated further on in the TDP. This as the LPMs are, for example, unaware of how much IT support that is needed, if the solution is not yet thought of. This results in that the VGU IT Function is not involved in a correct way, since more time might be needed from them than initially guessed. It is described that not until after the Initiation Gate is passed, that most investigations are performed to decide on a what the learning solution could be, how it could be developed and how it is to be delivered.

Most solutions are developed and investigated after the Initiation Gate, which leads to a number of problems that are described by employees if the solution proposed is an IDTL. First, it is unclear how this IDTL should be evaluated when the resources already are set in Order Office and the IDTL might require more resources than the solution initially thought of, such as an e-learning. Secondly, the business stakeholder has been given a timeframe for the delivery of the training where when introducing an IDTL leads to this timeframe might needing to be altered to enable testing. Thirdly, how this IDTL should be evaluated throughout the TDP is unclear and employees are unaware if the Innovation Framework, mentioned in 4.3.1, should be used. If so, should it run in parallel with the TDP, or should the training be put on hold, until the IDTL has been evaluated. Fourthly, the TDP is perceived to not be adapted to evaluating an IDTL that is proposed as a solution due to the large amount of uncertainty around the solution. Many of the criteria found in the TDP cannot be fulfilled due to the nature of IDTL, which will lead to their failure if presented later on in the TDP. However, solutions are sometimes found and proposed before the Initiation Gate. This might be regarding IDTL that are seen to suit different Academies and their trainings. It is then unclear if this IDTL should be connected to a business need and training, thus be put through the TDP, or if it should be evaluated through the Innovation Framework. In combination with this, employees also express that they are unsure which role the Pre-Study Phase should have regarding an IDTL in this situation and if it only is relevant if the IDTL is to be put through the TDP. They express that it is unclear if the Pre-Study Phase is also seen as a part of the Innovation Framework or a separate investigation should be held before initiating the framework.

In conclusion, employees lack guidelines on how IDTL efforts, both for those that arise in TDPs that already have commenced and those that arise in or before the Pre-Study Phase. It is unclear how this phase should be performed in connection to IDTL. Due to the mentioned unclarities, employees find it difficult to try new solutions, meaning that it is difficult to create new innovative solutions such as IDTL, both for LPMs and IDs. It is perceived that there is no way to put an innovative solution through the TDP as it is shaped today. Further, it is unclear who should drive the effort of evaluating an IDTL regardless of if it is pursued through the TDP or the Innovation Framework.

4.2.4 Key Takeaways Regarding The TDP Pre-Study Phase

What can be concluded from Section 4.2 is that employees perceive it to be unclear how to handle an idea of a new IDTL. It is unclear what resources that are available for further investigation and testing, along with what actions are required if wanting to get the idea approved by management and by Order Office.

4.3 Working with IDTL at VGU

In the interviews employees were asked to reflect on the organisations current IDTL efforts, how they felt they were engaged in working with IDTL and how they felt regarding presenting a new idea. These questions led to many employees describing the newly developed Innovation

Framework which is displayed in 4.3.1, secondly it led to employees describing previous IDTL efforts. Thirdly, it led to employees explaining how they perceived their prerequisites of working with IDTL at VGU and, fourthly, the questions led to employees reflecting on their own skill sets, but also their colleagues' skills, on IDTL efforts.

4.3.1 The VGU Innovation Framework

During the past year an initiative has been conducted at VGU, studying how the organisation's work with IDTL can be improved. In order to do this, a project team was created to conduct the analysis and produce a new way of working. Previously, VGU worked mainly with creating new ideas and directly, when a new idea was found appropriate, it was pushed through the TDP. The TDP, however, is described as suitable for the actual development of a training and not investigating, prototyping and testing a new IDTL. This since the TDP include several gates, requiring a lot of documentation and information which makes it too comprehensive and detailed to explore an IDTL through. This resulted in when ideas not connected to trainings were pushed through the TDP, various problems arose. An example of such a problem was that relevant IT competencies were unable to be met in-house, stopping the new education from being realised. These creative new ideas were often found in innovation networks with partnering companies and from industry studies conducted by external consultants which then resulted in a lack of prerequisites needed for the solution to be integrated in the in-house IT structure.

Due to the problems that arose from going from creative processes straight to trying to fully operationalise an idea, VGU found that there was a need to conduct an analysis of the steps needed in between. The result of this study was presented by the project group at the end of 2018, where new process phases had been set and created the Innovation Framework. Overall, the two main phases found needed were; Analyse and Testing. In Figure 20 it is possible to see how the phases are put together.
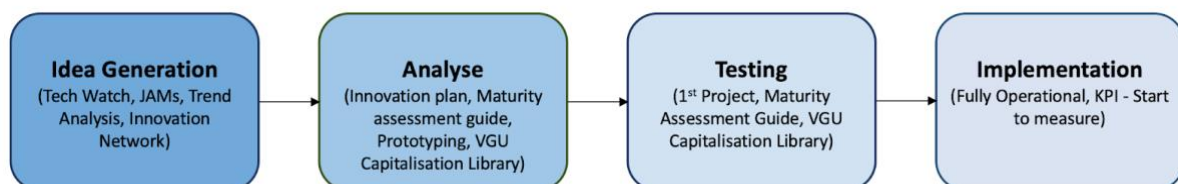
Figure 20. The VGU Innovation Framework.

The main differential between the Innovation Framework and the TDP is that the Innovation Framework was created to evaluate possible solutions were not all information could be provided and not all the criteria found in each TDP-gate could be fulfilled. It was created specifically for learning solutions, such as IDTL, that had not been used by VGU previously and needed to be certified that they would be appropriate for VGU to use in their trainings. The Innovation Framework was therefore created to prepare the learning solution enough so that it can either be adopted directly by a training effort in the Development phase or so it can be put through the TDP in the future. However, this framework is perceived as not to be functioning as it was prospected to and most employees claim to be unaware of how it functions. The different steps of the Innovation Framework will now be described based on how a member in the project team that developed it described it together with internal documents on the framework.

Idea Generation

The first phase combines a number of idea creation initiatives and in order to understand how the whole process could function, the project group chose to initiate an organisational wide initiative of creating ideas. They collected information from different tech observations and summoned a JAM within VGU. This JAM included giving VGU employees time to innovate ideas for educational purpose and resulted in more than 100 proposals. From there, the project team chose the top twelve ideas to continue working with and fed them into the second phase through a tool, the "Capitalisation Library", used to save ideas. However, important to note is that this JAM was performed once and has not been repeated since.

Analyse

The second phase was seen needed in order to test promising ideas and create an understanding of if an idea would demand changes in the organisation. In the previously mentioned innovation JAM, twelve of the most promising ideas were saved in the Capitalisation Library, which enabled management to gain an insight of what ideas were on the table. In order to then decide on which of the twelve ideas was best to pursue, a ranking was conducted where employees at VGU were given the option to vote on their favourite idea. The reason for just choosing one idea was for the project team to be able to test the new framework.

When an idea had been chosen, the team developed a tool to assess the maturity of it. This maturity assessment tool was created with the basis of ensuring that ideas were to be assessed based on the needed resources from each Academy. Thus, to achieve a realistic overview, representatives from each Academy were invited. Aspects that were assessed ranged from IT resources, knowledge on the technology, delivery needs and overall in-house expertise. From this guide, the team could then understand if the idea was plausible or not.

The next step was then for the project group to create a prototype, which was done by using different types of agile ways of working. This prototype was then used to create a deeper understanding of what resources could be needed or were lacking, which then the team could put into the Capitalisation Library and then add to the maturity assessment tool. Overall, the whole process was then documented into the Capitalisation Library to ensure that important learnings were kept for future projects.

Testing

The third phase of the process was used to test the chosen idea in a realistic environment. Thus, meaning that the chosen idea was tested in a mock-up TDP to ensure that problems that might arise could be tackled. Also, problems found during phase two in the maturity assessment were again put onto the table to be solved. Not until all problems were solved and fed into the Capitalisation Library was the project fed into phase four.

Implementation

The innovation process should be finalised with the chosen idea being put through the real TDP. When the interviews were conducted during spring 2019 the previously chosen idea had not yet entered the fourth phase, however it was described that the fourth phase should be handled like a traditional TDP where tools such as key performance indicators (KPIs) should be used. Lastly, the learnings and information gathered from completing the process should be fed back to employees to enable learning. These learnings and new understandings were described that they will then lay ground for new innovations that are sparked in a future first phase of generating ideas.

A Trial-Run

In order to test the new framework, one of the top ideas was chosen, which meant prototyping a podcasting format. To prototype the podcast there was an educational need found with a business stakeholder, which was seen to be suitable to create in a podcast format. However, this format had never been used before and it was therefore unknown if it would suit the business and VGU's educations. Therefore, it was seen optimal to test the new framework with. The team that was put together was a combination of an LPM, a Learning Expert, an ID and a VP. This session took close to 4 months and resulted in that the framework was updated as there were a number of problems that arose. One of the problems was perceived to be the lack of support and knowledge of how to work with agile prototyping. Another problem being no explicit person was set to project lead, which according to employees slowed down the project.

4.3.2 Previous IDTL Initiatives

During the interviews employees mentioned a number of educational efforts which had been created with an IDTL. Some solutions were specific computer-program based efforts and others were connected to technical hardware investments. Most employees knew of the efforts but not how they had been supported or developed, however, some did.

Common success factors described with these efforts was that there had been a strong focus on ensuring that one, or several, business stakeholders were on board. These business stakeholders were either found in the Reference Group or through personal contacts in the business. The effort was driven by strong LPMs or IDs who had long experience in the organisation, they knew how to approach the idea and to whom it should be presented. Nevertheless, they still needed to strongly debate for their ideas and followed the TDP, but they had difficulties in expanding the budget set in Order Office. This budget expansion was described to have been obtained through lobbying in the business through their own personal contacts, but also through their professional experience in business case building. It was described that the business cases had included strong storytelling, describing the need and describing the prospected effect. Furthermore, a close collaboration with a potential supplier enabled the initiator to gather more information and present a realistic view of the envisioned solution. In addition, it aided in estimating the potential cost and implementation effort. Who the business case had been presented to varied between business stakeholders, VPs and the Reference Group. Nevertheless, it was also stated that succeeding with previous IDTL had come at a price. Employees described that the problem is that their ideas are usually not heard or considered, where no encouragement is given, and it is up to the individual alone to realise the IDTL. The price is perceived to be a social penalty which lowers the overall motivation to work with an IDTL again.

However, employees also mentioned initiatives that were not realised, even though a business case similar to the above-mentioned efforts was presented. Important to note is that one initiative was considerably more expensive than previous efforts, in such scale that the decision had needed to be taken above VGUs own top management. Theories on what stopped this specific initiative were mentioned throughout the interviews, from interviewees on all levels. What is still unclear for many is how and to whom this idea was presented to and who took the final closing decision. Other efforts described that included an IDTL had received a no in Reference Group meetings due to lack of support from the business.

Overall, one initiative that stood out was the IDTL that was developed without a direct business demand, instead, it was prospected to be needed in several educational efforts in the near future. Though, in this specific situation neither a LPM or an ID drove the effort, instead it was

developed through the VGU IT Function where both initiation, financing and development was conducted by the function itself. The VGU IT Function worked closely together with a supplier and the Volvo Group IT Department to develop the new IDTL, which is still currently underway. This effort did not enter or follow the TDP and has not been put through the Innovation Framework, which sets it apart from previously described efforts.

4.3.3 Employees View on Prerequisites for IDTL

In order to understand how the organisation currently works with IDTL, it is important to display how employees experience this. Therefore, employees have been asked how they perceive VGU is working with innovation overall, how they would realise a potential IDTL and what types of support and resources are available for this.

The Overall Perception on Innovation
Overall, employees express that they experience that VGU strives to be an innovative organisation and that this is expressed through the organisation's strategy. However, it was found that most employees only had worked with innovation through using existing technological solutions, and when asked to describe how VGU works with innovation, they referred to the initiative displayed in 4.3.1. Though many employees were aware of the Innovation Framework, few knew what was planned for its' implementation and usage. They were also unaware of how the initiative should be used, who initiates the framework, and who would lead the work through the process. In addition, when employees were asked on how they perceived the Innovation Framework they proclaimed that it showed that VGU had the intention to be innovative, but the framework was hard to understand and they did not know how to use it. It was also unclear if the Innovation Framework should be run in parallel with the TDP which needed the IDTL, and if so, where the time for this should be found. Moreover, the employees that had been involved in the trial effort of the Innovation Framework stressed that the framework was heavy to work with and was extensively time consuming.

Most employees expressed that they feel that the organisation wants to be innovative, but that it is unclear how this should be done. They expressed that they experience that management wants the organisation to work innovatively and produce IDTL but that there is a lack of support and guidelines for how this shall be realised. In addition, no employees were aware of any specific goals nor KPI's regarding innovative solutions. Employees also expressed that innovation was not a part of their everyday work and was experienced to be a separate task in addition to their standard work tasks. Furthermore, it was experienced that even though VGU strives to be innovative, it was perceived that the overall business that is supporting VGU is not ready to support IDTL and question expensive learning solutions.

Realising a Potential Idea
The perception from most employees was that they were unsure if there were enough finances to endorse possible ideas and if these ideas even were worth pursuing. This due to that the overall perception for how ideas were received was that in order to pursue an idea there would first need to be strong need and support for the idea from a business stakeholder. Secondly, it was perceived that there was a need to argue and persuade both first, second and third level management to even be able to pilot the idea. Especially if the idea demanded large scale financing. Thirdly, most employees felt that large amounts of personal time and effort was needed to put the idea into motion and that there are not enough possibilities to be able to test new ideas when a business need is not present. Ideas either have to be put into full motion and strongly argued for or they will not happen. In addition, it is important to note that most

employees did not know who they should turn to with their idea. They did not know if they should first talk their manager or if they should present their idea to their business stakeholder. Furthermore, they did not know who should take the decisions regarding IDTL.

Moreover, employees experienced that it differed on how much they had to argue for their idea depending on how well connected they were in the overall business. If the employee had a long career within Volvo Group, they had more knowledge on who to talk to and how to gain support in the business. Persons with this profile found it easier to reflect on who they would involve and how their idea would be realised. They were also more knowledgeable on what type of material was needed to be brought forward and how it should be presented. The overall effort was then perceived to be smaller than for those "who knew the right people" within the Volvo Group.

In addition, employees stated that they are not given any specific time allocated to work with IDTL, where some saw this as hindering, whilst others felt that they had enough time during their work day to reflect on possible ideas. Most employees felt that they already have a full work day occupied with creating new educations and sustaining the educational portfolio they are responsible for that they did not have time to also put effort into creating any new solutions. Some employees meant that those really responsible for creating IDTLs should be ID's who work with developing and designing the trainings, and that the responsibility should not lie on all employees in the organisation.

Decision Process

In interviews, employees were asked to reflect on the decision process regarding IDTL. Overall, employees stated that they are unaware of how decisions should be taken regarding IDTL and that they foremost could only guess. This was further confirmed when some employees involved in the Innovation Framework explained that there is no set group who are to perform the decisions on efforts put through it. It is to be decided case-by-case, but by whom, is unknown. Some employees, on the other hand, argue that the decision is foremost taken by the business stakeholder and therefore the main effort should be placed on convincing that person that the IDTL is an effort worth pursuing. Thus by receiving a decision from the business stakeholder, the effort can remain in the TDP and the Innovation Framework does not need to be used.

In addition to who and where decisions should be taken, several employees that had previously pushed for IDTL efforts explained that the seldomly received feedback on why their efforts had been stopped. Management decisions overall were perceived to simply be taken and not followed up, resulting in employees feeling that they did not know exactly what was lacking in the previous ideas that they had presented. This was described as discouraging for future ideas they might have regarding an IDTL.

4.3.4 Employee Skills

Employees at VGU have different backgrounds both concerning education and work experience. During the interviews it was understood that this affects the employees prerequisites on how to pitch an idea and obtain funding. Employees were asked to assess their own ability of preparing the right material for an investment and being able to present the material. Further, employees were also asked to evaluate their own technical knowledge.

On Preparing Possible Investments

During the interviews each employee was asked to assess their skills regarding preparing an idea for possible funding and how well they knew how to prepare for a possible investment decision. The overall perception was that creating business cases, performing risk assessments and knowing what information to gather differed widely between individuals.

To understand why skills differed, employees were asked on what previous jobs they have had and what they had studied. The main educational backgrounds found were teaching, economics and engineering. However, those who felt most comfortable on discussing how they would propose and argue for a certain idea were those who had worked in professions that had demanded these skills. Those individuals who had backgrounds within project management mostly felt comfortable with what material to prepare, whilst others had background from sectors focused on other types of skills did not. Even though most employees felt comfortable with presenting a possible idea, many did not know what type of information was needed for a decision to be taken regarding an IDTL.

Furthermore, employees were asked if they had received any type of education or information on how an investments or possible ideas should be presented and motivated. Most employees had not received neither education nor information on this.

Technical Knowledge

The technical knowledge and IT knowledge is perceived to be generally low amongst employees, when excluding the VGU IT Function. It was found common to not know if a new technology or software could be implemented in Volvo Groups IT system and what problems that could occur. It is also perceived that the understanding for how complex an implementation can be, is not understood in general. Thus, even if an employee generates an idea of a new IDTL, most employees are uncertain on how it would work in practice and rely on the competence from their supplier. However, it has been perceived that relying on the suppliers' competence has created problems in the past when integrating the solution with the in-house IT system. Where some employees express that they should not need to have technical knowledge due to that not being their main employment focus. Instead, some argue, that the technical knowledge should lie on either the ID's or the VGU IT Function. However, the VGU IT Function has shown to be little involved in previous efforts resulting in IDTL efforts being stopped shortly before implementation.

4.3.5 Key Takeaways Regarding Working with IDTL at VGU

What can be concluded from Section 4.3 is that the Innovation Framework has so far been management initiated and is not a framework that any employee perceives that they can initiate. During the trail run of the Innovation Framework issues arose such as lack of support, knowledge on how to work with agile prototyping and that no explicit person was set to project lead. Employees also perceive it to be unclear how the framework should be used and if it should run in parallel with the TDP found to have the IDTL as a solution, and if so, how time should be found for running an extra process by the side of standard work tasks. Further, employees experience that decision making and financing of the Innovation Framework is unclear and most feel they do not know of how the framework is supposed to be managed.

Other previous IDTL efforts that have been pursued, have had a number of factors in common. These have firstly, had a strong focus on ensuring that a business stakeholder was on board,

secondly, the effort was driven by a LPM or an ID with long experience and a strong driving force. Thirdly, these persons have had previous experience in business case building where their business cases have included describing the need, prospected effect, cost and implementation estimations. Also, the business cases were built around storytelling and through close collaboration with a potential supplier. The business cases were presented for both business stakeholders, VPs and the Reference Group. When it comes to the overall perception on innovation at VGU most employees expressed that they feel that the organisation wants to be innovative, but that it is unclear how this should be pursued. This since VGU lacks support, guidelines and clear goals on the matter.

4.4 The Management View on IDTL

In this section management's view on IDTL is presented. This by going through how management perceive that the decision process should take place, what decision factors that should be met to be able to take a decision and how generation of new IDTLs should be performed.

4.4.1 The Decision Process for IDTL

The decision process for IDTL, according to management, is rather simple. In the Volvo Group most business areas are divided into a clear hierarchical structure with standard reporting streams and decision structures. Likewise, is the structure at VGU. By observing the hierarchy, management means that an employee with an idea, for example an IDTL, should converse with their Group Manager, who then talks to the Academy VP. The employee then either presents their idea directly to their VP, with or without the Group Manager present. Management stressed that small-scale investments easily can be conducted within the Academy and foremost demands that the employee can correctly present a number of factors, which can be found in Section 4.4.2. With the right material and a small-scale investment, the VP can single-handedly take the decision. However, if the employee presents a mid-scale investment the VP needs to consult the Academy's Reference Group and Academy Advisory Board, meaning that the employee needs to ensure that their VP has enough material to present the idea in a good way for the next tier of decision makers. Furthermore, if the employee presents a large-scale investment which the Academy cannot finance in its' current budget, the VP instead needs to consult top level management at VGU. This meaning that the employee needs to ensure that the VP has enough material to present their idea to top level management on behalf of the employee. Depending on how large-scale the investment is, either top level management can take the go or no-go decision themselves, or the proposal needs to be presented to the Executive Vice President of Human Resources (EVP HR) who takes to decision.

However, there is also a separate decision structure which can be relevant for IDTL initiatives. This being the decision structure in the VGU IT Function. As of today, the VGU IT Function is a part of Business Office which has a two-tiered decision process, where the first tier is Head of the VGU IT Function and the second tier is Head of Business Office. It has been explained that it would be possible for IDTL initiatives, that are seen to contribute to many future educational efforts, could be tested and developed within the VGU IT Function. Where one IDTL initiative is currently underway. Though, it was argued that similarly to the previous decision structure described, that the needed number of decisions depended on the scale of the investment. The VGU IT Function can single-handedly take decisions and operate small-scale investments, however, if a mid-scale investment is needed the IDTL initiative needs to be argued for to the Head of Business Office in order to expand the next coming year's budget. If

the investment is large-scale, there is need for the same decision level as above, meaning a top-level management or EVP HR decision is needed. Though important to note is that for any IT connected initiatives to be performed, the VGU IT Function needs to be onboard. Therefore, the importance of engaging the VGU IT Function in all types of IDTL efforts was stressed, as if they are not engaged in time, either the effort can be completely stopped or delayed. This as the IT system within Volvo Group is complex and not compatible with externally supplied solutions. Today, the VGU IT Function feels they are seldom a part of such initiatives leading to problems that could be avoided.

In addition to these two decision structures, there is another structure described in interviews, being found in the Innovation Framework. Though, this decision structure is described not to be set and will vary from case-to-case. Which is due to that it can vary which Academy chooses to drive an effort through the Innovation Framework, meaning that the decision panel should be based on each scenario that arises.

4.4.2 Management Decision Factors for IDTL

Something generally found for all new ideas and developments within VGU is that a new training or other solution, must meet a business need, or in some way bring direct profitability to VGU or the Volvo Group. There is one exception though, which is the project mentioned in 4.3.2 that was carried out without having a direct business need. But overall management expect a business need to be met, which also concerns a potential investment in an IDTL. In order to convince management to invest in an IDTL, they require that a business case is presented and propose that such business case should include the following:

1. *Business needs* - What educational needs does the business stakeholder have and how would this IDTL meet this need? Generally, if an educational need is met it is, according to management, easy to receive funding.

2. *Business effects* - How would this IDTL affect the business stakeholders and VGU, but also the Volvo Group in general? What benefits would be present?

3. *Business demands* - What are the requirements from the business stakeholders and how does the IDTL fulfil them?

4. *The financial aspect* - What would the potential IDTL cost? Are there any supplier quotes that can be displayed and compared? What potential return on investment can be expected? Would the investment lead to direct profitability for the Volvo Group?

5. *Size of investment* - How large would the investment be? Depending on the size, a decision can be taken solely by the Academy VP, or it needs to be further discussed with top level management, as described in 4.4.1.

6. *Prioritised area for VGU* - Is this new IDTL in some way concerning a prioritised strategic area for VGU?

7. *Potential to spread* - Could this IDTL be used in other educational efforts in the future? Does it have the prerequisite to be spread and reused?

8. ***Risk*** - What are the potential risks with this IDTL? Can the risk of the investment be divided between the different Academies?

9. ***Target group*** - Who is the primary and the secondary target group? How large are these target groups?

10. ***Maturity level*** - How mature is this new technology?

11. ***Internal hours*** - How many hours are needed internally to work on the IDTL?

12. ***Pedagogical value*** - What pedagogical value does this IDTL bring to the educational effort?

13. ***Collaboration*** - Could this IDTL be invested in or developed through a collaboration with an internal actor within the Volvo Group? Could this IDTL be invested in or developed through a collaboration with an external actor such as a university?

14. ***Other positive advantages*** - What other positive advantages would this IDTL bring?

Those factors mentioned by most interviewees were number one, two, three and nine. Where factor one was found to be the most important of all and some interviewees would not even consider an IDTL effort that lacked a strong business need. Though some interviewees stressed that VGU needs to be able to work on possible IDTL efforts without a business need and that the foremost important factor would then be factor two, the business effect.

4.4.3 How Generating IDTL Should be Operationalised

During the interview's management were questioned on how they perceived that IDTL efforts should be pursued. Most managers agreed that there is no specific time set aside for employees to work with creative efforts, instead most argued that it is not possible to "force" people to work innovatively, ideas arise when employees are working in business as usual. Reflecting on IDTL and being creative is seen to be a part of an employee's everyday work tasks and idea generation should be conducted in the Academies. Overall, management stressed that there is need for a small culture shift towards being more innovative. Exactly how this shift should be achieved was not specified. Further, it is expected from each Academy to work with finding new IDTL hence involving all person's part of an Academy. This also explains, according to management, why there is no specific budget allocated to IDTL. It is decided that IDTL efforts should foremost be both driven by a business need and supported monetarily by a business stakeholder. IDTL efforts should otherwise be funded by the Academies themselves, where if they found the initiative of importance, need to reallocate their overall budget. However, this is foremost small-scale investments and if this effort is to be expanded they must have the financial support of a business stakeholder to continue.

Overall, management stressed that it is decided, and stated in the VGU strategy, that the organisation strives to work with new digital technologies. It is VGU's task to delivery top class educations bringing value to the Volvo Group. When asked to reflect on how this strategic goal was to be obtained some interviewees referred to the Innovation Framework and argued for that a large change would come from using this in the future. Whilst some argued that the organisation needs to start working through an agile mindset to encourage both working in the Innovation Framework, but also to facilitate future IDTL efforts. Employees must be able to

run efforts in the Innovation Framework without needing to have an IDTL that is basically ready to be implemented and instead be able to work with IDTL that are completely new to the organisation. To ensure this, employees and management need to change their mindset that they have from the TDP, where all questions need be answered before each gate is passed, to a mindset where less important questions can be answered later on. This to be quicker in the Innovation Framework and being able to decide if the IDTL can be used or not.

Lastly, interviewees stressed that many VPs have had large amounts of work on their table, meaning that even though they strive to have an open-door policy for employees to be able to discuss their ideas, they have simply not had the time to do so. This as many interviewees expressed that they wanted to be a part of the idea generation effort, but that they were struggling with setting aside time for such interactions. Important to note was that the level of this interaction varied between interviewees. Some interviewees argued that the open-door policy was both for ideas that had been thoroughly worked on and for lightly discussing new immature ideas. Whilst others argued that due to their short time span they had to spend on such efforts, IDTL efforts that are presented must be properly worked through and include much of the information from factors presented in Section 4.4.2. Many expressed that they hoped this would improve now that all Academies have enforced Group Manager positions, relieving VPs from some of their workload.

4.4.4 Key Takeaways Regarding the Management View on IDTL

What can be concluded from Section 4.4 is that management emphasise that the decision process regarding IDTL is rather simple. An employee who has an idea regarding an IDTL should discuss their idea with their Group Manager, who then lifts the idea to the Academy VP. Either the employee is given the task of presenting the idea directly to the VP or the Group Manager is given this task. What management wants the presentation to include, can be found in Section 4.4.2. Regarding funding of IDTL, management states that small-scale investments can be conducted within the Academy with the Academy budget. However, investments that demand larger funding need to be presented by themselves to either the Academy Advisory Board or to the SVP of VGU.

Furthermore, there was described to be an additional way to finance an IDTL, which is through the VGU IT Function. This function can single-handedly take a decision to invest in an IDTL up to a certain level of funding. It was further described that by engaging the VGU IT Function in early in phases of the IDTL investment, possible problems that can arise from incorporating software connected to the investment can be mitigated. Hence, the sooner the VGU IT Function is involved the quicker an investment depending on integration with the Volvo Group's IT structure can be implemented.

Lastly, management stressed that it is stated in the VGU strategy that the organisation wants to increase its' portfolio of new digital technologies and that it is seen as a prioritised area. Management also stated that there is a need for a small culture shift towards working in an increased agile and innovative mindset.

5. Reference Companies

During the study, five companies have been interviewed. This in order to, firstly, understand how other companies structure and motivate their innovational efforts, secondly how companies selling digital technologies motivate sales of their solutions, lastly how some internal business units within the Volvo Group have motivated purchasing innovative digital technologies. When describing how these companies work with innovation they will be referred to as company one to four, as well as Volvo Group Business Units.

Company 1 (Working with innovation)
Is an affiliated company to a large actor within banking and insurance, which was created to drive the company's innovation activities.

Company 2 (Working with innovation)
A unit within a large company that works with finding and managing innovation. The company itself works with heavy machinery.

Company 3 (Selling Digital Technologies)
Is a small actor working with selling and creating solutions in advanced digital technologies.

Company 4 (Selling Digital Technologies)
A small company working with developing and distributing digital technical solutions such as VR, AR and MR to companies within different sectors.

Volvo Group Business Units
Are in-house units within Volvo Group's different business areas who have invested in digital technologies to increase customer understanding of the products, let customers try their products and to educate customers on how their products should be used.

5.1 Companies Working With Innovation

Following are the companies working with innovation, where the benchmark focuses on their business purpose, innovation processes and resources for innovation. The companies that this concerns are Company 1 and 2.

5.1.1 Business Purpose

Previously, the parent company to Company 1 had the responsibility for innovation on their main hub in Stockholm combined with the Sales and Marketing Division in Gothenburg. However, the parent company was experiencing issues due to the innovation centre having long lead times on new projects and did not have the resources to pilot possible disruptive innovations quickly. Moreover, the Sales and Marketing Division were already fully occupied with their daily tasks connected to their specific division. From an initiative from the Chief of Sales and Marketing it was decided that the company needed a separate division or company which could be liberated from the parent company's heavy processes and work with innovation freely. The parent company had understood that they needed a test-area for possible ideas and technologies that needed to be researched, which is the main focus of Company 1. This led to Company 1 being started in 2017 and shaping their work with gathering ideas, testing and recommending disruptive technologies. However, they do not currently realise the ideas into

the parent company. This is one of the areas that the parent company is currently discussing, where the issue of who should project manage and realise the developed concepts is not yet set. Today the parent company has near 6000 employees and close to 4 million customers, and in 2018 had a total turnover of near 6 billion SEK. Company 1 fully developed 10% of the projects that were presented to management during 2018 and aim for a similar result this year.

Company 2 has a similar set-up, however working with innovation is not managed in an affiliated company. Instead, the innovation work is conducted in a subdivision whose main goal is to gather ideas, test them and, if seen viable, initiate a project to run them. The subdivision was started on the initiative from the firm's overall strategy where they have the strategic goal of being innovative. The company previously had the attitude that the responsibility of innovation should be spread out through the whole organisation, hence meaning that all employees were expected to generate and drive ideas. However, this did not lead to many innovations nor patentable ideas which the company needs in order to stay competitive. Overall it was understood that employees did not have the time to innovate and when they tried to innovate, they did not know who to present their idea to or how to pursue it. Since the subdivision was created in 2018, there has been a rapid increase in number of ideas presented each year and the number of patentable solutions per year has increased by the fourfold. Currently Company 2 has near 1500 employees and an annual turnover in 2018 of 13 billion SEK.

5.1.2 Managing Innovation

Company 1 is structured in three different levels. The first level being four persons working full time with daily innovation activities, where three of them work with developing and project managing ideas through the company's innovation process and one person focuses more on administrative tasks. These four people work with collecting and selecting the best ideas for the business to test. When an idea is found and an initial estimation of what it will cost is performed, the investment cost will decide on which deciding function will need to give a go or no-go decision. Depending on the amount of that estimation, two different levels of decision organs are involved. A mid-level investment will engage a panel of four different chief officers whilst large-level investment is taken by a panel of chief executive officers. The first panel for mid-level investments are often engaged in Company 1's decision process and are a part of each gate in the innovation process. The second panel is foremost engaged and consolidated when each yearly budget is to be set. By observing Figure 21, it is possible to see a mock-up of the innovation process used at Company 1.
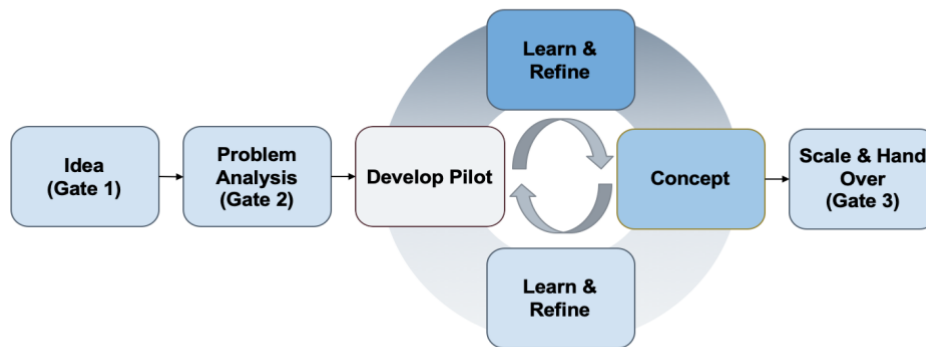
Figure 21. Innovation Process Company 1.

Important to note, is that this process Company 1 has created by conducting research on other innovative processes and therefore differs from the parent company's standard ways of working. The process is based on a business case template that is refined throughout a number of gates. Thus meaning that before Gate 1 the business case template is roughly estimated, where the following factors are presented;

- *Background & vision*
- *Decision point*
- *Business offer & need*
- *Target group*
- *Possible revenue*
- *Strategy & business goal*
- *Budget*
- *Time plan*

Most often in Gate 1 the decision is based on if Company 1 should keep on working with the idea and the initial cost is rather low. The funds are mainly used for workshops, working with collaborative businesses and small-scale testing. In Gate 2 an extensive research is needed in order to bring forward a more precise value of the investment needed, a description on how the idea should be piloted and an analysis on how the ROI will be generated. The business case template is then expanded with the following factors;

- *Pilot plan* - How will the technology be tested? Who will be involved?
- *Efficiency goals* - How many pilots are needed and what is the goal of the pilot?
- *Market situation* - Does this idea currently exist on the market?
- *Risk & complexity* - How reliable is the technology?
- *Pilot management* - What is needed for the pilot to run? Where shall the result go if successful?
- *Decision point* - Exactly what needs a decision?

Examples given on how the ROI is found was described to be reducing damage costs, increased PR-value, increased insurance sales and increased in-house efficiency.

From receiving a go-decision in Gate 2 the idea is then put into the loop of developing, test of concept and learning phase. Here, Company 1 works together with different actors such as other

companies, schools and customers to pilot and test their ideas in different situations. When finished with this phase, preparation is begun for Gate 3 where material on scaling up and what is needed to get the idea onto the market is presented. Scaling up is usually regarding small pilot projects in the business and what is needed for that initiative. However, where the information should be passed on and who should drive the next phase of implementation is still being discussed. The discussion is that either the idea should be passed on to the innovation hub in Stockholm, or new team members should be added to Company 1 so that they have the manpower to also drive implementation.

Moreover, Company 1 displayed the Unicorn Model, which can be found illustrated in Figure 22. It was described that this model helped guide the company in both selecting and suggesting ideas. The model was also used to find and define the possible problem, improvement possibility or need from the customer. Thus it was used to both facilitate in understanding factors background & vision and business offer & need, but also in connecting to the company's strategy & business goal. This as it was described that the company clustered their investment initiatives according to the categories presented, both to set strategic goals on how many investments were to strive for in each category. Also, to ensure that the investment portfolio presented a spread of different types of innovations.

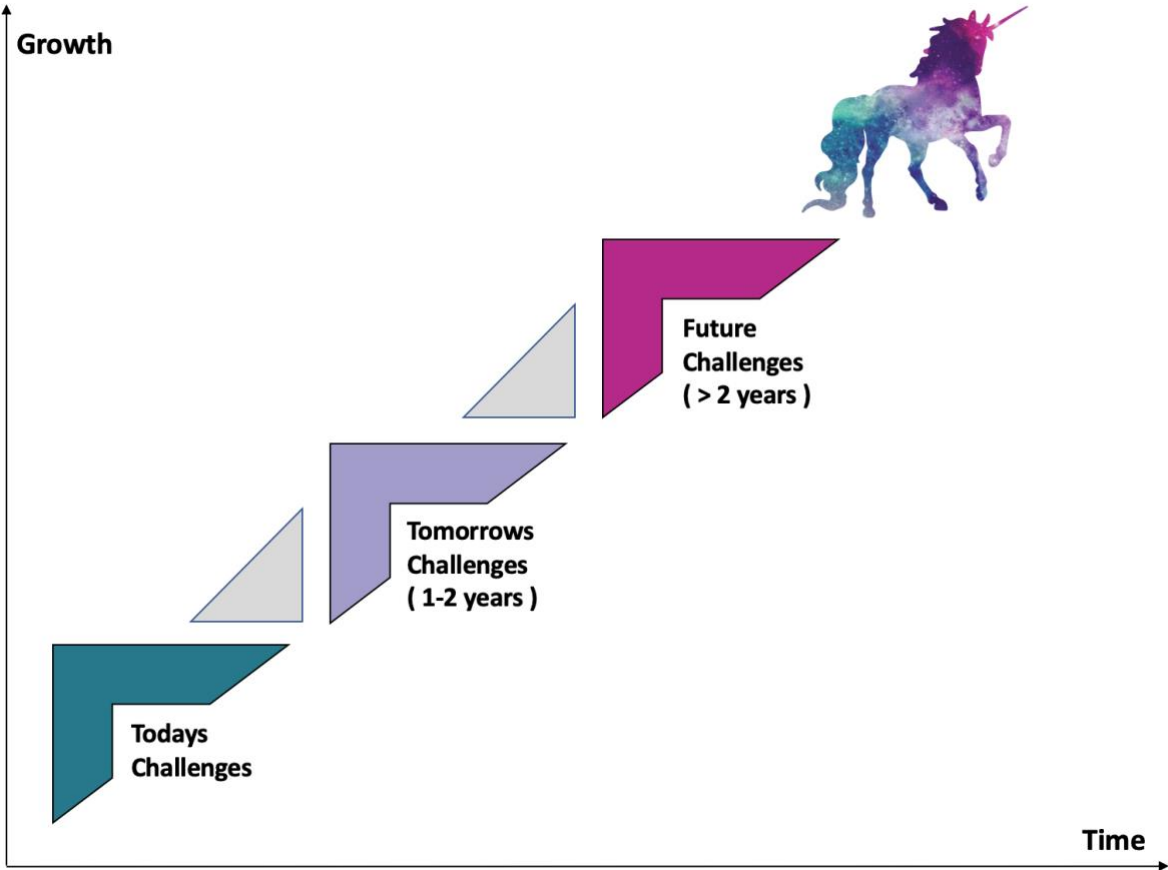*Figure 22. The Unicorn Model.*

The company argued that if a spread throughout the categories was not present, it would not be possible for them to reach the unicorn, where the unicorn represents the most valuable, but also possibly branch disruptive, innovations. The company described that it therefore enables employees to work with innovation and ideas that are hard to properly define lying in the far

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future such as long-term disruptive ideas. However, it was emphasised that in order to work with those ideas, the company have to prove that they can work with their customer challenges of today. This also to ensure that the owners are able to see changes and benefits from their investments.

Company 2 is structured as an innovative team consisting of six different persons, where one of these persons has a management role, and the others a supporting or expert role when working with ideas in specific areas. Ideas are generated and found in the core business areas by employees, but also through workshops that are held by the innovation team four times a year. When an idea is found, the innovation team has the task of helping the idea generator with the idea to analyse and evaluate its potential. Sometimes the person with the idea wishes to be a part of the further work, and sometimes not, if this is the case the innovation team takes sole responsibility for the idea. All ideas from employees are rewarded, no matter how relevant or good the idea is perceived to be. The decision on if the idea shall be further analysed or demonstrated is however taken by the person responsible for idea gathering in the innovation team, thus if an idea requires a small investigation this is the responsibility of this same person.

However, if the investigation requires further funding then the decision needs to be taken by a board including people representing the business areas that would be affected if the idea is decided to be developed and implemented in the future. This board is set by the chief of the innovation team, who also is the person responsible for gathering ideas, developing ideas and pitching ideas for the decision makers. This pitch is described to be created as instructive and simple and is further described to be "put into a bigger picture". The reason for shaping the pitch in this manner, is to ensure that everyone, even those without technical knowledge, can understand the potential and possible effect on the business from the proposed idea. Moreover it is described that the pitch, is the template that the decision will be taken based on. Therefore to enforce the importance of the proposed idea props are used such as instructive videos, animations and explanations based on topics such as technology, economy and social aspects connected to the goals that the core business has.

Overall there are no documented or illustrated work steps that the innovation team in Company 2 are following. However, managing an idea includes a process pattern that is often repeated which includes many iterations of communication and lobbying for the idea. Communication includes working with engineers to understand proof of concept, if it can be manufactured etc and lobbying entails ensuring funding from the decision makers. The communication steps in this pattern are as follows; An idea is stated by an employee, which is then communicated to the innovation team through the innovation manager where the employee is rewarded regardless is the idea is further developed or not. Though if an idea yields a go-decision from the innovation manager, it is further communicated and analysed by the innovation team. This analysis includes communicating the idea outside of the team and finding partners throughout the organisation in order to involve the core business. After analysing and gathering information on the idea, it is pitched for a decision board to conclude further development. If a positive decision is given the idea is granted funding and the innovation team are responsible for its' development. This process can be seen in Figure 23.
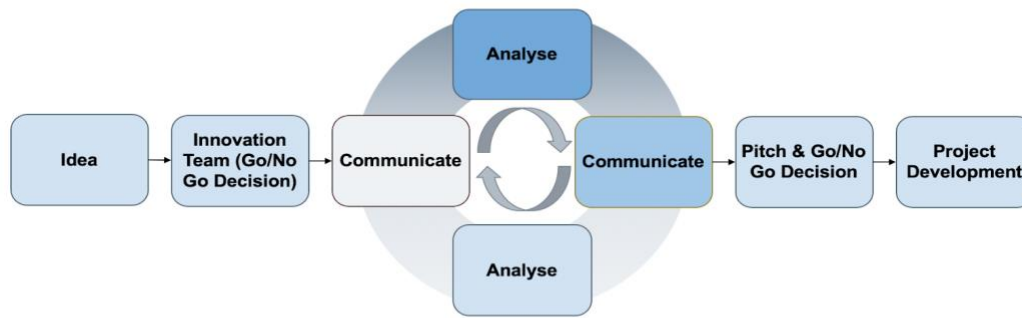
Figure 23. Company 2's Innovation Process.

5.1.3 Resources for Innovation

As previously mentioned, there are four full-time employees recruited at Company 1. These employees have the task to ensure that creative ideas are generated, evaluated and pitched for the decision makers. Ideas come both from the employees themselves and from an idea bank where ideas are sent in from employees at the parent company. The four employees dedicate full-time to evaluate and pitch these ideas, which means that there are many more ideas evaluated and pitched then those actually tested in pilot projects. Skills and previous working experience differs widely between the employees at Company 1 where one has a background within marketing, one from IT management, one from start-ups and the last person has previously worked with administration of IT projects.

Regarding Company 2, the staff consists of six full-time employees. Their roles differ depending on area of expertise, where the team consists of a number of subject-matter specialists within the company's main strategic areas. These employees are therefore used to both evaluate ideas within their expert area but also to drive those ideas that are chosen to be realised and become projects. The projects are then coordinated and managed by these experts. However, in order to find possible ideas that go on to become projects, there is one main person working with idea finding, idea generation and idea support. This person works with trend watching, holds idea generating workshops and is the recipient if someone in the organisation has an idea. Moreover this person also works with being present in the organisation, ensuring that employees are aware of that this subdivision exists and the importance of innovation. To encourage employees to take time to be innovative and present their ideas, this person offers small rewards such as cinema tickets, which has increased the overall number of ideas that are brought up for discussion.

Company 1 is an affiliated company which is financed solely by the parent company. The parent company therefore sets aside a budget for each year, which funds the four persons working full time with innovations, along with the actual pilot projects that are approved to be carried out. However, Company 1 cannot use the budget freely and can only access it through the different stages in the decision-making process. In Gate 1 a small portion of the budget is approved to be used for initial examination and small-scale piloting, whilst after a decision in Gate 2 a larger portion of the budget can be used. So, even if the employees at Company 1 have an overall budget, it is up to the decision makers how the budget can be used by deciding on which and how many projects are realised.

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Similarly, Company 2 also sets aside a certain budget each year for the innovation team specifically allocated for innovation activities. However, in comparison to Company 1's budget, it is much smaller. The budget is mainly to be used for evaluation of ideas and not for developing, meaning the budget is mostly used for workshops, small pilot projects, illustrations and tests. When a decision is taken that an idea should be developed after testing, this is funded by a part of the core business that the idea concerns and is therefore not reliant on the budget for the innovation team. The staff of the team are furthermore separately paid by the core business and their salaries do not depend on the innovation budget.

Regarding Company 1, their full-time work is allocated to innovation, due to an increased need from the business. Employees in the parent company are still encouraged to register ideas in an available idea bank and Company 1 have an internal homepage which parent company employees have access to. This enables cooperation and ensures that the idea is not being tested in other parts of the parent company. It also creates an openness and sharing culture which is seen as important to facilitate and encourage innovation. Moreover, by ensuring that the innovation projects Company 1 are driving are accessible to follow through the internal website, this sometimes generates sponsors from within the parent company who see large business value in certain ideas. These sponsors then allocate new funds to these certain ideas, leading to more extensive piloting and facilitates the hand-over to the parent company. In Company 2 similar insights that lay ground for the start of Company 1 have shaped the time-allocation for the people working within the innovation team. Previously, employees in the organisation did not have the time to drive their innovative ideas as it was found that there was a need for both expertise and project management of new ideas. Therefore, one employee is solely devoted to finding and analysing new ideas, whilst the rest of the team project lead both innovation but also development of current products. Employees working in the rest of the organisation are encouraged by the company to take time during their work day by to work with innovative ideas.

5.2 Companies Selling Digital Technologies

Following are the companies selling digital technologies for education, where the benchmark focuses on their business purpose, sales arguments and challenges. The companies that this concerns are Company 3 & 4.

5.2.1 Business Purpose

Company 3 is a small and relatively young company developing and selling advanced VR solutions mainly focused on education. They develop customised educational solutions for large industries and create scenarios that would have been expensive, time consuming, dangerous or almost impossible to create in the real world. This meaning that they develop educations mostly within safety and manufacturing. Furthermore, they provide complex education that would have been difficult to learn if only read, not visually shown and experienced. The company has been working with this for five years and is now a well-established actor within this sector. They sell mainly to large industry actors within various branches and are involved when an educational need is difficult to meet, where they are able to create effective and cheap ways to educate in comparison to either paperback guidelines or classroom trainings. Company 3 was started in 2014 and has an annual turnover of near 2,5 million SEK. In 2019 they received EU funding of near 20 million SEK for further development of their specialised VR solution incorporating real time hand movement.

Company 4 is also a small company developing and selling advanced digital technologies such as VR and AR. They provide solutions that can be used for both efficiency enhancement within production as well as simulations that can be used within education. A typical case for them is to help an industry to improve their efficiency, by for example simulating divison of workspace or replacing certain machinery. This resulting in benefits such as shortening lead times and creating better environments for employees. To attain these improvements, an example of scanning the workplace, breaking it down to components, finding time wasting activities or movements is given. The scan is then used to demonstrate suggested changes by using VR and enables the customer to try different types of solutions without needing to perform costly refurbishments in the working environment. Further, the educational aspects Company 4 foremost work with are mostly focused on virtual training for different types of manufacturing operations, such as welding. Company 4 has been working with these types of solutions for eleven years and has near 50 employees. They describe that their involvement is initiated from a customer realising a need for increased efficiency of their production line or a need to visualise something that can be hard to train their employees on, such as, hazardous leakages or fires. Thus, their customer-span ranges from large industry actors to smaller construction and product development companies. Company 4 provide both basic and customised solutions and have an annual turnover of close to 60 million SEK.

5.2.2 Sales Arguments

According to Company 4 one of the most important sales arguments for customers to invest in their solutions is the possibility of visualising it. An example was given of a company selling large scale industry solutions for manufacturing paint, where the company was finding trouble in displaying their solutions for potential customers. By showing this company the potential in building a mock-up version of their product in VR, so they could let potential customers experience the solution, enhanced their possibility to perform a sale. Similarly, Company 3 emphasised that often when they meet with their potential customer for the first time they hardly know what VR is. Therefore, it is most important for them to be able to show the potential solutions and benefits that a VR solution can yield. Furthermore, they stressed that if the potential client is not given the opportunity to truly experience VR it is hard for them to assess the technology properly.

Success stories is another important sales argument. If it is possible to show how others have reached success by using VR or similar solutions, it is easier for the potential investor to be motivated and go through with the investment. VR can, according to Company 4, increase the quality of a simulation and include more senses, which increases learning for the person using VR. Proof of concept, meaning that you can try your solution before production is further a way of working with VR, as it eliminates the risk of problems appearing after production. Company 3 expresses the same importance in success stories, whereas they still are a small and new actor on the market, they rely on good references to continue to grow their business. It is often how they are able to gain vital contacts to a new possible client.

Overall, it was seen that the economic calculation tools were used differed between situations and companies. Company 3 foremost stated that they rely on sales arguments on intangible benefits, but that simple calculations regarding reduced learning time for new employees, reduced material usage and certain risk calculations also were common. An example was given regarding risk, where a customer had a processor in a plant which could overheat and explode

if the operator was unaware of how to handle the situation. By giving operators the chance to practice the situation, which could occur yearly, the risk of explosion was largely reduced. This solution could then be motivated by both saving lives, but also possible costs for damages from an explosion. Company 4 explained that it depends on both the industry that the customers are working in but also the type of solution ordered of how economic calculations are performed. Standard examples given were pay off time and cost of investment. However, they also used time to end-customer as an efficient calculator to propose a VR investment. This as a company might be able to reduce their product launch time or time to customer by a certain amount by using a VR tool. The time reduction could then be put into more specific terms such as working hours, development costs and possibility to be first to market, hence gaining a larger market share. By summarising these cost reductions and increased profits it was possible for the company to produce a monetary saving the customer investment would make. This saving, the customer could then compare to the investment cost of the proposed solution. However, it was stressed that in order to calculate cost reduction, there could be need for industry expert judgements, research and guesstimates. Furthermore, Company 4 stressed that they also worked with estimating intangible benefits such as reducing sick leave. This as certain working flows can be simulated in VR and uncover damaging working positions which then ensured that the damaging factor could be reduced or removed, hence saving companies both time and money.

5.2.3 Challenges

Company 3 has experienced that the largest challenge for them is to find the right person to approach at the potential customer. If something new is to be bought or developed someone needs to be responsible for that investment at the receiving company. In some business areas and some corporations it is clear who is the person responsible, but at many larger companies this is a challenge to find out. The experienced problem is that at large companies there are several persons that could be responsible, due to their large business area span and the need of the learning solution exists on several locations within the same corporation. When the right person is found there can also be a challenge to motivate others internally at the company, why this particular solution is needed. In large corporations it is often not enough to motivate one person, the investment needs to be established with several important key figures in the customer company.

Company 4 claim that neither the economical aspect nor the technical maturity level is the problem. However, the general knowledge about VR and to get potential customers to dedicate time to learn more about VR, is a common challenge. They argue that the most frequent issue to why the company loses a deal is due to the customer not having the time to assess the proposal and understand the possible potential. Furthermore, the interviewee highlighted that it is often seen that their company becomes involved first after the customer has decided on that a VR or AR solution shall be invested in, which explains that those that are willing to invest in such solutions see the potential and have already decided that VR or AR is an appropriate solution to their problem. Thus such customers are more straightforward to sell their solutions to, and in these cases, Company 4 is commonly approached with an already set budget on how much the customers are willing to spend and demand a solution based on these financial terms.

5.3 Business Units Working with Digital Technologies

Within the Volvo Group there are a number of units under their different business areas that already have implemented, or are planning on, implementing digital technologies. The units

that have been used to benchmark against are; Aftermarket Technology and Marketing & Communication.

5.3.1 Aftermarket Technology

This units foremost responsibility is assuring maintainability and works with quality assuring projects that are soon bound for production. Previously the procedure of analysing prototypes was performed in Computer Aided Design (CAD), which was time consuming and difficult to work with when searching for issues in the designs. This was especially relevant when the product was custom designed for complex situations. To solve these issues an initiative from the Volvo Group IT Department was created recently, who chose to purchase a VR headset and test similar verification of products in a true to scale environment. A person in the Volvo Group IT Department saw the potential it could have for the unit checking and verifying maintainability, whereafter the employee requested a master thesis on the subject to further understand the potential.

This master thesis found many benefits such as shorter lead times and that faults could be found at an earlier stage which could result in cutting costs connected to missed complications. After the master thesis was finalised the unit saw that the potential of this new way of working could lead to, which led to an initiative being started regarding implementing these practices into VR. However due to estimated high costs, the initiative needed to receive decision from a higher level of management. Firstly, initial software was given a go-decision and funding from Level 3 management, but the interviewee described that the hardware demanded a decision from Level 2 management. Thus, meaning many important actors were a part of that decision when a budget and plan was presented. The proposal that was presented can be found below and resulted in a go-decision with funding from a specific IT innovation budget.

The interviewee further explained that initially a solution expert from Group IT was consulted and helped in setting both budget and time. However, it demanded that the competence for building the VR environments was able to be found in-house. As of today, there is now a VR studio with two full time employees working with creating these environments and exploring further potential with the solution. It has helped both developers but also aftermarket and suppliers to understand if components fit correctly, but also enables mechanics to open expensive components in a virtual environment that otherwise could not be seen.

The Proposal

In order to present the investment initiative the group suggesting the investment prepared a request, which included the factors presented in Table 5.

Priority	Here the urgency of the proposal was stated, where this specific case was given a high scale priority.
Background and Target	Under this section previous initiatives to VR were brought to light, both Volvo Group collaborations with certain VR companies but also the result of a master thesis conducted on the relevant topic. During the master thesis work a workshop was held in Gothenburg demonstrating certain cases from Volvo Group in VR, where a number of application areas for this solution arose. These are exemplified.
Current Situation	A number of problems for the given area where the VR initiative was to be implemented are stated. It presents what technologies currently are being used, what their limitations are and what these limitations lead to. An explicit example is given regarding that there are fewer physical vehicles available for testing and verification, leading to that tools currently used forces employees to make assumptions that are verified later on in the project. Thus, leading to longer lead time and to errors not being found until late in the project.
Purpose and Target	Here, it is presented how VR can enhance ways of working and what effect this can have on operations. Examples of benefits given are; front-loading projects, enabling earlier design verification and validation, less prototype building and less material usage.
Effects Without VR	This section displays possible dangers of not choosing to invest in VR, where competitor status is presented, possible negative effects on products relying solely on current tools and long-term negative effects on the business is presented. Moreover, connections to the overall business interest in VR and digital technologies are made, where it is argued that this investment is needed to drive these efforts forward. Lastly, this section presents what the initiative will accomplish on a Volvo Group Level and on a unit level.
Description	In description, the overall goal of the investment is given. The goal is to obtain a global level usage of the investment and to investigate during an evaluation phase which of the two presented VR solutions is seen to be optimal. This evaluation includes; • How long the evaluation is estimated to take • What test cases will be included locally and globally • A check-list of requirements the evaluation will be compared to • How much resources are needed from test participants, stated in number of hours.
Attachments	In the attachment section the investment cost for the VR setup is added, which includes; cost of VR hardware, cost for PCs and costs for licences. What type of hardware, PC and licence is displayed in combination with the number of each product needed.

5.3.2 Marketing & Communication

This particular unit was experiencing problems with letting customers experience their newest product models, which was further troubling, as this product is not typically sold through a dealer who can display the product on site. Moreover, demo models are rare and can mostly be found at large business expos, making it hard to conduct sales to customers previously unfamiliar with the brand. Therefore, the Manager of Marketing & Communication decided to research if there could be a possible solution to this problem. The Manager contacted a number of suppliers of digital solutions, a PR bureau and a company known for building simulators. By brainstorming together, they found that a realistic replica of the product could be built in a simulator with adhering VR glasses. This could potentially help more customers experience the product and its' new features without needing a real product on site. However, the investment cost would be high and would not fit into the Marketing & Communication's budget. Therefore the Manager chose to present his idea to Top Management to realise its' potential, but also to be given more room in the unit's budget for the upcoming year. When the Manager explains how the investment was presented, the main focus was on;

1. The business need
2. The problem it solved
3. How it would solve the problem
4. The potential outcome of the investment

Though, the Manager pointed out that solely the cost was displayed and no specific financial model was used. In addition, it was presented how the simulator would be built and that it would involve expert engineers to ensure that the mock-up product would be as realistic as possible. The unit was shortly after granted space in the unit budget to pursue the investment, where the most hindering factors perceived were connected to integrating the solution with the internal IT system. This investment was a success, which resulted in that the following year a similar simulator was also invested in, were the Manager explained that presenting and arguing for his idea was performed in the same manner as the last. However, as a similar effort had previously been conducted the investment cost was close to 50% lower.

5.3.3 Key Takeaways from Benchmarking Companies

What can be concluded from Chapter 5, Benchmarking, is that the benchmarked companies working solely with innovation have a clear structure in their innovative work. Their set architecture includes explicit gates, a simple financial structure and a coherent governance structure. Regarding governance, who will take the decisions and what decisions should be based on is clearly expressed from management to employees. The companies working with innovation furthermore have regularly set creative activities such as workshops and work closely together with a number of external collaborators. These companies also dedicate full time to working solely with innovation and administering ideas, where the ideas behind these innovations come from both the main organisation and those who are working directly with innovation. Further, both companies were found to have a separate budget specifically allocated for innovation. This was also was confirmed by one of the companies selling digital technologies, who stated that their customers usually have a set budget for their investments connected to solutions that the selling company develops. In addition, it was found that the internal units at Volvo Group have created their own framework or business case to enable

decisions regarding the proposed investments, which also was found with Company 2. However, only Company 1 was found to have an explicit business case template that was used as a standard for each and every investment proposed.

6. Analysis

The analysis reflects on the research questions, RQ1 to RQ4, connecting them to what the theory states, the current state at VGU and descriptions on how benchmarking companies act. In this analysis similarities and differences between these areas are highlighted in order to create an overview of the given research questions, to later answer these in Section 6.5. By answering the research questions, support is given to the effort of attaining the purpose of the study, which is displayed in Chapter 7, Discussion & Conclusions.

6.1 Content and Presentation of the IDTL Business Case

To create a business case that is seen optimal for VGU it is important to combine what management sees as vital parameters, with what employees view as important, together with what was found as successful factors at benchmarking companies and in literary sources. Therefore initially, business case content will be analysed to lay ground for categories, structure and factors of the IDTL Business Case. Thereafter, how the IDTL Business Case should be presented will be analysed. Here, previous investment initiatives will be observed, where important factors regarding presentation will be discussed in relation to the theory on building a business case story. This to arrive at how the future IDTL Business Case should be presented.

6.1.1 Content of the IDTL Business Case

In this section the content of the IDTL Business Case will be analysed. Important factors according to the VGU Management Team, benchmarking companies and theory will be compared. In Table 6 it is possible to see all factors found.

Decision Factor Source	Keen (2011)	PWC (2016)	Ward, Daniel & Peppard (2008)	Philips, Brantley & Philips (2012)	Ross & Beath (2001)	Wu & Liou (2011)	Modarres (2006)	Häckel, Isakovic & Moser (2015)	Management at VGU	Employees at VGU	Benchmarking Company 1	Business Unit; Aftermarket	Business Unit; Marketing & Communication
Decision Factor Mentioned													
Extent and Business impact	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes
Identification of Stakeholders and their interests	Yes	Yes							Yes	Yes	Yes	Yes	
Costs/Budget	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes	Yes	
Financial Benefits	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes	Yes	
Intangible Benefits	Yes	Yes	Yes	Yes						Yes	Yes	Yes	Yes
Connection to Business Goals	Yes	Yes		Yes					Yes		Yes	Yes	
Division of Ownership		Yes	Yes										
Learning and Confidence				Yes				Yes					
Return on Investment				Yes					Yes		Yes		
Extent of Use				Yes					Yes			Yes	
Risk Assessment		Yes	Yes	Yes		Yes	Yes		Yes		Yes	Yes	
Cluster Division of Investment Type					Yes								
Long-term & Short-term Impact evaluation					Yes	Yes		Yes					
Value Brought by the Technology								Yes	Yes	Yes		Yes	Yes
Revenue Rates'; Growth and Fluctuation						Yes					Yes		
Annual Interest Rate of Investment						Yes							
Connection to IT-Portfolio				Yes				Yes					
Business Need		Yes	Yes						Yes	Yes	Yes	Yes	Yes
Prioritised Strategic Area									Yes			Yes	
Target Group									Yes	Yes	Yes		
Pedagogical Value									Yes				
Technological Maturity									Yes		Yes	Yes	
Partner for Collaboration		Yes							Yes		Yes		
Background and Vision		Yes	Yes								Yes	Yes	
Decision Point											Yes	Yes	
Time plan		Yes									Yes	Yes	
Market Situation		Yes									Yes	Yes	
Pilot Plan and Pilot Plan Management											Yes	Yes	
Efficiency Goals			Yes								Yes		

Table 6. Summary of Found Decision Factors.

To arrive at the table found in Table 6, the literary sources explicitly discussing important factors in business cases are used. Some, however, that do not explicitly discuss these are still used in certain analyses of factors where they are seen to add value. Those literary sources not analysed here in Section 6.1, were seen to have relevance elsewhere in this chapter and will be found in other sections below. Further, the factors presented as important by the VGU Management Team and employees can be seen, together with important factors expressed by benchmarking companies. In order to avoid that factors having the same meaning are mentioned twice, interchangeable factors found in the different sources have been merged under the same label. Worth noting, is that some of the benchmarking companies have been excluded from Table 6, but will be used for the analysis where seen relevant, the reasons for their exclusion in the table will follow.

Firstly, Company 2, had no set template for what should be presented. Instead the person dedicated to managing ideas, focused on story telling. The interviewee described that there were different methods used to investigate and understand the idea, and from there, the person analysed the possible potential of that idea. If the idea was perceived to be possibly beneficial for the company, this person could allocate funds to further research the idea. From this research the employee created a pitch, which was focused on describing the found potential and impact

of that idea. This closely connects to Keen (2011) who discusses the importance of building a story around business cases, where many similarities were found to what the interviewee at Company 2 described. This is further discussed in section 6.1.2.

Secondly, there were two companies selling digital technologies included in the benchmark who are used in the discussion of the factors presented where they had valuable insights. However, they are not included in Table 6 due to that they described that they had no standard factors demanded from their customers. Each situation differed, where they argued that the customer usually had already taken the decision of investing in the given technology. Thus, these companies could only hypothesise on what their customers used to perform their decisions. Thirdly, regarding the business unit Marketing & Communication, they did similarly to Company 2, not have any specific factors set for their investments. Instead the interviewee gave examples of factors that had been presented to obtain the latest investment in digital technologies. These are all found represented in the factors analysed below but are not seen in Table 6.

The factors in Table 6 will henceforth be analysed in a number of categories; Comprehensive Factors, Strategic Factors, Factors Related to Governance, Factors Related to Benefits and Budget & Risk. Which have been set through discussion and clustering efforts. This analysis will contribute to answering RQ1.

Comprehensive Factors

The first factor, **extent and business impact**, can be found in several of the literary sources, at VGU and in most benchmarking companies. By combining these sources of information, this factor is described to reflect how the possible investment will affect the business in a broader sense. Management at VGU described this factor as explanatory for how the investment affects VGU, its stakeholders and the Volvo Group. In addition, this factor was described as is it should cover expected overall benefits. At benchmarking companies, the factor reflected an overall possibility of the investment and was found to be included in the factor of **background and vision**. The factor of background and vision was described to be displaying the scope of the investment, the potential and what it could achieve for the company. Due to the large emphasis found on this specific factor in most of the sources, and the weight it is given when described by both the VGU Management Team and benchmarking companies, it is perceived as the factor of extent and business impact is of importance to include in the IDTL Business Case. It is furthermore seen to be closely connected to the factor of background and vision, which will be further discussed together with the factor business need.

Regarding **market situation**, Company 1 described analysing if the proposed idea already is existing on the market and if so, if the current solution could be used or adapted without the need for an investment. Aftermarket Technology put a stronger emphasis on creating an understanding for how their branch of work within the industry is evolving. What problems are identified to arise and how could a potential investment mitigate them? This can also be connected to the component "project overview" which PWC (2016) emphasise is important, meaning that a company should summarise its' market position and what challenges the company faces. When the market situation and position has been summarised, then the company can compare themselves to what competitors are doing and what technologies they are using. Also, if looking at a specific technology and its market situation, the technology´s market situation is often connected to its maturity level, which would clearly affect an investment decision since this also affects how much time and money that would be needed to spend on the technology in order to get it functioning. These reasons make it clear that market

situation, both concerning the technology itself and the company's market position, is a factor that is seen beneficial to be included in the IDTL Business Case.

Business need, was stated by VGU as an expression or a need found within a business area requiring a specific education. This need would then be solved by the investment proposed and include the expressed need. The benchmarking companies spoke about a need arising from perceived problems, such as Company 1 discussed a problem of customers not understanding a certain type of damage that could occur to their belongings. By creating an innovative solution to show customers possible consequences, overall payments from the company for certain types of damages could be reduced. The other Volvo units had, similarly to Company 1, identified problems and improvements. Aftermarket Technology had seen that improvements to daily processes could be performed leading to a number of benefits, whilst Marketing & Communication needed to increase their sales from industry fairs. Thus, all three sources based their business case on a certain identified need, however the character of this need varied. The benchmarking examples of a business need was closely linked to PWC (2016) and Ward, Daniel & Peppard (2008) who described the business need an identified area of improvement, possible cost reductions or risks that can be mitigated. Further it is also described as possible business drivers and what is motivating the proposed investment. Most literary sources connect business need to creating a project overview, which was described as the foremost meaning of the factor, background and vision, presented by Aftermarket Technology. It is therefore seen as plausible to merge these two factors into the mutual term of **background and business drivers**. Where the visionary component is seen included in the first factor presented, extent and business impact.

Target group was mentioned by managers at VGU, employees at VGU and by Company 1. Managers at VGU were those predominantly discussing this factor and argued that if VGU were to invest in an IDTL, the technology must be used in an educational effort that is available to many employees throughout the organisation. This as it is a vital factor for all educational efforts at VGU and is a part of their main goal - to provide trainings that have a widespread need in the Volvo Group. Similarly, this was also mentioned by employees and described that they perceived it would not be possible to obtain support for an idea which did not have a sizeable target group. Which also was described due to uncertainty on how the idea otherwise would receive funding, as the cost was seen needed to be spread out on to the number of persons who would take the training. This was similar, but slightly different, to Company 1 who explained the target group factor as potential users. However, there were no demands on that the target group had to be of a certain size, instead it depended on possible value that could be obtained from supplying a certain service to the identified target group. Regarding the literary sources, little emphasis was found on target group. Instead, focus was put on understanding the investment in a larger context where the business impact was to reflect how different parts of the organisation would be affected. For example, PWC (2016) emphasise the importance of describing how the investment could positively affect other functions of the business and how they also could benefit from the investment. However, due to the importance stressed by both the VGU Management Team and by Company 1 it is seen as a factor that is needed in the IDTL Business Case. Though, the emphasis of the factor should focus on value creation for the customer, and what that value can lead to, not stress a certain substantial size of the proposed target group.

Extent of use is a factor expressed to be important by Philips, Brantley & Philips (2012), management at VGU and Aftermarket Technology. Meaning, in this case, how an IDTL could be spread and used within the organisation. VGU is perceived to work in a silo structure, where

LPMs seldomly are familiar with the work of other academies except their own. This could therefore make it difficult for an LPM to imagine where and how a new IDTL could be used in addition to in its own context. At the same time, it would be contradicting if an employee must ensure that the investment answers a specific need whilst also considering where the technology could further be used. However, the situation would differ if an ID proposes the investment, as an ID works in projects of different academies, giving greater insight into what other academies do. It would further differ if IDTL efforts could be initiated without there being an expressed need from a stakeholder. Therefore, the substance of this factor is slightly difficult to define and adapt to VGU. Extent of use is at the same time very similar to the factor extent and business impact, but where a broader perspective on how the business would be affected by the particular IDTL is in focus. Extent of use is perceived however, to have enough similarities with extent and business impact in order to be included in that factor. Therefore, extent of use will be seen as a part of extent and business impact.

Therefore, it seems plausible that all these factors are separately included or combined with another factor and are thereby proposed to be included in the IDTL Business Case.

Strategic Factors
Ross & Beath (2001), Wu & Liou (2011) and Häckel, Isakovic & Moser (2015) mention the factor of; **long-term and short-term impact evaluation**. Ross & Beath (2001) relate this to observing the investment either as a strategic objective, to compare short-term profits to long-term growth, or as a technology scope, looking at the potential it can create in the digital infrastructure for the business as a whole. Whilst Häckel, Isakovic & Moser (2015) stress that IT investments and innovative IT investments have different needs when looking at long-term and short-term impacts being due to innovative IT investments having additional unknown factors than classical IT investments. Classical IT investments have been implemented previously and have been tested, whilst certain innovative IT investments have not, leading to innovative IT investments requiring large initial costs compared to classic IT investments and that long-term effects are harder to estimate. They therefore discuss that IT investments should be categorised, similarly to Ross & Beath's (2001) argument above, to be able to correctly assess different time scale impacts. In addition, Wu & Liou (2011) argue that other factors need to be taken into consideration when estimating long-term impacts. Where they argue that typical factors for calculating ROI cannot be used. Even though little emphasis is specifically put by neither management at VGU, employees nor benchmarking companies it was experienced that this was touched upon when both discussing extent and business impact but also when discussing connection to business goals. This as it was described to be important to consider not only impacts on the company today but also how a possible investment could lead to attaining strategic goals and leading to increased impact on the business. It is therefore seen as possible to include this factor in both the factor of business extent and business impact and the factor of connection to business goals.

Häckel, Isakovic & Moser (2015) and Philips, Brantley & Philips (2012) further mention the factor; **learning and confidence**, which is an analysis of what is needed in order to correctly assess the potential of an IT connected investment. This is different from analysing stakeholders as this covers assessing what possible soft skills are needed to ensure that the investment can be correctly performed. This was however also mentioned by Company 1, who saw their first stage of their innovation process as a learning stage. This incorporated a small budget for initial testing and in order to create a deeper understanding for the possible investment. Being able to test and analyse in order to create deeper knowledge could, however, be seen as more of a

prerequisite than an actual factor that needs to be presented in a business case. This makes it reasonable to exclude learning and confidence from the IDTL Business Case.

Identification of stakeholders and their interests, was also found in the several of the literary sources and was discussed both at VGU and at benchmarking companies. However, the meaning of stakeholder analysis between the three varied. Keen (2011) foremost argues that stakeholders should be involved to ensure that questions or disbelieves they might initially have, are answered and taken into consideration. Whilst PWC (2016) argue that stakeholders are linked to stating ownership and responsibility for the given investment, defining a business sponsor, appointing a project leader and displaying other possible internal and external stakeholders. The VGU Management Team mentions this factor as business demands, meaning there is need for a discussion on what business requirements stated from stakeholders that the investment is predicted to fulfil. Thus, that VGU is seen to closely connect stakeholders with the customer or target group of the investment. Whilst benchmarking companies had a larger focus on what stakeholders would be needed for prototyping and who would need to be engaged in the investment scope. Thus, connecting this factor to partly the factor of target group and partly to the factor of partner for collaboration. This factor is therefore seen to be included in the two factors just mentioned, where it is then unnecessary to award the factor of identification of stakeholders and their interests a separate factor in the IDTL Business Case.

Connection to business goal, is mentioned by several actors where Keen (2011) states that a business goal could be anything, and not necessarily connected to a business stakeholder, but a business goal should be met throughout the business case. PWC (2016) instead proclaim that this is seen to be a part of reflecting on the company's strategy and analysing how it is enforced by the proposed investment. Philips, Brantley and Philips (2012) discuss business goals more vaguely and propose that the investment should be aligned with the business. Company 1 includes business goal as a decision point in their first gate in their innovation process, where it was described that their business goals are those strategic areas connected to innovations that the company chooses each year. Volvo Aftermarket Technology instead included connection the investment to business goals when discussing the possible risks of not performing the investment. Where it also was described how the proposed investment helped the Volvo Group overall to attain their goals on expanding the use of digital technologies where this investment was seen needed to drive these efforts forward. However, the VGU Management Team described business goals more in line with the factor **prioritised strategic area**, and emphasised that in order to realise an investment, it should concern a prioritised area for VGU. Thus it was not seen enough to connect to Volvo Group's overall strategy, similarly to Volvo Aftermarket Technology described. However, due to that several actors are seen to stress the factor of connection to business goal it is seen as probable to include in a business case for IDTL. Though it is not seen appropriate to enforce that all proposed investments must be connected to a prioritised strategic area, instead it is seen important to ensure that the strategy is clear, facilitating efforts that can create a widespread effect through the business. Similarly, to what is demanded for VGU trainings. Alternatively, it could be set in line with Company 1, who together with management each year set a number of prioritised areas connected to innovation.

Connection to IT portfolio is stated by Häckel, Isakovic & Moser (2015) and Philips, Brantley & Philips (2012) should be included in a business case. However, none of the benchmarking companies nor the VGU Management Team have mentioned this factor. VGU have not stated if they have a specific IT portfolio which an IDTL would need to fit into, or would be connected to. What they do have however, is an IT system that needs to be able to manage the new

technology. Taking the IT system into consideration could be important when it comes to implementing a new technology. This is however, also seen as a prerequisite connected to IT support then an actual business case factor. It is therefore plausible that the factor connection to IT portfolio is excluded from the IDTL Business Case.

Another factor to consider is a **partner for collaboration**, meaning that it should be expressed in the IDTL Business Case who VGU could collaborate with on the proposed IDTL. Collaboration could concern both investigation of a new IDTL and the actual investment in, or development of, the technology. PWC (2016) and the VGU Management Team express that collaboration is important, and such collaboration could take place with both external suppliers and other divisions within the Volvo Group. VGU expresses that they do not have the resources or the aim to develop complex technologies themselves and would see external collaborations as something vital. Company 1 also emphasises the importance of a network of collaborators, where they described that they often rely on external partners when technological expertise is needed. Without this network, it was argued that they cannot evaluate the innovative solutions they propose, nor develop them. Thus it is of utter importance to create, maintain and expand partners for collaboration, but also to have considered which these partners can be when building a business case for an investment. By having partners for collaboration, it was described that the overall risk of the project can be reduced and the resources needed can be less. However, Company 1 were not demanded to have this factor explicitly stated in their business cases due to their already large network of collaborators. Though, it is seen beneficial for a business case for future IDTL efforts at VGU to have this factor present. This as it can trigger those preparing the business case to think outside of their own networks and be encouraged to engage more people in preparing the business case content.

Therefore, it seems plausible that the IDTL Business Case will include the following factors connection to business goal and partner for collaboration. The factors regarding identification of stakeholders and their interests, prioritised strategic area, long-term and short-term impact evaluation are seen as incorporated into other factors as described above. The IDTL Business Case will however exclude the factors learning and confidence and connection to IT portfolio.

Factors Related to Governance

Moreover, closely connected to the governance structure PWC (2016) discuss **division of ownership,** which also Ward, Daniel & Peppard (2008) argue should be set for each benefit. The reason described being that it magnifies the importance of the investment whilst increasing project commitment. However, the overall division of ownership was not found in any of the benchmarking cases nor at VGU, where it therefore is not seen as a key factor in the IDTL Business Case.

Decision point and time plan, were seen as some of the most important factors by Company 1. This as decision point meant clearly stating at each gate, what truly needed to be decided by decision makers in order to move the investment project forward. Whilst time plan was vital in order to estimate when it was possible to run the project and when it would be finished, to ensure that the company had time to pursue other projects. Both time plan and decision point were found at Aftermarket Technology, where it was discussed that these factors were of most importance to display in order to take a decision on a potential investment. The two were described to be combined, thus by stating a time plan covering activities needed to be conducted throughout it also displayed possible decisions that would be needed to proceed. Moreover, time plan was also mentioned by PWC (2016) which is closely connected to creating a strategy for the investment and an implementation approach. Further they state that is important to

together with time plan state key outputs, which can be closely connected to decision point mentioned by Company 1. This, together with a plausible governance structure, was stressed to ensure that objectives would be reached. The factors decision point and time plan are seen appropriate for the IDTL Business Case. This as, by combining decision point with time plan it is possible to plan for the possible investment and hence facilitate resource division. If a similar model to Company 1's innovation model is adopted by VGU, it is then possible to plan what decision points need to be reached in order to, for example, be granted future funding. Time plan furthermore ensures that the problem experienced by VGU with the podcast initiative is not experienced again. Due to their being no set goals nor a time plan, the project members never knew when the podcast could be put into the original TDP.

Moreover, Company 1 highlighted the importance of **pilot management**, where it should be clearly stated of what is seen needed to conduct each pilot initiative, who is responsible for it and where the result should be reported. The concept of piloting is discussed by Ward, Daniel & Peppard (2008) as an important factor, especially in understanding the possible value of intangible benefits. The authors argue that piloting cannot just be used to assess a certain technology's appropriateness, it can also be used to assess how current systems in place can benefit from being changed. In addition, Kirkland & Sutch (2009) argue that piloting can be an efficient way of understanding and estimating possible risks. The **efficiency goals** according to Company 1 should foremost cover the overall goal with each type of pilot and answer questions such as; what in the technology needs to be tested, how is this measured and what levels of this measurement needs to be reached? When these levels have been certified, then efficiency goals should be set regarding what levels should be reached in full scale piloting; how many users should be involved? Which situations should the investment have been tested in? The factors of pilot management and efficiency goals, are seen beneficial to adopt if a technology needs to be tested in the VGU environment. It is seen important to state why the technology is to be tested and what it to be attained with each pilot. These factors are also seen beneficial in order to facilitate employees in their estimation of possible risks and benefits.

Thus, it is seen probable to include the factors of decision point, time plan, pilot plan and efficiency goal. It is further not seen beneficial to include the factor of division of ownership.

Factors Related to Benefits

Most literary sources, benchmarking companies and VGU mention **financial benefits**. However, the definition varies between them in the sense that some define financial benefits as monetary whilst others define them as measurable benefits. Company 1 argued that when presenting financial benefits, it was important to connect this with benefits and what they could lead to. Meaning they did not need to specifically show numbers on, for example, increased revenue. Instead they could present possible cost reductions, increased number of possible sales, increased efficiency of certain activities or increased PR value. Financial benefits in the eyes of the VGU Management Team was seen differently as it was connected to pay back. Hence, displaying how and when the investment would generate enough money to be able to pay back the initial cost. Keen (2011) also discusses financial benefits, where examples similar to those given by Company 1 are stated, but that the author states that financial benefits also can be intangible. Examples are given on the level of matching the innovation to key business strategies or enhancing the company's overall financial performance. Even if Keen (2011) states that some financial benefits are intangible, Ward, Daniel & Peppard (2008) argue that financial benefits are a category of their own and stress that financial benefits are those benefits that can be defined in monetary terms. However, this only adheres to those benefits that have reliable data and have been calculated through proven financial formulas that can be called

financial benefits. Only then, the authors stress, can financial benefits be used to calculate ROI or payback. If this is possible, the authors argue that these can be used to perform a financial assessment by weighing financial benefits with perceived costs.

According to the theory specifically on building business cases, one of the main arguments that companies need to consider is what type of benefits does the investment yield and how do they rate against the expected cost. Here both PWC (2016) and Ward, Daniel & Peppard (2008) argue that it is of highest importance that companies therefore estimate not only financial benefits but also **intangible benefits**. This as some intangible benefits can outweigh cost due to their large impact on the business, which sometimes cannot be estimated in monetary terms. Intangible benefits were both brought up and discussed as a main difficulty when selling digital technologies according to both Company 3 & 4. Company 3 argued that the only way to ensure that their customers grasp the true value of their products is if they are able to try them, whilst Company 4 argued that a combination of estimating intangible benefits in monetary terms and demonstration is needed. Company 4 described that in order to be able to translate the intangible benefits into monetary, they had a number of in-house experts on different areas of interest. For example, an intangible benefit for many of their clients is improved ergonomics, which then was translated into days of sick leave or personnel having to resign due to damages to their bodies. This could then be translated into matters such as lost revenue or cost of employing and educating new employees, which was easier for decision makers to understand. Company 1 argued in line with both the selling companies where it was seen to be crucial for them to pilot and work together with external collaborators in order to assess the intangible value of a possible benefit.

Overall, benefits are seen important to include in a business case for IDTL at VGU. However, what type of benefits and how they should be estimated needs to be decided. As Häckel, Isakovic and Moser (2015) argue, innovative IT investments and their perceived benefits are difficult to estimate and as IDTL are seen as this, it is perceived as difficult to present financial benefits in the shape of pay back, which the VGU Management Team demand. Further, in line with Ward, Daniel & Peppard (2015) financial benefits should be based on reliable information and calculated through predictable formulas which is seen not possible with technologies connected to IDTL. Thus, it is seen beneficial to consider financial benefits when preparing the IDTL Business Case, but it is seen as more important to focus efforts on estimating intangible benefits. To estimate and value intangible benefits it is seen reasonable to follow the proposed framework by Ward, Daniel & Peppard (2015).

Furthermore, the factor of **pedagogical value** is seen to be closely connected to intangible benefits, as it is described by something of large importance by the VGU Management Team to consider when arguing for an IDTL. However, it is similarly to an intangible benefit difficult to measure. Specifically, Ward, Daniel and Peppard (2008) emphasise the importance of using different types of actions to facilitate quantification of such benefits where piloting and the use of reference sites is a given recommendation. Thus, increasing the importance of utilising actions such as piloting due to that pedagogical value is a part of VGU's offer to the Volvo Group. Further, management argued that if the pedagogical value is high it can compensate for a larger financial investment or risk.

Likewise, the factor of **value brought by the technology** is also seen to be linked to intangible benefits. Häckel, Isakovic and Moser (2015) argue that there is a difference in valuing standard IT investments and innovative IT investments, where it is described as much harder to utilise best practice and previous knowledge for innovative investments, which is available for

standard investments. Thus the authors argue that to be able to estimate this value demands deeper examination and technical knowledge compared to other investments, and are seen to demand larger short-term investment costs. However, Aftermarket Technology describe that they were able to present an estimation of value by estimating what possible benefits could lead to, but it is important to note that they used master thesis students who were used as experts in the case. Also, Marketing & Communication described that they had estimated a value created by the technology, from that due to the complexity of their product the technology offered them possibilities that previously were non-existent. Due to this experience that the technology offered was previously untested they could not estimate any measurable benefits, instead they had to invest in the technology by understanding that there could be a large value. Which after testing could then be estimated, but initially demanded a large short-term investment. Due to the extent of intangible benefits it is seen possible to integrate the factor of pedagogical value and value brought by the technology into the factor of intangible benefits.

Henceforth, the factors proposed to be included in the IDTL Business Case are financial benefits and intangible benefits, where foremost intangible benefits are to be prioritised. The factors of pedagogical value and value brought by the technology are seen to be incorporated in the factor of intangible benefits.

Factors Connected to Finance & Risk
The factor **technological maturity** was not found in the literature but nevertheless, it was mentioned by both Volvo Aftermarket Technology, the VGU Management Team and by Company 1. Company 1 mention technological maturity together with the factor risk assessment, which is closely connected to their Gate 2 phase of their innovation process. It was described that by stating reliability of the technology it was further possible to assess what reliability issues could be tested in the piloting phase. Thus, looking at what risks and complexities the proposed technology brings and proposing how these will be tested. In order to perform this examination, Company 1 involves external partners. Aftermarket Technology instead focused their evaluation on combining the two above mentioned factors on stating the risk seen of not implementing the proposed technology and how it would affect the company's products on the market. However, worth noting is that Aftermarket Technology first chose to evaluate the technology through a pilot in the shape of a master thesis, before the large-scale investment was proposed. The nature of technological maturity is therefore seen as a possible risk that could be assessed and tested in piloting, which should therefore be incorporated in the factor of risk assessment. Technological maturity should thus not be included as a separate factor in the IDTL Business Case.

As just mentioned, **risk assessment** was connected to how Company 1 and Aftermarket Technology view technological maturity. Though, this is overall linked to either issues that need further investigation in the piloting phase, or issues that are connected to not performing the investment. This differs from how risk assessment is explained in the literature, where PWC (2016) mainly focus on risk connected to threats of project success whilst Ward, Daniel & Peppard (2008) fixate on what risks the project can lead to. They continue by stating different categories of risks that are stressed as areas that demand attention when assessing a possible investment, which are technical risks, financial risks, business connected risks and risks of organisational change. Modarres (2006) similarly states a number of risk categories, however, these are stated to be created from assessing technology connected to classical engineering. Due to the author mainly focusing on assessing risks concerning accidents that can occur due to the use of a new technology, it is seen probable to put larger focus on what Modarres (2006) calls risk management. Here the author proposes to use techniques such as trade-off analysis,

decision analysis and failure analysis which are seen more in line with possible risks that VGU would be facing. Further, the author also touches upon the matter of risk communication which is seen relevant in VGU's case, due to that it emphasises sharing data and information with stakeholders and management to increase knowledge about possible risks with ways to deal with them. This also increases the opportunity of finding previous data on similar investments that VGU might not have and would otherwise need to approximate. Due to the extent that risk assessment is discussed, it is seen as a factor that is valid to include in the IDTL Business Case. It is moreover seen to be beneficial if the factor is divided into those risks seen possible to either mitigate or approximate through piloting, and risks that cannot. For those risks that cannot be piloted, in line with Company 1 and Volvo Aftermarket Technology's approach, it is seen probable to consider risks in line with those proposed by Ward, Daniel & Peppard (2008). Thus entailing to look at risks linked to technical, business connected and organisational change which could be assessed through methods proposed by Modarres (2006), such as trade-off analysis and decision analysis. Financial risks are therefore seen to be incorporated into the size of the overall investment cost.

Most literary sources mention the factor of **cost**, which also coheres with benchmarking companies and VGU. Keen (2011) states that incorporating all costs and benefits in a business case is part of fulfilling the C of Complete, in the "The Seven C's of Content Quality". This is also stated by PWC (2016), to include all costs and benefits over time and by Ward, Daniel & Peppard (2008) to calculate costs in order to weigh these against the value of the found benefits. However, as Keen (2011) states, some benefits cannot be given a measurable or financial value making them impossible to value against the calculated costs. The author continues to emphasise that business success has previously also been attained with no measurements, by relying on the value of intangible benefits. Several literary sources, Keen (2011) and PWC (2016), state that it depends on the nature of the investment weather it is possible to conduct a cost-benefit analysis or not. Due to the nature of IDTL, and that these are seen closely related to efforts that have been pursued by the benchmarking companies, it is perceived as VGU should adapt the factor of cost in line with these. At the benchmarking companies, a budget or cost estimation is demanded where costs connected to the given investment are displayed. According to Company 1, this cost estimation is refined and the detail of it, is increased at each gate of their innovation process. At Volvo Aftermarket Technology simply hardware and software costs were displayed, whilst at the other benchmarking companies an estimation from the proposed supplier to develop the solution was used. This does however contradict with some cost parameters the VGU Management Team wished to see, such as if the investment would lead to direct profitability and how many internal hours would be needed to work on the IDTL. Though, this was not found or demanded to be estimated at any of the benchmarking companies which is assumed to be due of the high levels of uncertainty surrounding these types of efforts. As VGU are identified to be, according to the Contextual Framework for SIDs presented by Carr, Kolehmainen & Mitchell (2010), a "market creator", they have the possibility to put a larger focus on strategic considerations than financial objectives. Thus, in line with both the benchmarking companies and in line with theory, it is seen probable for VGU to incorporate the factor of cost in the IDTL Business Case. Though these costs should similarly to Company 1, be refined over time and not demand factors such as internal hours and direct profitability.

Cooper, Edgett & Klienschmidt (1999) argue that decisions regarding investments are strongly connected to the company's overall portfolio management. In their study they found that those companies who chose to use a combination of different methods to evaluate their project portfolios were those most successful. Of the companies using a single method for evaluation those companies foremost relying on financial methods performed the worse, whilst those

foremost relying on strategic approaches were found to perform the best. Therefore, when discussing financial factors such as **return on investment, revenue rates, growth and fluctuation and annual interest rate of investment,** these are seen to be less important to present than factors connected to strategy. Also, the two factors mentioned last are only found in one literary source and were not spoken of by either benchmarking companies or VGU, which leads to the proposal of their exclusion. However, return of investment was mentioned by the VGU Management Team, Philips, Brantley & Philips (2012) and by Company 1. Though, Philips, Brantley and Philips (2012) state that some investment's benefits cannot be translated into monetary terms, which the ROI formula they suggest demands. They then state that if this is the case, companies need to oversee other methods than ROI that ensure that both costs and benefits are communicated correctly. As it is perceived as many benefits connected to IDTL are in VGU's situation predominantly intangible, due to the organisation is working with learning, it is only seen as partly possible to produce a ROI by following the steps and levels presented by Philips, Brantley and Philips (2012). It is then seen important to engage management and experts to properly be able to estimate costs and benefits due to the predicted lack of previous similar efforts and historical data. Moreover, it is seen beneficial to adopt a ROI mentality in line with Company 1, who define ROI close to stating measurable benefits which will generate possible income. They did not state that they use a formula or proven methods for calculation leading to a quota between costs and benefits.

Moreover, Ross & Beath (2001) mention the importance of **clustering investments** in digital technologies to ensure that complex trade-off situations can be understood. They stress that in order to properly assess the impact of a technology it is important to understand to what extent the technology will affect, and to see if the investment falls under a strategic initiative or a technology initiative. The authors argue that depending on what type of investment it regards, the factors and type of assessment will differ. Further, the investment type also defines a probable owner and how the initiative should be funded. This is also closely connected to arguments stated by Häckel, Isakovic & Moser (2015), who argue that in order to properly assess an IT innovation investment it needs to be connected to the overall company IT portfolio. This portfolio should be closely connected to the company's' overall strategy and should state which type of IT investments should be made and how they should be attained. This aids when conducting trade-offs and helps companies prioritise their investment efforts. Furthermore, Company 1's "Unicorn Model" is found to be closely connected to Ross & Beath's (2001) clustering model where they present four categories of investments. These being; today's challenges, tomorrow's challenges, future challenges and unicorn's. Company 1 argued that it is of highest importance to ensure that the company is focusing its' efforts on all categories in order to reach the most fantastic innovations - unicorns. Moreover, the action of clustering investments can be closely connected to what Cooper, Edgett & Klienschmidt (1999) discuss regarding portfolio management, where the authors found that those businesses that were most successful in finding high-value projects, had strategically aligned portfolios and had the best combination of high-risk and low-risk projects were those where management highly rated the importance of managing the company's portfolio. Thus the authors state, that those companies where management awards portfolio management high importance have the most successful portfolios. Thus, it is seen logical to include the factor of clustering investments in the IDTL Business Case.

Thusly, the factors of risk assessment, cost and clustering investments are seen credible to include in the business case for IDTL, whilst return on investment, revenue rates, growth and fluctuation and annual interest rate of investment are not.

6.1.2 Presenting the IDTL Business Case

Throughout the interviews at VGU it was understood that there were a number of efforts regarding innovative IDTL efforts that had received funding, however, seldomly had a specific template or business case been used. Instead, many interviewees answered that they believe these efforts obtained funding by being presented to "the right people" but also in "the right way". Even though some of these efforts might have incorporated certain factors mentioned above, those who had driven the IDTL investments emphasised the way they had created a story around the suggested investment. They stressed that it was vital in order to create an understanding for the proposed investment and to display how it would be used. In addition, other ideas not connected to IDTL were exemplified during interviews where initiators argued that their use of mock-up stories and props both enabled an understanding for their idea and ensured management support. Further, it was mentioned that in previous efforts that suppliers had been used both to contribute with knowledge on the investments but also to provide equipment seen needed.

As mentioned in the last section, the concept of storytelling, was also found as a method at Company 2 and was generally used in a larger extent than business cases or other investment templates. The interviewee described that the main part of ensuring that an idea received managements blessing was through enabling all types of employees to understand the idea, its extent and its potential. Which lead to Company 2 foremost working with different types of graphics such as videos, animations and mock-ups to understand the technology, economy and social parts of the investment. Further, this story or display of the investment also connects to business goals and proclaim how the investment is to support or develop these. The concept of pitching, illustrating or displaying an idea in the manners described, by both VGU employees and Company 2, can be connected to what Keen (2011) argues to be storytelling.

Keen (2011) stresses that too many business cases are solely focused on displaying financial aspects of investments which leads to presenters being unable to justifying the ground laying assumptions and importance behind the numbers presented. Overall, the way Company 2 displays ideas can be closely connected to how Keen (2011) describes storytelling as reflecting possible benefits, how identified risks will be mitigated and how the investment will enforce company goals. Furthermore Keen (2011) stresses the importance of keeping the presentation short, on-point and exact. This was unclear if Company 2 saw as main pinpoints in their presentations.

Henceforth, it is therefore seen important for VGU not just to implement and use a business case for displaying their investments, it is also seen imperative for them to consider how these are presented. As several sources have emphasised the importance of the presentation, it is seen as a vital part of VGU's future efforts of working with IDTL and the IDTL Business Case is proposed to include guidelines on presenting. These guidelines are seen to include storytelling, use of props, use of a universally understood language and enforce keeping the presentation short and on-point.

6.2 Prerequisites for Investments

The VGU Management Team has explicitly stated in the company strategy that there is an overall goal to increase efforts surrounding IDTL, where the Innovation Framework was seen as a large investment to facilitate this. Yet, the Innovation Framework has not led to an increase in development of IDTL and those efforts that have been developed, have foremost been

pursued outside of the Innovation Framework. Instead, most of the developed IDTL have been developed based on other prerequisites, which in this chapter will be compared to both theory and benchmarked companies. VGU has developed one IDTL per year on average, compared to Company 1 that has developed and delivered six projects per year and Company 2 that has delivered twelve this first year that they have been up and running. This aligning with Company 1 & 2's strategy, to deliver innovative solutions. In this section prerequisites will be analysed in order to answer RQ2.

6.2.1 What is Innovation and why is it Important?

The perception of innovation widely differs depending on who is asked. According to Lorenz (2010) innovation is a term commonly used in many different contexts. It is therefore natural to have different perspectives on what innovation really is, which also applies to the different perspectives at VGU. Parts of both management and employees at VGU have the perception that innovation is to develop new technology and solutions, while others proclaim that innovation is to apply an existing technology. Both perspectives are correct, since according to Lorenz (2010) innovation is about realising a concept which is new for the person, group or organisation that is realising it. Thus, it must not be a new technology in itself, but rather that the technology is new for a specific user. This has led to that when discussing innovation at VGU, some believe that VGU should work with innovation, whilst some argue they should not. VGU strives to increase the use of IDTL, but what defines an IDTL is unclear. Most argue that IDTL must be mature and proven before VGU starts to use them, since VGU should not be a part of the development of the technology itself, VGU should simply be able to adapt an already existing technology. Others argue that VGU needs to be experimental and be able to test certain technologies not specifically tested for learning. Lorenz (2010) describes seven different types of innovation, where three of them are product innovation, process innovation and business model innovation, which all could apply to VGU. Product innovation for VGU would be to commercialise a new technology for learning which is new to VGU, process innovation could be revisiting the Innovation Framework to enable an easier way for employees to take, if wanting to implement a new IDTL. In addition, business model innovation, could imply for new ways for VGU to market themselves and distribute their content through IDTL.

Many points stated above align with what the VGU Management Team has expressed and reflects their anxiety for the organisation to become early adopters of relevant IDTL. IDTL is argued, especially by employees, as something that has been widely expressed and that the company strives to use. This connects to Lorenz (2010) who also states that in order to be innovative, people must be able to be creative. Especially creativity is expressed by the employees to be a difficult matter, due to several reasons described in 6.2.3 Resources for Innovation, but where the main issue is time. Most employees experience that there is simply no time to be innovative and they therefore experience that they do not have the prerequisites to be creative. The VGU Management Team has a different view from employees and states that working with innovation, which creativity is a main part of, should be integrated in the daily work. They perceive that employees do have time to spare and could choose to allocate this for working with innovation.

Moreover, Lorenz (2010) emphasises that in order to be innovative, there must be an innovative culture at the workplace. When discussing culture and the overall perception of innovation and previous IDTL efforts, employees describe that efforts are heavily affected by the prevailing attitude on new ideas. Many express that there is a hierarchy hindering creativity and innovation efforts due to that company culture enforces certain communication steps that need to be taken.

Henceforth, stopping discussions seen needed with certain persons and reviewing unfinished ideas with persons higher up in the hierarchy. Many employees describe that they have previously experienced a social penalty when wanting to discuss unfinished ideas with certain persons, which has discouraged them from repeating similar initiatives. Therefore many employees describe a bipolar culture, a culture of a company that clearly strives to be innovative, but also a company where employees are afraid of discussing unfinished ideas with certain peers. Thus, resulting in that most employees focus their efforts on working with their main work tasks. Comparing this culture to most benchmarking companies shows a clear difference. Company 2 reflects the most open culture of the studied companies, where all ideas are welcomed, no matter how refined the idea is. All employees are encouraged to discuss possible improvements or ideas and to present them for the innovation team. Further, higher level management encourages lower levels of management to encourage their employees to take time for presenting and improving their ideas. Similarly, Company 1 has an open and exploratory culture. However, before engaging the different tiers of decision makers there are specifically stated demands on information that needs to be presented. It is therefore possible for the team within Company 1 to discuss ideas and share knowledge to find the information needed for these demands.

Overall, when discussing the topic of innovation, all the benchmarked companies saw it as vital for their businesses to survive. The companies also stated that the positive results from their previous initiatives were used to argue for the potential of similar future initiatives. This adheres to Häckel, Isakovic & Moser (2015) who state that IT investments are critical for success and should be seen as essential. This, they argue, as IT innovations usually have a broader effect then on just the unit on which it is implemented. As VGU strives to implement IT innovations that benefit the whole organisation, meaning that they want to improve the perceived value of their training for the whole Volvo Group, this would be an additional assertion for working with IDTL.

6.2.2 Resources for Innovation

Keen (2011) stresses the time needed to prepare a proper business case, whilst Bharadwaj & Menen (2000) and Adler & Chen (2011) state the importance of employee motivation, creative tools and activities. Whereas Ross & Beath (2001) argue that business cases are not enough for companies to assess the growing dependence on IT investments and that there is a need for a different approach. This approach needs to include a separate budget and categorisation of the investments in order for companies to act quickly on vital IT investments. These are different factors that can impact investments that are differently viewed not just in literature but also at VGU and at the different benchmarking companies.

Time & Creative Activities
Time allocation for innovation is a topic that management states has not specifically been discussed within VGU and is therefore seen as a part of each employees daily workload. As mentioned in Chapter 5, VGU had a JAM session connected to the trial-run of the Innovation Framework, which resulted in the previously mentioned Podcast. However, it is unclear if JAM sessions will be a recurring activity, or if other creative activities will be performed in the future. So far, there are no specific days set for these activities nor a plan for when and how these activities will be performed. According to Pezo & Brasch (2008) a few of the most known creative processes are Brainstorming, Da Vinci Technique, Gordon Method and Mind Maps. The JAM that VGU held was similar to the described method of Brainstorming where as many ideas as possible are generated, and then screened down.

When the first JAM session was conducted at VGU the best ideas were saved in the Capitalisation Library. A similar structure can also be found at Company 1, where employees are able to upload their ideas through a homepage. These ideas are then reviewed by the innovation team regularly, evaluating them, and in some cases taking them further to prototyping and development. Company 2 holds four JAMs/Brainstorming sessions per year where anyone from the organisation can attend. This session resembles the Brainstorming described by Pezo & Bransch (2008) and lets employees collaborate with each other, without criticising each other's ideas. In order to be innovative, according to Juhlin (2016) companies need to have high ambitions, have a clear mission and let the users have fast access to new innovations and be able to be a part of the improvement of the solution afterwards. Many of these factors can be found in the TDP when employees are working with developing trainings, but are not as clear when discussing IDTL. This in contrast to Company 1, who through their process and by working together with many collaborators, can have quick access and test innovations. Further, they strive to support the owning company to become one of the most modern insurance companies and have clearly stated goals of how many ideas should become reality each year.

Juhlin (2016) also states that everything concerning innovation should be shared between employees and that no idea should be seen as unrealistic. The company should search for ideas concerning all areas, all problems, all processes and all solutions. Organisations should be ready to fail but learn from earlier mistakes. JAM sessions conducted at Company 2 are the responsibility of the innovation team, which the leader for the innovative team takes full responsibility for. Specific topics are set for each session to help participants in their creative efforts and the employees are divided into a number of teams. At Company 2 it was stressed that sharing is key and that an open culture, as previously discussed, is vital. Company 1 does not perform set JAM sessions, but continuously works within the small team with workshops and brainstorming sessions. The similarities to the values stated by Juhlin (2016) were striking and specifically regarding failing and learning, was perceived to be strong at Company 1. It was stressed that if certain ideas were not piloted that the company would never know if the idea could be worth pursuing or not, where it was stated that from the total number of ideas that are presented for management, 10 % are put into full development.

Regarding time allocation during work hours for innovation, Company 1 & 2 have people allocating full time to manage innovative ideas. Company 1 has four employees working full time with this and Company 2 has six, who work with everything from prototyping to development, but also dedicate time to build a strong network for future initiatives. The leader for the innovative division at Company 2 dedicates most of their time to lobbying for their ideas and projects, motivating management, involving the right people in development, plans creative processes and presents ideas. VGU does not offer any specifically allocated time for neither creative processes, innovative projects nor individual time to simply work on an idea. This is something expressed by employees that they lack. Employees state that they would like to be able to report parts of their time as "innovation", when they have been working creatively in some way and can dedicate more of their time to being creative. Currently many employees express that they do not feel that they have the time to be creative, due to that their everyday work tasks demand their full time. Further, it was also expressed that they would enjoy having specific activities where ideas can be discussed and tested, and where it is possible to philander with creative ideas. Hence falling in line with, Bharadwaj & Menon (2000), who state that in order to make organisations creative it is a prerequisite to arrange creative activities.

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Funding

The VGU Management Team has expressed that VGU generally strives to grow into more agile ways of working, which is also stated in the company strategy. Similarly, Ross & Beath (2001) claim that being agile is necessary in order to be successful with managing and implementing investments, where a common mistake by companies is that they often cluster all their IT investments into one pool. Thus, leading to that both large disruptive investments and small investments share the same investment budget. The authors claim that this needs to be altered, since different levels of IT investments are vital for companies and that the mutual budget can create complex trade-off situations.

The budgets existing at VGU today, that could be used for investments for an IDTL are either the central VGU budget, the four Academy budgets or the IT budget. Which of these budgets that should be used if investing in an IDTL, is unclear to employees. However, it was described that the IT budget is mainly used for maintenance of the overall IT systems needed for VGU operations and that the budget is not specifically aimed to be used for investments in IDTL. Though it was stated that the IT budget could be used for IDTL efforts, if they are properly motivated, but that the function lacks other resources such as time and personnel to realise them. The central budget is stated to be possible to use if the investment is large-scale, but at the same time, since VGU is funded by business stakeholders this investment would be needed to be confirmed by the business stakeholders. It would further need for other areas previously prioritised in the budget to be shifted. The Academy budgets, however, are described to be flexible budgets where each VP can decide themselves on investments such as IDTL - if the investment is relatively small. However, even if the VP can decide on granting funds for the IDTL he or she will need re-prioritise other budget posts, creating a trade-off situation. If the investment would be larger than what the Academy VP can decide over themselves, it once again needs to be discussed with the business stakeholders (Academy Advisory Board).

Another possible path described to obtain funding is directly through a business stakeholder, without using any of VGU's own budgets. Since VGU is partially financed by the business stakeholders and since it is these stakeholders that VGU develops trainings to, an IDTL investment can also be directly financed by a stakeholder. This financing approach was described to be preferred by management as it was viewed that the cost of the eventual solution for a training should be taken by the customer, which in this case is the business stakeholder. For this financing approach to be realised, the stakeholder needs to have an expressed need for a certain training, where a certain IDTL investment be the best solution for that specific training. This is how previous IDTL efforts have been financed and is also described to be the most likely way to finance a possible IDTL effort, since the existing innovation framework is made for only prototyping ideas with a direct business need. However, it is seen to then shift the responsibility and steering of VGU's IDTL efforts to the hands of the business, hence not giving VGU the possibility to manage and structure their own innovation.

In contrast to the approach taken at VGU with different funding options and no specific budget for investments, as suggested by Ross & Beath (2001), the benchmarking companies had. Both Company 1 & 2 have a specific budget for innovations, which in different levels requires different decisions. The benchmarking companies claim that their specific budget is one of the main prerequisites for their innovative work. This budget is used for activities throughout the work with the innovations for matters such as prototyping, testing and analyses. Further, both Company 3 & 4 stated that their clients usually had, before contacting them, set aside a specific budget for innovations. This budget allowed them to offer different types of solutions and ensured that the product was tailored to their customers exact need within their budget.

Company 3 & 4 also stated that most of their clients described that the budget used for purchasing a VR solution was their disruptive budget, therefore indicating that they had divided their budgets depending on type of investment. This falling in line with Ross & Beath (2001) who also claim it is important to divide investments into two dimensions; strategic objectives and technology scope. Strategic objectives indicate looking at the trade-off amidst short-term profits in regard to long-term growth. The technology scope regards difference amongst infrastructure and solutions for the business as a whole. To fulfil both these dimensions companies need to divide investments into four categories and these are experimental, process improvement, transformational and renewal. All these types of functions are found to be missing at VGU.

6.2.3 Barriers to Innovation

According to Kirkland & Sutch (2009) there are many innovative options within education but not many organisations have started to apply these innovative possibilities. The authors claim that this is due to different types of barriers, which can be divided into seven areas. These areas are innovation, informal and social support structures, formal environment, risk taking, leadership, shared vision and change management. Innovation depends on perception, which is analysed in 6.2.1, and is foremost about understanding each other within the organisation and to agree on what innovation is. At VGU there is no overall definition of what an IDTL is, further they lack the possibility to test IDTL with great flexibility when it comes to decision making, collaboration, funding, prototyping, time allocation and to discuss ideas in a specific forum, such as Company 1 & 2 have. Neither is the formal environment for innovation perceived to be fully working at VGU, since it needs to provide, according to Kirkland & Sutch (2009), technical support and procurement. It has been expressed that employees do not know who to turn to regarding issues connected to these areas and that there are no clear instructions concerning these types of issues. Though, enabling space, both physical and timewise, for sharing creative work is also important. Overall the working conditions must be satisfying, making employees wanting to work with innovative education solutions (Kirkland & Sutch, 2009). VGU employees express that they do want to work creatively but feel that there is neither physical space nor timewise space to do so. This is something both Company 1 & 2 have succeeded with by having a clear structure regarding both the social support structures and their formal environment, furthermore there is specific space and time for working with ideas.

Risk-taking is another barrier that has to be overcome according to Kirkland & Sutch (2009) to enable innovation. Embracing IDTL or other innovative ideas entails taking risks and where it is not always clear what the outcome will be. Therefore, it could be important to offer the possibility of trial and fail such as both Company 1 & 2 offer. To ensure that employees can take risks an alteration in management's attitude to enable employees to fail, within reasonable limits (Kirkland & Sutch, 2009), would be beneficial. This being in cohesion with the culture described at Company 1 & 2, where employees do not feel fear to try new ideas and to take risk. It was described that employees are encouraged to take risks by management, which also Kirkland & Sutch (2009) claims is necessary and where further facilitation is possible by management setting up a pilot projects and encouraging innovative projects. The VGU Management Team have expressed that they strive for this type of culture to be present, but employees perceive that it is not the character of the current culture. If boundaries and employees are pushed, responsibility shared, innovative policies carried out, and employees empowered, it will lead to the innovative culture (Kirkland & Sutch, 2009), that employees at VGU state that they would like to have.

According to Kirkland & Sutch (2009) a shared vision of being innovative, can be created if the overall perception is that innovation is something beneficial to have within education. If there is a shared vision, it is easier to create a clear structure of the innovative process. This can be seen at Company 1 & 2, who have a shared vision between management and employees. By this, it has been perceived to be relatively easy to develop the structure for their innovative processes. The aim with a shared vision is to include everyone on formulating the vision together so that a sense of co-ownership is reached (Kirkland & Sutch, 2009). VGU has performed an effort and designated several employees that are representatives for the Innovation Framework, but it is perceived as it has not led to a feeling of co-ownership. Further, just like management at VGU have expressed, Kirkland & Sutch (2009) state that the innovative process works best if it is a continuous part of the ordinary work. What the authors claim though is in order to make this happen, all the prerequisites such as time, skills and an innovative culture shall be available in the ordinary work. These prerequisites are so far not perceived to be available by employees at VGU.

6.3 Skills to Prepare the Foundation of Investment Decisions

In order to answer RQ3, employees skills connected to business case building and presenting will now be analysed. The skills currently available within VGU for preparing investments decisions on IDTL varies, but generally employees state that they could generate the information needed for their perception of what a business case should include. Most employees at VGU are experienced professionals, where some have previously had certain positions demanding that the specifically work with both developing or judging businesses cases. Those individuals stated that they feel comfortable with what should be incorporated in a business case and how to produce the information. Others also felt that they could, from their previous employments, guess what a business case proposal should include. Though, not all felt comfortable regarding how to produce the content they assumed to be needed. Further, some employees state that they perceive themselves to have good overall knowledge about new technologies, whilst others feel less competent regarding new technologies. Regarding how to present a possible business case, it was perceived that employees felt that they were comfortable and had no problem presenting ideas in front of others. However, most employees expressed that they had not received specific information on what management wishes them to present content wise, when presenting an idea.

When comparing skills found at VGU with the benchmarking companies, the largest difference found was that business cases seldomly were developed single-handedly, as which foremost was found to be the case at VGU. Regarding Company 1 & 2 and Aftermarket Technology, a team including persons with different skills is used, such as persons with knowledge in economy, IT, and in some cases students with appropriate technical knowledge. In this way, skills are combined which helps the preparation for an investment decision on an IDTL. For the proposal at Aftermarket Technology the specific competences were gathered for that specific investment, whilst the team at Company 1 & 2 always are available for developing ideas. Company 2 did not specifically describe their team's backgrounds, but Company 1 did, and as displayed in Chapter 5 their team consists of cross-functional expertise that are seen beneficial when developing a business case. At VGU employees do not experience that they have the same access to persons with different competences, which makes the business case proposal to depend heavier on the individual idea-makers skills.

Some specific skills that benchmarking Companies 1 & 2, but also Aftermarket Technology have, that VGU are perceived to lack, are:

- Estimating intangible benefits with IDTL (Employees & Management)
- Evaluate and put value on intangible benefits (Management)
- Estimate ROI for IDTL (Employees & Management)
- Estimating risks concerning investments in IDTL (Employees)
- Estimate a time plan for implementing IDTL (Employees)
- Technological management concerning development, implementation and maintenance, depending on the complexity of the IDTL (Employees & Management)

In addition, if VGU invests in an IDTL this technology must, no matter if it is bought from an external supplier or developed in-house within the Volvo Group, be managed by the VGU IT Function so that it can be used in the delivery of the training. This since the VGU IT Function has the right skills when managing development, implementation and maintenance of an IDTL. Comparing this to Company 2 all of the people in their team have knowledge about managing development, implementation and maintenance of innovations. Employees in Company 1 on the other hand perceive that they have widespread knowledge regarding development and prototyping but themselves express that they have problem with the hand-over to the parent company. It is unclear to whom and how the idea should be implemented and rolled out throughout the organisation. This is something that Company 1 is currently working with and is evaluating different options.

6.4 The Organisational Processes & the Possibility to be Innovative

The current TDP Pre-Study Phase is according to employees, almost non-existent. Meaning that it is a phase where not much time is spent and where there are restricted options when it comes to investigating a new potential IDTL. The Innovation Framework is perceived to be unclear and few employees know how to use it. Moreover, it cannot be used unless the idea of the IDTL is strongly connected to a training for a business need and is the best-found solution. At the same time VGU, as stated in Section 1.2, strives to increase their efforts connected to IDTL. Though, this goal has not been divided into more specific parts regarding matters such as what is to be achieved by the innovative work, hence not stating some sort of measurable goal such as number of IDTL efforts per year. As since, the goals are not described in detail, along with that all innovative ideas must be connected to a business need and that the Innovative Framework is perceived to be unclear, results in that the innovative possibilities are perceived as low in the Pre-Study Phase. Therefore, in this section the employees experienced problems concerning the innovative possibilities within the Pre-Study Phase and in the Innovation Framework are analysed, which are then compared to management's view on the problem. This together with what the theory states and how other benchmarking companies handle these experienced problems. The analysis in Section 6.4 will contribute to answering RQ4.

6.4.1 Experienced Problems

VGU has explicitly stated that one of their strategic goals is to increase efforts of working with IDTL and continue to digitalise their offerings. However, VGU has not yet fulfilled all the prerequisites needed to be innovative, comparing to the theory that states, according to Pradhan, et al. (2018), that companies need to be willing to spend money on innovation, take risks (Henderson, 2017) and have well defined formal tools and approaches to creative processes (Bharadwaj & Menon, 2000). Also, to create motivation to be innovative which is a prerequisite

according to Adler & Chen (2011). Compared to the companies included in the benchmarking, that have a separate budget, allocated time and help to administrate the investigation and development of an idea. The VGU Management Team is perceived to agree on that VGU needs to be more innovative, though, the perception differs on what innovation really is. The VGU Management Team also wants the innovative work to be integrated in the daily work and connected to a business need, since VGU shall, according to management, not lead the development, but be early adopters, which according Lorenz (2010) can also be seen as an innovation. What Company 1 & 2 has done, compared to VGU, is that they ensured that innovation has become an independent activity as stated in Chapter 5. There is a clear difference between VGU and Company 1 & 2 in their overall perception on what it means to be innovative and how it should be performed concerning motivation, creativity, skills, tools, time and money. What has been experienced from benchmarking is that the companies working successfully with innovation, have clear goals on how much ideas that should be generated, evaluated and developed each year. Company 1 has a clear goal to realise 10% of all ideas that are pitched for management and Company 2 has a clearly defined aim to increase patentable solutions.

One of the main perceived problems within the TDP Pre-Study Phase is the different perspective on how a new idea, that is out of the ordinary, and may not be a direct solution to a business need, should be tackled by employees. Employees experience that there are not enough tools available to be innovative and guidelines on how such an idea should be taken further. That it is not clear how to take an idea from nothing, to preparing it, knowing what to present, to who to present to and what time that should be allocated to this work, when all working hours are consumed by the regular maintenance and development of new trainings. This whilst management have a strong belief that the employees must create a business case based on what is shown in Table 2 in Section 6, which employees experience has not been communicated. This in order to convince their nearest manager that this is a good idea and that it would benefit VGU. There is a clear difference in these two perspectives, where the VGU Management Team wants their employees to conduct a thorough preparation and creating a selling pitch, whilst employees who feel they have no time to conduct this, want a simpler way to present ideas. This can be compared to the existing prerequisites at both Company 1 & 2, which have a designated outspoken system and person to discuss an idea with, along with a well proven way of administering the idea. At Company 2 employees can bring forward an idea and receive a reward, no matter the quality of the idea. The employees can also choose if they want to be part of the prototyping and the development of their idea, or if the innovation team shall take full responsibility to investigate and develop the idea.

At VGU, the possibility to prototype depends on several factors, such as the Academy VP must be convinced it is a good idea, to reward the idea funding. The prototyping should also, if done through the Innovation Framework, have a connection to the business stakeholder. This meaning that the business stakeholder also needs to be convinced that the investment should be prototyped or developed right away. Hence, the possibility for prototyping also depends on the quality of the relationship to the specific business stakeholder and how skilled the idea initiator is at convincing the stakeholder that the idea should be realised. Comparing to the situation at Company 1 & 2, who welcome ideas in a simpler manner, being closer to the simplicity employees at VGU express is needed. This simplicity, straightforwardness and welcoming of new ideas at Company 1 & 2 is what these companies describe as ground laying for an innovative culture. Which also is confirmed in the literature, as according to Bharadwaj & Menon (2000), it is important that innovative ideas receive a proper evaluation to see their real potential and that an organisation need a combination of creative people and creative processes.

Several of the mentioned factors are also described as prerequisites for being innovative by Kirkland & Sutch (2009) to ensure that barriers for educational innovation are mitigated.

Furthermore, the IDTL efforts that have been developed at VGU have had a clear connection to business needs. These solutions have arisen after the initiation of the project, where the project is granted funding, whereas the IDTL is discovered as a potential solution in the development phase, without being tested before in the Pre-Study Phase. Comparing to both Company 1 & 2, it is clear that they work in a different way. The ideas they have realised have been prototyped and tested before an actual investment decision has been taken concerning development.

6.4.2 Decision Structure in the Innovative Processes

The Innovation Framework that VGU has, compared to the process that Company 1 has which is shown in Figure 21 in Section 5.1.2, are strikingly different. In Company 1´s process there are clear gates where decisions are taken and a business case guideline on what must be presented in each gate. It is also clear which individuals will take the decisions and how the different decision levels should be involved. In addition, it was expressed by Company 1 that by keeping the same decision panel structure and members throughout, they can use past experiences when judging future proposals. The decision structure regarding financing in Company 1´s process is steered by the gates, where financial decisions are taken in each gate and by the same persons that are concluding the overall future of the proposal. The project is scaled up through the different gates and receives different levels of funding in each gate. Company 1´s process also has a set time frame for the different gates and decision structures, meaning employees are well aware of when and which types of projects should be presented at certain meetings.

Comparing Company 1's process to the Innovation Framework, where the process is based on filling out an excel file and not pitching the idea in gates, leads to employees not knowing how decisions regarding the prototyping should be taken. Furthermore, it was explained that the decision panel for the Innovation Framework should be set each time the framework was initiated and would therefore differ each time. Moreover, there are no specific instructions on how often meetings should be held or what resources are available, such as funding. Company 1 has clear steps described for where projects should be presented depending on gate and size of the needed funding, which is perceived as unclear by employees when discussing the Innovation Framework. Further, if it is stated that funds should be allocated by a business stakeholder, it is unclear who this business stakeholder is supposed to be and how involved this business stakeholder should be overall. Meaning, that employees experience that the overall decision structure is indistinct. This being the opposite with what Kirkland & Sutch (2009) emphasise, which is that the organisation should have, as stated in 6.2.3, clear informal and formal support structures, a shared vision and a management that supports and enables innovative processes in the daily work. Company 1's process also has many similarities with Cooper, Edgett & Kleinschmidt (1999), who argue that for companies to succeed in portfolio management, which can be seen closely linked to performing decisions regarding innovation, they need to have processes that are set and formal with clear guidelines. Thus, it is seen important for VGU to reflect on how the different problems described connected to the Innovation Framework can be mitigated by enforcing clear guidelines and set decision structures.

At Company 1 an idea is realised by scaling up the project through the different gates. The development is performed through collaboration with schools, companies, organisations and authorities. Where the fact that Company 1 collaborates with so many other companies, is described to be a crucial part of their success. This as they proclaim that by only using the resources available, their employees and their competences, they would not be as sufficient. By creating a network of collaborators, they are able to access in-depth skills needed for different types of investments but also access to resources needed for prototyping activities. Furthermore, Company 1 state that they would not be able to develop so many innovative ideas if it was not for their collaborating partners. The VGU Management Team has expressed that they are positive to collaboration and would be willing to collaborate in order to spread and minimise risks, but they have not expressed how and with who such collaboration should be done with. Moreover, in the VGU Innovation framework it is not stated if and how collaborations should take place, in order to ensure that the project is mature enough to enter the TDP for further development.

6.5 Answers to the Research Questions

In the beginning of the study, a number of research questions were defined in order to guide the work towards attaining the set purpose. The aim of Chapter 6, Analysis, is to combine the literary study, the current state at VGU with information from the benchmarking companies to answer these questions. Thus, this last section will present the answers of the research questions based on the analysis in the previous sections.

RQ1. *"What factors do the VGU Management Team state that a business case regarding an IDTL should include? What should an IDTL business case include in comparison to theory and the benchmarking companies?"*

To answer the first part of RQ1, it was discovered that the VGU Management Team wish to have a number of factors analysed and presented. This in order for them to be able to perform a decision regarding an IDTL investment. These factors are presented in Table 7 and can be found described in detail in Section 4.4.2. However, it was also found that from comparing all the interviews with management those factors mentioned most were business needs, business effects, business demands and target group.

Business Factors	Finance & Risk
• Business needs • Business effects • Business demands	• The financial aspect • Size of investment • Internal hours • Risk • Maturity level
Strategic Factors • Prioritised area for VGU • Potential to spread	**Other Factors** • Pedagogical value • Collaboration • Other positive advantages

Table 7. Factors Expressed by the VGU Management Team.

To answer the second part of RQ1, many of the factors mentioned by management were found both in the literature and in models presented by benchmarking companies. These factors are displayed in Table 6 in Section 6.1. By comparing the literary study with the factors presented at the benchmarking companies, together with the VGU Management Team and employees, a number of factors have been found that should be included in the IDTL Business Case. These can be seen in Table 8 and will be described in detail in Section 7.1.

Overview: • Extent and business impact • Background and business drivers • Market situation • Target group	**Strategic Connection:** • Connection to business goal • Partner for collaboration
Governance: • Decision point and time plan • Pilot management • Efficiency goals	**Benefits:** • Financial benefits • Intangible benefits
Finance & Risk: • Risk assessment • Cost • Clustering investments	

Table 8. The IDTL Business Case.

RQ2. *How are IDTL currently discussed within VGU? What resources and prerequisites are available for exploring them and how have previous IDTL efforts been pursued?*

Overall it is perceived by employees that the organisation shows a strong will to work with innovation, which many describe to indicate that the organisation wants to increase the number of IDTL. This is further strengthened by management who state that it is a goal that they have set for VGU, to increase the use of digital technologies, which is therefore the reason for that this is mentioned in VGU's strategy. It is further described to be a prioritised strategic area and is closely connected to their overall goal of providing the Volvo Group with market competitive trainings.

As the organisation has perceived problems previously with IDTL being due to lacking compatibility with the TDP, last year the VGU Management Team decided to focus efforts on creating a separate process known as the Innovation Framework. The Innovation Framework is therefore an available process for refining a proposed IDTL, however the framework must be initiated by either the VGU Management Team or a business stakeholder. Funding for IDTL has been described to depend on the scale of the investment, where if the investment is incremental, the funds are described to be able to be allocated from the Academy budgets. Though if the investment is larger, it is described by management that the funds then need to be provided from a business stakeholder. There is no separate amount of funds that are set aside for IDTL. Furthermore, there is no specific time allocated for working with IDTL where management have expressed that time for working with these types of efforts are a matter of employees prioritising their time. Though, employees perceive that time for working with IDTL does not exist and requires employees to either sacrifice their free time or sacrifice the quality

of their other work tasks. Thus, the VGU Management Team state that time for working with IDTL does exist and employees state that it does not.

When employees were asked how previous IDTL had been developed, it was described that employees had not utilised any of the previously mentioned prerequisites or resources. Instead, employees described that the only possibility to use an IDTL for a training is by using their network of connections in the business and with suppliers together with a strong personal drive. This required extra hours and extra effort, which they described as an obstacle hindering either them from fighting for other IDTL or a discouragement for their colleagues for developing a similar solution. Thus in order for them to develop previous IDTL they had firstly worked closely together with a supplier to realise their idea and be able to produce a mock-up of the final product, this final product had then been used to describe the idea for the business stakeholder who had initially expressed the business need for the proposed training. The employee had then, with help from the supplier, persuaded the business stakeholder of the IDTL being the best solution for their training whereafter the business stakeholder granted the employee funding for the proposal.

RQ3. *What skills are currently available within VGU to prepare an IDTL business case?*

Employees were asked about their previous professional expertise and if they felt comfortable with developing the material needed for a business case. Near all answered that they had either worked previously with business cases or they felt that had no problem with either creating or providing the needed material for a business case. All employees interviewed were experienced employees where most had worked for the Volvo Group for many years, thus can provide a large bank of expertise in different areas. Other employees that had not worked as many years within Volvo Group had relevant expertise from previous work places. Thus, it was perceived that all employees have the right skills to both develop the content needed for a business case but also have the right skills to present it. The only skill described by several employees to be slightly lacking was technical knowledge. Most depicted that they thought it was interesting with IDTL and that they were aware of some technologies used but that they felt that they would struggle with assessing issues such as technical maturity level. Employees therefore stated that to increase their work with IDTL they would need support regarding technical aspects, as currently they described to foremost rely on their suppliers for this knowledge.

RQ4. *What organisational processes are currently available for working with IDTL? What are the experienced problems when an employee wants to pursue an idea regarding an IDTL?*

The TDP Pre-Study Phase and the Innovation Framework are the core processes related to this study and are currently used in different ways to develop innovative ideas at VGU. The TDP Pre-Study Phase and the Innovation Framework are thoroughly described in Section 4.2 and 4.3.1 and will not be described again, due to their extensiveness.

Concerning experienced problems employees perceived that there were a number of problems connected to working with IDTL. Firstly, they perceive that there is no clarity in which processes should be used for developing an IDTL. This due to that an idea regarding an IDTL can arise during different activities such as before the TDP is initiated, during the TDP Pre-Study Process or during the TDP Development Phase. Employees are unaware if the Innovation Framework can be used regardless of where and when the IDTL is thought of, or when the Innovation Framework should be used. Further, they describe that it is unclear who can and how the Innovation Framework should be initiated.

Secondly, employees perceive that all efforts need be connected to a business need expressed by a business stakeholder. This meaning the employees perceive it as not possible to develop an IDTL seen useful for several different trainings as an IDTL must always be connected to one specific training and business need. Thirdly, employees describe that it is unclear if there are any resources available for working with IDTL and if there are, there are no clear guidelines on how these can be used. When discussing such resources, most employees expressed that they feel that they do not have the time to work with IDTL due to their already busy schedules and that they have not received any information from the VGU Management Team on how it is expected that they work with IDTL.

Fourthly, employees experience that the organisation does seem to have an ambition to work with IDTL but feel that there are no clearly set targets on how this should be realised. This is described to make employees unsure of how they should be working with IDTL and how VGU is supposed to reach this set strategic target. Many employees described the innovation JAM connected to the Innovation Framework, but few know what this led to and if there are plans on revisiting ideas that previously were generated through this session. Lastly, employees describe an experienced problem with the culture and perceived attitude towards ideas regarding IDTL or other innovative ideas. Many described that they had experienced negativity and suppression towards their previous ideas. This therefore was described to be a reason for certain employees choosing not to actively work with IDTL and focusing their energy on their main tasks.

7. Discussion & Conclusions

In this chapter the stated purpose of the study will be addressed. The purpose stated in Chapter 1 read *"The objective of this master thesis is to state the requirements needed in order for management to assess and decide on a proposed IDTL at VGU"*. Thus, to fulfil this purpose it was found to be important to first, ensure that there is a common set of factors to be analysed and presented to management through a business case, which is presented in Section 7.1. Secondly, a number of prerequisites needed in order for the business case to function, and to ensure that there are ideas presented to assess and decide on, are stated in Section 7.2.

This entailing that a business case for IDTL will be proposed, displaying content and how it should be presented, followed by suggestions to improve prerequisites seen needed for the IDTL Business Case to be successfully used. In addition, employee skills are discussed where improvement suggestions on increasing the utilisation of available skills are given. Lastly, proposals are given on how to mitigate the experienced problems found with regards the TDP Pre-Study Phase and the Innovation Framework to facilitate working with IDTL.

7.1 The IDTL Business Case

The first part of the requirements seen needed for VGU management to assess and decide on a proposed IDTL at VGU, is the IDTL Business Case. In order to arrive at the IDTL Business Case, factors from the benchmarking companies were weighed against factors discussed in theory, with what the VGU Management Team perceived as important factors for decision making. The factors that have been considered are stated and analysed in Section 6.1, which resulted in The IDTL Business Case. The IDTL Business Case can be seen in Figure 24 and a description of each factor will now follow.
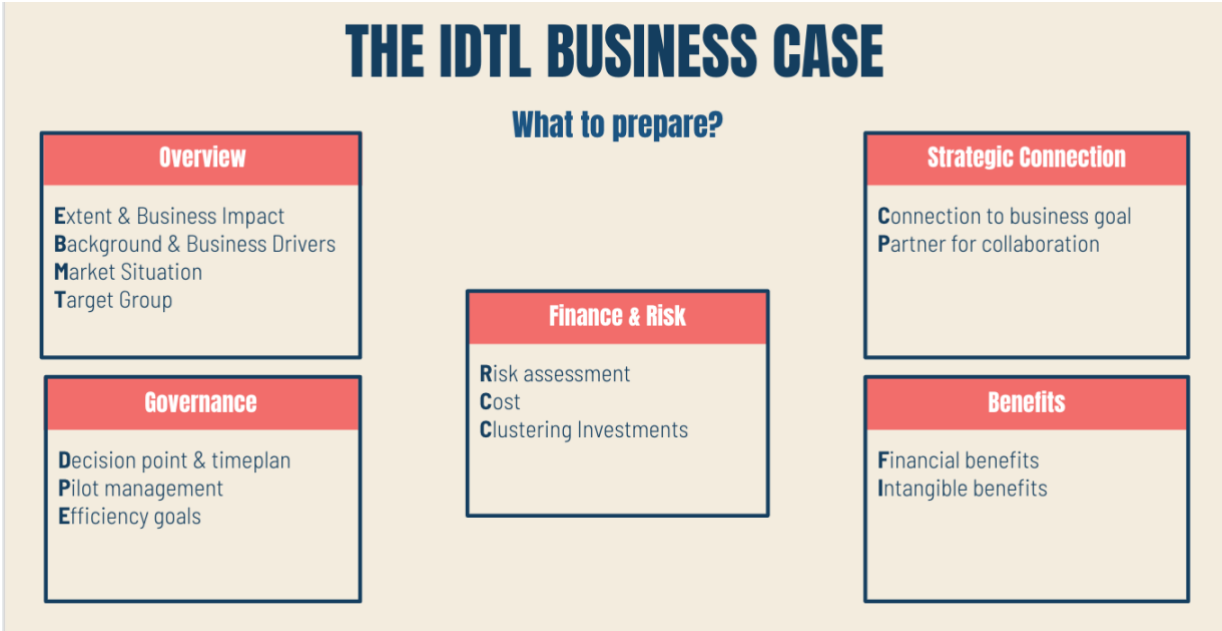

Figure 24. The IDTL Business Case.

Overview

Overview is the part of the IDTL Business Case that should present the overall background of the proposed IDTL investment. It should include extent and business impact, background and business drivers, business need, market situation and target group.

Extent and business impact is a factor that is described to reflect how the possible investment will affect the business in a broader sense, how the investment affects VGU's stakeholders and the Volvo Group. It should also cover expected overall benefits. Further, extent of use should be presented by explaining how the IDTL could potentially be spread and be used within other areas at VGU, possibly within different Academies or trainings.

Background and business drivers is a collective term for business need, specific background of the business need and vision of the proposed investment. Business need implies presenting what is seen driving the possible investment, such as an identified problem, a possible process improvement or a proclaimed need. Such a problem, an improvement or need could concern anything, as long as it creates value for VGU. It should further announce how the proposed investment solves the uncovered need or problem, such as limitations of the technologies currently being used. The problem or need should be put into context of the customer to display possible requirements.

Target group should state both who is the primary and who is the secondary target group. Further it should prevail the size of these target groups are and their importance. These target groups should also be used when calculating possible financial benefits and to estimate the value of possible intangible benefits.

Moreover, the current **market situation** for the proposed solution should be displayed, covering how the investment currently is being used, and if so, how. Does the proposed idea already exist on the market? How can it be adopted? Is a competitor currently using this IDTL? How mature is the technology? This should be done in combination of identifying possible stakeholders seen needed to facilitate in answering these questions and display dependencies on, for example, suppliers or third-party actors.

Strategic Connection

Strategic connection is the part of the IDTL Business Case that should present the connection to business goals and partners for collaboration.

Connection to business goal is a factor that needs to be presented in order for decision makers to properly be able to assess the investment. This as it is important to connect the investment to VGU's overall business goal, of creating innovative trainings for the Volvo Group, and present how the specific investment aids in achieving it. But also, a long-term and short-term impact evaluation in connection to VGU's strategic business goals should be included and incorporate how they will affect these goals when looking at today's challenges, tomorrow's challenges and future challenges, based on the Unicorn Model as in described in Subsection 5.1.2. In addition, it should be clear for decision makers the perceived urgency of the investment and connect to what would happen if the investment is not pursued. Factors regarding what competitors are doing can be displayed here again and be put into perspective with how problems to the current solution could affect the company's market situation if the investment is not conducted.

Moreover, **partners for collaboration** should also be stated. These partners can for example be involved in supporting the initial investigation of the IDTL, in piloting it, in developing it

or/and in implementing it. Further, partners can be used to assess risks and estimate possible benefits. A partner for collaboration in VGU's case could be a division within the Volvo Group, an external supplier, innovation hubs, universities, other corporate universities or hardware and software producers. The important factor is that they have knowledge on the proposed IDTL and can aid the business case driver in its' continued refinement of the IDTL Business Case.

Governance

Governance is the part of the IDTL Business Case that should present the connection to decision point and time plan, pilot management and efficiency goals.

Decision point and time plan is about clearly stating at each gate, what truly needs to be decided by decision makers in order to move the investment project forward. Whilst time plan is vital in order to estimate when it is possible to run the project and when it would be finished, to ensure that the company have time to pursue other projects. Examples of points that could be used for taking a decision in a first initial meeting, might be a funding decision for an initial evaluation, at the second meeting it might be a funding decision for prototyping and at the third it might be a decision regarding a full development action. This should be clearly stated to the decision makers before the meeting is held. A time plan should display different parts of the given investment such as exploration, evaluation, piloting and that the needed resources for each step are presented under budget.

Further, the time plan should also display measurable goals throughout the project regarding activities such as piloting and what is to be achieved with each pilot session i.e. **efficiency goals**. By stating these, it is possible for decision makers to understand why certain parts of the time plan are needed and what is expected progress wise during the investment. It also helps display how resources are to be utilised and the importance of the proposed activities. In connection to the time plan and the efficiency goals it is further recommended to set up **pilot management** for each investment. This should include a specific plan for how piloting will be managed, together with the efficiency goals for each pilot, what is needed for each pilot initiative, who is responsible and where the outcome will be reported. Further, this should also state what each pilot will test and how this will be measured. By correct pilot management and well stated efficiency goals, it can facilitate employees in improving their estimates on benefits and risks.

Benefits

To properly analyse an investment, it is important to present both **financial** and **intangible benefits**. Important to note is that financial benefits do not need to be monetary and can depend on factors such as time reduction or increased efficiency. The vital part of presenting financial benefits is to present a plausible argument regarding the estimation and to present how the measurable benefits will positively affect the organisation. When calculating financial benefits, it is recommended to perform small scale pilots to be able to evaluate the possible impact of these.

Regarding the estimation the intangible benefits, the following actions are suggested to be taken;

1. *Perform research* - Look for reference sites or benchmarking partners. Have other companies performed similar investments? What did their intangible benefits lead to? Contact experts on the area to receive a professional judgement.

2. *Time management* - Ensure that enough time is estimated to ensure that benefits can be found and approximated.

3. *Prepare for criticism* - Decision makers will question presented numbers, thus ensure that benefits are thoroughly presented, especially calculations and estimations.

4. *Pilot implementations* - Explore if the intangible benefit can be modelled or tested.

5. *For further guidance* - See "The DNA of Tangibility" by Keen (2011) or Ward, Daniel & Peppards (2008) "Step 5: Determine Explicit Value of each Benefit" on page 16.

By displaying what type of benefits can be expected, these could be transformed into how these possibly can become, for example, increased revenue for the organisation. Similarly, to the measurable benefits, the possible revenue does not have to be presented in monetary terms. Instead it can be presented in, for example, an increase in number of sold products or percental minimisation of certain costs. In addition to possible revenue, the overall potential of future usage of the investment should be presented showing how the initial investment can be used in a broader sense thus creating widespread benefits. Examples of intangible benefits that are seen important to consider for VGU are pedagogical value and value brought by the technology. The pedagogical value is recommended to follow VGU's internal existing guidelines connected to estimating pedagogical value, whilst estimating the value created by the technology is recommended to follow the overall five steps presented above.

Finance & Risk

In order to conduct a **risk assessment,** it is suggested to divide risks into two categories, the first being risks that can be investigated through prototyping, and the second, those that cannot. Risks should furthermore incorporate observing risks connected to technical challenges, the business and to organisational change. To estimate these risks and to further prototype them it is recommended to engage internal and external partners, who either have experience from similar efforts previously or are well aware of the technology used in the investment. Further, examples of these external partners can be suppliers of similar solutions connected to the IDTL proposed, experts, universities and innovation centres. Internal partners include utilising the Volvo Group, where there are many units working with digital technologies. It is seen both beneficial for VGU to establish connections to these overall but also in order to help drive and assess proposed IDTL.

Moreover, when presenting the IDTL Business Case the **cost** connected to the IDTL should be displayed. This in order for the VGU Management Team to be able to compare the cost with the estimated benefits. To define the possible cost, the following need to be considered;

1. *Development of the solution* - Present possible supplier quotes if external production of the solution is seen needed, such as a virtual environment.

2. *Acquisition costs* - Display if there are other costs connected to the solution such as licence costs, software or hardware that needs to be bought. Specify what type of product is needed, how many and the total cost of these.

These estimates should be refined over time, where new estimations should be presented at each new stage of the decision process and the level of detail should be pre-set for each stage together with the decision panel. Such as the first estimation might be regarding volumes of development and acquisition seen needed for a first initial prototyping phase, whilst a second can include increased detail on upscaling of the development.

It is recommended to **cluster the investments** where they should be divided based on the Unicorn Model Company 1 uses. In short, through this division it should be defined if it is a current need found, a prospective near future need or a prospective far future need. Motivation on how and why this need is found to connect to one of the three categories should be stated. This model, which is closely connected to Ross & Beath's (2001) clustering model, claims that investments should be clustered into;

- Today's challenges   (Less than 1 year ahead)
- Tomorrow's challenges   (1-2 years forward)
- Future challenges   (More than 2 years forward)

By giving each investment an adhering cluster, this will facilitate decision making for the VGU Management Team and at the same time ease considering how the effort connects to the overall strategy. It further puts the investment into a long-term and short-term perspective.

7.1.1 Reflection on the IDTL Business Case Content

The factors chosen for the IDTL Business Case were based on what was seen relevant to VGU's business and their future IDTL investments. Some factors uncovered were seen to be similar to each other and could therefore be combined, whilst other chosen factors were either found as primary factors at successful benchmarking companies, highly recommended in theory or stressed at VGU. However, the factor regarding business need was found to be the factor that the definition differed most. This mostly due to that the benchmarking companies perceived this factor foremost as an uncovered problem that needed solving or an improvement of a current operation. Hence when comparing this definition to especially VGU, who defined a business need as an expressed desire from a business stakeholder regarding a training, they were found to widely differ. According to most literary sources, a business need is described in line to how benchmarking companies presented their interpretation. From the interviews at VGU it was perceived that employees overall felt that the strong emphasis on a business need limited their possibilities to work with IDTL efforts. This due to that even though an employee can identify a problem that they find an IDTL would solve, it is not an expressed need by the business, hence there is no supporting business stakeholder. If there is no supporting business stakeholder, employees stated that there was no point trying to persuade the VGU Management Team of the IDTL, which they reinforced by stating that all projects must have a business need.

By defining a business need as it is currently defined at VGU restricts possible profitable IDTL efforts that could lead to new solutions that several Academies could benefit from using, which could enhance their trainings. Further, it leads to the overall business deciding on when VGU is allowed to be innovative, hence leaving no possibility for employees to suggest new solutions that could be used widespread throughout VGU. If employees were able to suggest solutions that could be used for several educations and connect this investment to a current problem with a certain solution, this could enable all VGU employees to choose from a new way of performing trainings. Currently, such an effort is being performed through the VGU IT Function where a mobile platform is being developed. But as the function is understaffed, this

is not a standard possibility to utilise i.e. to let the VGU IT Function develop new solutions. Thus, if employees instead could use IDTL in trainings, these could be seen as pilots for a larger cause. VGU would then be able to steer their own IDTL efforts and IT would not have to both run the projects and support them with skills.

Moreover, the IDTL Business Case incorporates near all the factors that the VGU Management Team proposed together with important factors from both the literary study and the benchmarking effort. Thus, meaning that the business case demands a relatively large effort from an employee to ensure that all parts have been evaluated and accounted for. It is therefore important to highlight that it is recommended for the VGU Management Team to evaluate the IDTL Business Case in line with the innovation process at Company 1 presented in Section 5.1.2. Hence that when the business case is presented for the first time regarding an IDTL the level of detail is kept to a minimum and that the business case is refined over time. For this refinement to take place it is important that employees are given resources to increase their knowledge regarding the different parts of the business case, and that the level of detail increases with the amount of resources needed. Therefore, it is seen important that the VGU Management Team discuss possibly what factors are foremost important for each level of decision or what level of detail each possible resource division needs. This should also be communicated to employees so that they clearly understand the level of detail needed in the business case when preparing it for different stages of decisions.

7.1.2 Presenting the IDTL Business Case

As presented in Section 6.1.2, it is of most importance how the investment proposer chooses to present and display the IDTL Business Case, which was proven to be one of the main success factors for the previous efforts that have received funding from business stakeholders. Therefore, the following factors are seen important when proposing an IDTL investment with the IDTL Business Case and are recommended to be incorporated in the material connected to the IDTL Business Case.

1. *Create a story* - In order for decision makers to both understand the business need and the customer it is important to present the need in a way that enables persons to understand the perspective of the possible users. It further can create a deeper understanding of why the investment is needed and what will happen if the investment is not pursued. User stories describing the current issue can be used.

2. *Use props* - Sometimes it is hard to visualise something for someone that has never experienced a similar situation to what the possible user is experiencing. Therefore props, pictures, animations and videos can be of help to ensure that the decision maker can visualise the experienced problem or need.

3. *Use an universal language* - As Company 2 described, one of the main factors to how they are able to conduct possible investments is that they ensure that those who are going to take the decision understand the problem. Not all decision makers have a detailed view of the environment that the issue can be found in and will not understand certain expressions. Therefore, it is important that the language is kept simple and free from terms connected to specific functions.

4. *Keep the presentation short and on-point* - Ensure that the material is well prepared and establish that all factors are covered. Make sure that the presentation is kept short to ensure that the attention is held through the whole presentation.

7.2 Needed Prerequisites for Implementing IDTL

This section presents reflections on current prerequisites at VGU for investing in IDTL, along with suggestions on how to create the best possible prerequisites for the IDTL Business Case presented in Section 7.1. Thus, is the second part of the requirements seen needed for VGU management to assess and decide on a proposed IDTL at VGU.

7.2.1 Resources for IDTL Investments

Resources needed for evaluating possible IDTL and making investments in such technologies are creative activities, a forum enabling discussions, allocated time, money and IT support. These are resources that both the benchmarking companies have made available for innovation, and that the literature states should be available, which VGU have not. VGU however does have the resources seen needed when it comes to time and money, but not in regard to creative activities, IT support and a forum for discussion. Furthermore, VGU lack a clear structure on how time and money shall be managed and how employees can access these, when investigating or wanting to prototype an IDTL.

Firstly, employees have expressed that they want to work creatively, but that they do not know how to redeem time to work with investigating an IDTL. Some argue that it is about prioritisation, but most feel that even if they prioritised their time, some other work task would be affected negatively. Thus, if the VGU Management Team want their employees to be able to work with innovation and strive for them to increase their work on IDTL there needs to be a way for employees to report their time for this. Further, the VGU Management Team need to express how much time is expected from their employees to work with IDTL or else the risk of employees prioritising their usual work tasks is high.

Secondly, creative activities such as workshops and JAMs, but also a forum to discuss ideas, are resources that the benchmarking companies have but VGU lack. These, the benchmarking companies claim, have shown to be vital to discuss and produce innovative ideas, which therefore it is seen imperative for VGU to adopt. Even though VGU have had one JAM session, such activities need to be encouraged by management and given space in all schedules in order to be prioritised. These activities further need to have either a set number of dates that they are held on, or a Key Performance Indicator (KPI) needs to be set on a number of sessions per year. The literature presented also emphasises the importance of having such resources, since it contributes to a create an innovative culture. This was perceived to be of importance by employees, where the majority of employees experienced that currently this was not the character of the culture present. The culture will be further discussed in Section 7.2.3.

Thirdly, most employees were unaware if IDTL investments would be able to receive financing from the Academies or from VGU's central budget. However, management has stated that VGU and its Academies have funding that can be used for IDTL efforts. Though, employees are not perceived to be aware of that the Academies are able to finance small prototyping projects and tests, which they can according to management, if the idea is presented correctly and if the idea would somehow benefit VGU. Instead employees experience that if an IDTL would need funding, the funds need to generated by a business stakeholder, which is displayed from

previous IDTL efforts that all have been funded in this manner. Nevertheless, there is a prevailing issue of both this employee perception and the business stakeholder steered funding. If all IDTL efforts are financed by a business stakeholder, VGUs IDTL efforts are completely steered by the business. Thus, VGU has no control over their own work with IDTL and expanding their service offer into being one of the most innovative corporate universities on the market. To mitigate this and regain control, VGU needs to decide if future IDTL efforts should be financed by themselves.

Regarding funding, Company 1 & 2 both have their own budgets allocated for solely working with innovation. However, as for Company 1, they are demanded to present their business proposals in different gates to obtain funding where the first gate is fairly easy to get through. The first gate yields a small amount of money for investigating the idea further, until the next decision gate where more funds are allocated and piloting can be performed. This ensuring that decision makers still are in control of budget and know what and how the funds are being used. Company 2 has a budget that is completely self-steered which can be used as they please. This funding setup gives both Company 1 & 2 increased freedom in investigating and prototyping, where they have the possibility to try and fail. It also enables them to try new innovative solutions without having to rely on other actors, such as business stakeholders. Since VGU, according to management, also are able to set money aside for testing, they could, if they wanted, fund testing in a way that would simplify investigating a new IDTL for VGU employees. Thus, VGU should reconsider their funding set-up and how this set-up is communicated to employees. In addition, if VGU strive to increase the number of IDTL efforts developed there should be a specific amount of monetary funds available for such actions. These funds can either be a certain percentage of the yearly budget or a set numerical amount.

Lastly, IT support is a crucial resource needed when working on innovations connected to digital technologies. In VGU's case, it is the in-house VGU IT Function which all IDTL must go through in order to be implemented. What the VGU IT Function should also be able to provide is IT support in the investigation and prototyping phase. If this is not available, there is a risk of developing an IDTL that is not compatible with the Volvo Group IT system, and therefore cannot be used. Thus, it is of importance to involve the VGU IT Function at an early stage to formulate eventual uncertainties. However, currently this is perceived as not possible. The VGU IT Function is described to have enough resources for making the day to day operations operate, but not enough resources to be included in further IDTL efforts. They simply do not have enough employees to handle an increase in demanded IT support. This leads to the conclusion that it is seen important that VGU either expands their IT Function, or creates a collaboration with the Volvo Group IT Department for when increased IT resources are needed. What Company 1 has done concerning IT is that they investigate the functionality together with different knowledgeable external resources, such as suppliers, along with dedicating full time within the team on investigating if it would be compatible with their infrastructures, by prototyping and testing. Though, this is uncertain if it would be possible for VGU as the Volvo Group are perceived to have an intricate IT system demanding in-house expertise.

7.2.2 Skills for Preparing IDTL Investments

Skills for preparing and managing IDTL efforts at VGU were found to be fully sufficient. Employees are competent on the areas seen needed for both creating content and presenting an IDTL investment. Further, many have expressed that they could carry out a business case if needed. It was perceived that employees are in general interested in new technologies, but that

the level of technical knowledge varied. However, what distinguishes VGU from Company 1 & 2 is how they utilise knowledge overall. At Company 1 & 2 work is conducted cross functionally where a widespread collaboration, both in-house and with external suppliers, is performed. This ensures that the companies can access the required knowledge needed for each case and that not all the knowledge is needed to be found in-house. This difference is found to be important as even if employees at VGU are skilled and have knowledge within their area of expertise, there will always be situations, especially concerning an IDTL, where extra knowledge is needed.

Currently, it is perceived that the lack of cross functional cooperation at VGU leads to IDTL efforts relying on the person who generated the idea. Employees have expressed that it may be difficult for them to judge new technologies single handedly, even if they see a large potential in it. This leads to that many employees might see the potential in an IDTL, but actually using it and implementing the technology would be difficult, where employees feel that extra competence would be needed. The VGU IT function does have much of the knowledge seen needed but are currently, as mentioned in 7.2.1, short on resources to provide support for all ideas. However, even if the VGU IT Function is short on resources they still need to be consulted, as all digital technologies that are implemented will need to be checked to ensure compatibility with the system. This might therefore create delays for future IDTL efforts.

Henceforth, VGU is perceived to not be fully utilising employee's skills regarding IDTL, as currently idea drivers need to rely on their own skills. IDTL efforts and investments need cross functional collaboration to ensure valuable insights, but also to provide the knowledge needed, in order to properly be evaluated. There is a possibility to collaborate at VGU, but currently there are no prerequisites for doing so. Thus VGU need to enable cross functional collaboration by enforcing events or forums where employees can meet, share experiences and utilise each other's knowledge. These need to be encouraged by management by allowing employees to allocate time for such meetings and ensure that such meetings occur on a regular basis. Such a forum has been stated by employees as something that they would enjoy having and that their overall work tasks would benefit from, not just regarding IDTL efforts. In addition, VGU must utilise their network of suppliers, customers and other partners to evaluate IDTL that they find to possibly be relevant for them.

7.2.3 Mitigating Experienced Problems in Organisational Structures Regarding IDTL

In this section the experienced problems in the TDP Pre-Study Phase and the Innovation Framework are discussed, along with the perceived culture connected to innovations at VGU. Improvement suggestions are seen as important to follow in order to arrive at the prerequisites needed for the successful use of the IDTL Business Case.

The TDP Pre-Study Phase and the Innovation Framework
VGU strives to overall increase their work with innovation and IDTL, which has been stated as one of their main business goals. Having this vision, is a big step in the right direction to become successful with implementing new technologies and being in the forefront of applying new technologies within learning. However, simply stating this overall goal is not enough, this goal needs to be divided into smaller elements which enables each function and employee to understand how they should be working to obtain the overall goal. This needs to be combined with ensuring that the right prerequisites are available to reach these smaller goals.

As previously mentioned VGU have developed the Innovation Framework, which includes some of the prerequisites seen needed to obtain the stated goal, but not all. The Innovation Framework is a completely separate track that can be taken, and is not a part of the Pre-Study Phase, since the Pre-Study Phase aims to include the preparatory work that is needed to enter the TDP. The Innovation Framework further aims to only be used if the idea has a clearly stated need from a business stakeholder and along with this, the framework is management initiated and management driven, which the Pre-Study Phase is not. The Pre-Study Phase is therefore flexible and the optimal space for investigating a new IDTL, and the phase where the IDTL Business Case can be used and where the appropriate prerequisites need to be available.

Further, there are a number of experienced problems with the Innovation Framework. Such as it has not been communicated; how it is initiated, when it is appropriate to use and if there are any resources to support the work. These being for example money, technical support, time, creative activities etc. that can be used for investigation, prototyping and evaluation. Neither are there any suggestions on collaboration in the investigating work of the idea, or who should drive the work. Also, when comparing the Innovation Framework to the TDP, which includes clear gates and meetings where decision makers take decisions regarding the development of new training, this is not found in the Innovation Framework. Even if they are suggested, there is no set time frame or time allocated from a certain decision panel. In addition, there are no specifically set decision panels, instead these are recommended to be set for each new project being put through the Innovation Framework. Several of these matters are perceived by employees as puzzling and discourages them from using the framework. Hence, in comparison to the benchmarking companies the Innovation Framework is found to lack the following;

- *An innovation project leader* - To ensure that IDTL efforts are given support and driven to success, it is important to have a project leader responsible for the projects put through the Innovation Framework. This in order to become knowledgeable of the process, but also to facilitate employees who do not have the time to spend on refining their ideas. In some cases, the project leader can simply offer support and guidance to the employee with the project, whilst in other situations the project leader can be handed over sole responsible for driving the project. It is recommended to oversee the possibility to at least have one or two employees that are engaged in all efforts driven through the Innovation Framework.

- *Set decision panels* - As Company 1 described, the different decision panels are engaged depending on the size of the investment and consist of a cross functional set of managers with different areas of expertise. This to be able to assess ideas but also build knowledge around previous ideas which can be used for assessing future ideas. It is recommended that VGU embraces this type of structure and clearly specifies each panel's area of responsibility. Members of these panels should be of different hierarchical levels, where two or three levels are set depending on the scale of the investment. Which persons are included in each panel should be clearly communicated to employees and should be easy to locate if needed.

- *Set timeframes for decision meetings* - To ensure that innovation efforts are pursued efficiently there needs to be set meetings where certain parameters are presented. Company 1 displayed that their meetings with different panels stretch from once a week (low-scale investments), to every other week (mid-scale investments) to once a month (large-scale investments). This structure is suggested for VGU to adopt and clearly communicate to their employees. What needs to be clarified is how and which meeting

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is relevant for different proposals, and the level of detail of the IDTL Business Case expected.

Moreover, it was found that the following parameters need to be specified;

- *When the framework should or can be initiated* - If the framework should be used overall to create widespread solutions for VGU and can be used when anyone pleases, or if it should be used initially in the Pre-Study Phase, or if it should be used during the phase where the ID's work with developing the learning solution, needs to be decided. If VGU strives to work increasingly innovatively and increase their use of IDTL, they should rely on their employees to decide on if an idea is worth pursuing with or without the VGU definition of a business need. It is seen important to reformulate this expression and adapt to that business needs can be found also in problems and possible improvement areas. By restricting business needs to expressed needs by the business, VGU is focusing all of their investment efforts on creating trainings for today, not for tomorrow or the future. Thus, not following recommendations from the literature or benchmarking companies on spreading risks into different types of investment clusters.

- *Who can initiate the framework and how is it initiated* - Currently, the framework is business or management initiated hence putting VGU's work with innovation into their hands. As management has expressed, they strive for all their employees to work with innovation, so for this to become reality it is seen vital that the Innovation Framework can be initiated by any employee. How this is done should further be clearly communicated.

- *What should be reported and to whom* - If a number of decision panels are set, there must be clear structure of what information that is expected to be presented to which panel. If the IDTL Business Case is adopted, then the decision panels should be well aware of how detailed the content will be when it reaches them depending on what type of decision they are expected to take, for example, granting an initial study, piloting or development. The level of detail and what information is expected by each panel should be clearly communicated to employees.

Overall, if VGU wishes to continue with using the Innovation Framework the above suggestions are recommended to be implemented, however as the framework is experienced to not work properly, it is proposed to examine if it is worth merging it with the innovation process presented by Company 1. Further, if chosen to continue with the Innovation Framework as it is seen vital to simplify the information surrounding it. A clear process, similar to the TDP gates should be created and visualised in combination with the IDTL Business Case. It is therefore recommended that the current excel-documents used together with the framework are discontinued and replaced solely with the IDTL Business Case. Important to note is that whatever framework that is chosen needs to be easy to understand, simple to use and well communicated. Simple graphics graphics and visualisation is highly recommended.

The Perceived VGU Culture Connected to IDTL
One of the main problems perceived by many employees is that VGU does not have an innovative culture. An innovative culture is created if the right prerequisites and resources are given, such as time, money, creative activities, a forum for discussion and technical support - but also making sure that employees are motivated. This entails that IDTL efforts need to be positively received and that there is a shared vision of that innovation is of importance to enable

an innovative culture. It is therefore of importance that this positive reception and encouragement is supported by management. Company 1 & 2 both provide these prerequisites and stated that they are given the possibility to try and fail within reasonable limits, which employees at VGU do not perceive themselves to currently have. Rather it was described that employees experience that management expect them to present all the answers before being able to test the idea. By many it was described that an idea it is seldomly fully thought through when wanting input from another person, such as management, meaning that the proposer does not have all the answers. Therefore, it is encouraged that management consider how they want to be perceived when discussing new ideas and clearly communicate to employees how new ideas should be discussed. If they are to be discussed with management, their perceived attitude needs to change, this as Kirkland & Sutch (2009) stress the importance of leadership in order to establish an innovative culture.

Furthermore when it comes to communicating innovative ideas, as previously mentioned 7.2.2, there should be forums available where ideas can be discussed but also a clear way to communicate the idea through the organisation. The Capitalisation Library VGU has, enables collecting ideas and connecting people with the same ideas. However, the Capitalisation Library is experienced as hard to use, therefore leading to that it is not. This could hence also benefit from the previously suggested forum where ideas from the Capitalisation Library could be discussed and a mutual way of working with the tool could be created. This forum would benefit VGU by increasing the perceived poor communication between the different Academies and enable for increased cross functional team efforts. Comparing this to Company 2, the innovation team manager has the task to communicate their ideas with the rest of the organisation, by contacting the right people and discussing the possibility of the idea, where the previously suggested project leader for the Innovation Framework could yield such a role. This would further help increase the overall innovative culture and meeting their goal with increasing the number of IDTL.

Lastly, having a shared vision of that innovation is something beneficial is also important according to theory. If employees together can formulate this vision, and be a part of the creation of new ideas, this would create a feeling of co-ownership which also would improve employee motivation. Overall, innovative processes work best if they are easy to use, clear and seen as a natural part of the daily or ordinary work. It is therefore of importance that the communication regarding IDTL overall, also from management, is increased in order for VGU to reach their goal of increasing IDTL efforts.

8. Recommendations

The most important areas seen needing improvement, in order to increase VGU's chances of meeting their outspoken goal of increasing initiatives concerning digital technologies, will now be presented.

Reconsider the meaning of business need
The VGU Management Team are recommended to reconsider if a business need only can be expressed by a business stakeholder. This as it is seen important for VGU when working with IDTL that a business need also can be an experienced problem or identified improvement. By reconsidering the meaning of business need, VGU will regain control over their innovation, which currently is in the hands of their business stakeholders.

Implement the suggested business case
In order to guide employees when they have identified an IDTL they wish to pursue, it is important that they know what type of content that needs to be investigated and stated for a decision to be taken by management. This business case should be refined over time, where the initial business case presented for funding to enable evaluation, should not be explicitly detailed. The level of detail of the business case should be refined in connection to the size of the resources demanded over time. It is recommended to follow the funding and decision process that Company 1 follows, which is presented in 5.2.1.

Allocate specific resources for working with IDTL
In addition, the VGU Management Team are recommended to make sure that the following resources are available for employees. This to enable employees to evaluate and increase their knowledge about IDTL.

- *Time* - Priorities should be made so that time is cleared in order to achieve that employees experience that they have time that can be spent on investigating their ideas concerning IDTL. It should be clear how much time and when this time is supposed to be spent on working with IDTL. In order to make sure of this, a clear and well communicated structure regarding time should be implemented. At the same time the VGU Management Team needs to continuously encourage employees to spend more time on working with their ideas.

- *Monetary resources* - The VGU Management Team should consider allocating a specific amount of money that can be spent on IDTL. Parts of this money should be able to be used for try and fail efforts. Moreover, it is important to set goals for what the money should yield, hence stating how much money should be allocated for investigating, prototyping and developing.

- *Creative activities* - Working innovatively on a daily basis is recommended to be complemented by having creative activities on a regular basis. It is therefore recommended to decide how often such creative activities should be held, and what each activity will focus on. These activities can be connected to certain themes or goals and each activity should have an outspoken leader that holds the event.

- *IT support* - The VGU IT Function needs to be involved as early as possible when investigating an IDTL. This to support employees that feel unsure about the

technological aspects concerning an IDTL, but also to ensure that the possible adhering software of the IDTL can be implemented in the Volvo Group's IT structure.

- *Forum for discussion* - In order to successfully work with IDTL and to take advantage of all the available competencies, VGU needs to improve their cross functional discussions. Therefore, an employee should be encouraged to commence on a regular basis.

Improve existing organisational processes for IDTL

As described, there already is a specific process available for working with IDTL - the Innovation Framework. Nevertheless, when comparing this process to theory and the benchmarking companies a number of weaknesses were found. To mitigate these and increase the usability of the Innovation Framework the following improvement suggestions are recommended:

- The Innovation Framework should be adapted to the gates presented by Company 1 in their innovation process, this to facilitate the agile mindset and set the level of detail needed for the decisions of continue working with the IDTL.

- How the Innovation Framework is initiated needs to be clearly stated. It is suggested that employees themselves can initiate the framework and that set meetings for the different gates previously mentioned should be created.

- A set decision panel should be created to conduct decisions connected to an IDTL being put through the Innovation Framework. This panel should meet on a regular basis which should be clearly communicated to employees.

- A project leader should be appointed to facilitate each new initiative pursued in the Innovation Framework, this to both support employees who previously might never have worked with IDTL but also to become a knowledge bank for such ideas. This to relieve the VGU IT Function of simple technical questions but also to help guide decision makers who might not have extensive technical knowledge.

- Guidelines on the Innovation Framework need to be simplified and clearly communicated to all employees. Further it is suggested that in order for all employees to grasp the process of the Innovation Framework to have an initiation day where a mock-up case is used. All employees should participate and be able to practice using the framework, whilst also having the possibility to ask questions and gain support of those knowledgeable on the framework.

Increase the innovative culture at VGU

Even though many of the mentioned resources will support an increase of the innovative culture at VGU, a number of other recommendations are seen important to emphasise.

- Employees are currently experiencing a social penalty for suggestions connected to IDTL which discourages them from proposing ideas in the future. It is thus important for management to instead encourage their employees to actively work with IDTL and refer to the clarified Innovation Framework.

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- In VGU's strategy it is stated that the organisation strives to increase their use of digital technologies, however, it is not defined how this increase should be attained, nor how large the increase should be. Therefore, the VGU Management Team need to divide this strategic goal into measurable components to ensure that employees understand how each Academy should be working to ensure that the strategic goal is met. An example of this is given in line with Company 1 who strive to fully develop 10 % of all their initial ideas each year.

Bibliography

Adler, P., & Chen, C. (2011). Combining Creativity and Control: Understanding Individual Motivation in Large-Scale Collaborative Creativity. *SSRN Electronic Journal*. doi: 10.2139/ssrn.1471341

Alänge, S. (2017). Aim Method. Chalmers Institute of Technology. and-elite-interviews

Bharadwaj, S., & Menon, A. (2000). Making Innovation Happen in Organizations: Individual Creativity Mechanisms, Organizational Creativity Mechanisms or Both?. *Journal Of Product Innovation Management*. doi: 10.1111/1540-5885.1760424

Carr, C., Kolehmainen, K., & Mitchell, F. (2010). Strategic Investment Decision Making Practices: A Contextual Approach. *Management Accounting Research*, *21*(3), 167-184. Doi: 10.1016/j.mar.2010.03.004

Charmaz, K. (1996). The Search for Meanings - Grounded Theory. In J.A. Smith, R. Harré, & L. Van Langenhove (Eds.), *Rethinking Methods in Psychology* (pp.27-49). London: Sage Publications.

Chen, Y. (2006). Marketing Innovation, *Journal of Economics & Management Strategy*, Vol. 15, No. 1, pp.101-123.

Cooper, R., Edgett, S., & Kleinschmidt, E. (1999). New Product Portfolio Management: Practices and Performance. *Journal Of Product Innovation Management*, *16*(4), 333-351. Doi: 10.1016/s0737-6782(99)00005-3

Črnigoj, M., & Verbič, M. (2014). Financial Constraints and Corporate Investments During the Current Financial and Economic Crisis: The Credit Crunch and Investment Decisions of Slovenian Firms. *Economic Systems*, *38*(4), 502-517. Doi: 10.1016/j.ecosys.2014.03.004

Deloitte. (2015). The Deloitte Innovation Survey 2015. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/about-deloitte/lu-en-innovations-survey-25032015.pdf

Elmuti, D., & Kathawala, Y. (1997). An Overview of Benchmarking Process: A Tool for Continuous Improvement and Competitive Advantage. Benchmarking For Quality Management & Technology, 4(4), 229-243. Doi: 10.1108/14635779710195087

Häckel, B., Isakovic, V., & Moser, F. (2015). Integrated Long- and Short- Term Valuation of IT Innovation Investments. *Electronic Markets*, *25*(1), 73-85. Doi: 10.1007/s12525-014-0171-9

Henderson, T. (2017). *Why Innovation Is Crucial To Your Organization's Long-Term Success*. Forbes. Retrieved from https://www.forbes.com/sites/forbescoachescouncil/2017/05/08/why-innovation-is-crucial-to-your-organizations-long-term-success/#59f4d1743098 [Accessed 30 Jan. 2019].

Hochschild, J. L. (2009). Conducting Intensive Interviews and Elite Interviews. Retrieved February 20, 2019, from Harvard
Scholar: https://scholar.harvard.edu/jlhochschild/publications/conducting-intensiveinterviews-

Holt, K. (1971). Social Innovations in Organizations, *International Studies of Management & Organization*, Vol. 1, No. 3, pp.235-252.
https://innovationlab.nu/2016/12/08/vikten-av-principer-i-en-innovativ-organisation/

Johne, A. and Storey, C. (1998). New Service Development: A Review of the Literature and Annotated Bibliography, *European Journal of Marketing*, Vol. 32, Nos. 3-4, pp.184-251.
Juhlin, G. (2016). Vikten av principer i en innovativ organisation. Innovationlab.

Keen, J. (2011). Making Technology Investments Profitable: ROI Roadmap from Business Case to Value Realization, 2nd ed. New Jersey. John Wiley & Sons.

Kindmark, P. and Thunberg, E. (2018). Learning Through Augmented and Virtual Reality.

Kirkland, K., & Sutch, D. (2009). Overcoming the Barriers to Educational Innovation. Futurelab.

Lorenz, R. (2010). What is innovation?: Insights and perspectives on the term innovation. Int. J. Technology Intelligence And Planning, 6.

Modarres, M. (2006). Risk Analysis in Engineering. *CRC Press Taylor & Francis Group.* ISBN 978-1-4200-0349-9

Pezo, L., & Brasch, V. (2008). Metoder för idégenerering. KTH.

Phillips, J. J., Brantley, W., & Phillips, P. P. (2011). Project Management Roi: a Step-by-Step Guide for Measuring the Impact and ROI for Projects. *John Wiley & Sons.* New Jersey. ISBN 978-1-118-12260-0

Pradhan, R., Arvin, M., Nair, M., Bennet, S., Bahmani, S. & Hall, J. (2018) Endogenous Dynamics Between Innovation, Financial Markets, Venture Capital and Economic Growth: Evidence from Europe. *Elvier.*

PWC. (2016). The Tax Function of the Future; Building the Business Case for Change. Retrieved from https://www.pwc.com/gx/en/tax/publications/assets/tfof-building-the-case-for-change.pdf

Ross, J., Beath, C. (2011) Beyond the Business Case: Strategic IT Investment. *MIT Sloan School of Management.* Working Paper No. 4357-01. Massachusetts Institute of Technology.

Song, X.1. and Montoya-Weiss, M. (1998). Critical Development Activities for Really new Versus Incremental Products, *Journal of Product Innovation Management*, Vol. 15, No. 2, pp.124-135.

Tandon School of Engineering. (2019). New York Works: NYCEDC and MOME Release Plan for VR/AR Lab, Over 500 New VR/AR Jobs. NYU. Retrieved from

https://engineering.nyu.edu/news/new-york-works-nycedc-and-mome-release-plan-vrar-lab-over-500-new-vrar-jobs

Tredgold, G. (2018). 4 Reasons Why You Need To Focus On Innovation. Retrieved from https://www.inc.com/gordon-tredgold/4-reasons-why-you-need-to-focus-on-innovation.html

Volvo Group. (2018). Report on the Fourth Quarter and Full Year 2018. https://www.volvogroup.com/en-en/events/2019/Jan/fourth-quarter-2019.htm

Volvo Group. (2019). About Us. Retrieved from https://www.volvogroup.com/en-en/about-us/organization.html

Ward, J., Daniel, E. & Peppard, J. (2008). Building Better Business Cases for IT Investments. MIS Quarterly Executive. 7.

Wu, L., & Liou, F. (2011). A Quantitative Model for ERP Investment Decision: Considering Revenue and Costs Under Uncertainty. *International Journal Of Production Research*, *49*(22), 6713-6728. Doi: 10.1080/00207543.2011.553640

Appendix I - Questions to Employees at Volvo Group University (VGU)

Background

1. For how long have you been working at VGU?

2. What is your job title?

3. How would you describe your job and your main area of responsibility?

Education & Experience

4. What previous work experience do you have, both within Volvo and externally?

5. What is your educational background?

6. Are you aware of the so-called Training Development Process (TDP)?

Development of new Trainings

7. Does your job involve developing new educations or other ideas?

8. If yes, how often is a new education or other idea driven through the TDP?

TDP Pre-Study Phase

9. If you get an idea, what do you do with that idea?

10. If you get an idea, who do you discuss this idea with?

11. Is there a difference between different types of ideas? For example, in the case of technology-related and expensive ideas, compared to a cheaper idea for an already existing education vs. a completely new education?

12. According to material that has been found, there are guidelines for how an idea should be treated in the Analysis-Phase in the TDP. Do you know where to find these guidelines and have you ever used them?

13. Have you received any information about this phase and this guideline?

14. Do you think this guideline works well? If not, why?

Innovation

15. How do you experience that VGU is working with new technologies?

16. How do you work with innovation at VGU?

17. How do you perceive the reception and encouragement of new ideas at VGU? Would you say that interest for new ideas are large or small?

18. Do you perceive to have time to investigate new ideas that occur? Do you have any specifically allocated time for working with such new ideas?

19. Have you previously worked with innovation?

20. If you have an innovative idea connected to an IDTL, do you feel that you could prepare and present such an idea in order to receive funding? If not, what skills would you need to develop to do so?

The Decision Process

21. Are you aware of how the decision-making process regarding new educations and new ideas generally works at VGU?

22. Have you received any information or training on the decision-making process?

23. Do you have the opportunity to participate in the decision-making process? If yes, how?

24. How do you think the decision-making process works today?

Appendix II - Questions for Companies Working with Innovation

Background

1. What does your company work with?

2. For how long has the company existed and why was it created?

3. Who are your customers?

4. How is your business financed?

Innovation

5. How do you work with developing innovative ideas?

6. What type of innovations do you work with?

7. Do you have a specific process for working with innovation?

8. Where do the ideas come from?

Decisions

9. How is an innovation "sold" to the broader organisation?

10. Who takes the decision regarding the proposed idea?

11. How is this decision motivated?

12. Is there a decision structure in place?

13. What material is used or presented when a decision is to be made?

Skills

14. What type of skills do your employees have? What professional backgrounds do they have?

15. How knowledgeable is the company on new technologies?

16. Does the company work alone on innovations or are other actors involved?

Appendix III - Questions for Internal Units at the Volvo Group

1. We have heard that you have implemented an advanced digital technology. Which technology has been implemented and what is it used for?

2. Why was this technology invested in?

3. Who had the idea?

4. Who presented the idea and how was it presented?

5. Who prepared the idea for presentation and what professional background did this person have?

6. Who conducted the decision regarding the idea?

7. How was the idea financed?

8. Are there specific funds allocated for these types of ideas?

9. Is there a set structure for how these types of ideas should be handled?

10. Is there information on this structure available on this or how was this known by those who prepared the idea?

Appendix IIII - Questions to Companies Selling Advanced Digital Technologies

Background

1. What is your job title?

2. How would you describe your job and your main area of responsibility?

3. How long have you been working with providing advanced digital technologies?

Selling Arguments

4. What are your largest challenges when selling advanced digital technologies?

5. What are the main areas of usage for the technologies that your company provide?

6. What kind of documentation is used, when you are trying to sell your solution to a customer?

7. What are your primary selling arguments?

8. Are you presenting any numbers or statistics when trying to sell your solutions to a potential customer? If yes, what types of numbers or/and statistics?

The Customer

9. What type of customers do you have? In what business areas do they operate?

10. Are the solutions that your company provide primarily for blue collar or white collar? Are there any differences between these two segments?

11. What division or department at the customer company usually orders the solution?

12. When are you usually contacted? Before or after the customer has taken an investment decision?

13. When you sell a solution, what is included in the price?