

FACULDADE DE ENGENHARIA DA UNIVERSIDADE DO PORTO



FEUP

Leveraging Software to Enhance Business Value

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Report of Project/Dissertation

Master in Informatics and Computing Engineering

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3rd March, 2009

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19th March, 2009

Abstract

Looking back in time, there's a tendency seen of Information Technology (IT) used as support for the Business or as an accessory in order for the Business to conduct their tasks. This role has been present in companies for a wide time, shaping the image of how people in the Management of companies perceive IT. It was then thought that by doing it so, companies were using IT's maximum capacities. As time goes by, the role of Information Technology starts to be questioned by high Managers, and its value and importance analysed. While making this analysis, the *Business* understands that IT has to get closer to the Business, to a more strategic role and step from being a *supporter* to become an *enhancer* for the business, an important piece of the *engine* that makes the *engine's* goals possible to succeed.

Nowadays we see that almost every organisation has its IT Team, and recognises that IT can bring Competitive Intelligence [BG05], as well as Competitive Advantage [VVG99]. One thing worthy of notice, which will be discussed further, is that the Business seem to get the mentioned advantage not from the *IT Applications* available, but from the *IT Capabilities*. This means that contrary to what happens most of the times, a clear emphasis on all the possibilities or applications that IT can offer, might be worthless to the Business.

This Project focuses on the theme of Information Systems Management, more specifically on how to leverage Software, by focusing on the connections of IT with the Business. The goal of this Project is to contribute with the Academic world, to a clear understanding of the importance that Information Technology can have for the Business, and how to leverage that importance achieving a greater Business value.

First, a discussion will be presented on the linkage between Information Technology and Business, providing a view of the strengths and weaknesses most occurrent on such relation, as well as ways to enhance such relationship. Furthermore, it will be presented a set of suggestions that can help leveraging the value of IT. Such suggestions include having a clear *phase structure*, a clear distinction from *IT value/capabilities* and *IT application/architecture*, as well as how to "sell" Software to the Business and understand the whole process of delivering Software.

The Project was developed in an internship with the Multinational of consumer goods, *Procter & Gamble*, in order to improve and bring an understanding of how to take more advantage of the deliver of Software inside the company. The findings of the internship were shaped in order to fit in an Academic environment, as well as sensitive material was carefully changed/removed, in order not to expose any confidential material from the company.

Preface

It has been a pleasure to write this Thesis and to go through the whole process of digging information and discovering the topic of Information Systems Management. More and more it was a pleasure to do this work within a huge company as Procter & Gamble .

The challenges were many, from being in a different environment other than the *University*, working in a *foreign country*, working with a topic that although I was very motivated I was also slightly inexperienced, ... but I'm happy that all worked out well and there's a feeling of achievement in the end of this project.

It was extremely motivating to find myself diving into topics that combine *Management* and *Information Technology* . But the biggest motivation was to do all this in a *Business environment*, and see that my ideas were being actively supported and encouraged by senior Managers. Being in an *Entreprise Environment* as lead me to understand as well the complications and bureaucracy needed to change something and how much a simple action can affect other things around it, which means that there's a need to be careful when thinking/implementing something that brings change.

Although modest, this Project tries to bring good insights into the topics of *Information Systems Management*; *IT - Business collaboration*; *Deployment of Software*. I believe that through this Thesis I bring some focus on important points and provide a good advance in literature regarding these topics.

My ideas are based in practical experience, observation and consultation/feedback from experts in the topic. However, they were shaped and re-assembled later on with literature around this topic. I began to shape this project in October 2008 having finalised the concept in the end of January 2009, providing the company feedback on how to proceed and preparing myself to re-arrange the contents and deliver the needed documentation.

It is very important to mention that this work wasn't elaborated alone, and that it received the ideas and help from the WE IS Delivery team (3.1). Without people like *Fabrice Zangl* and *Bruno Vanier* this project wouldn't be ready.

I hope you enjoy reading this Thesis at least as much as I enjoyed writing it.

Acknowledgements

I would like to mention here some of the people or group of people that made this Thesis possible. I'll also take the opportunity to mention not only those that made this Thesis possible, but have shaped the path and helped me get where I am, contributing to my development as a student, colleague, and last but not least, as a person.

I start by thanking my parents to whom I owe my education and the full support throughout my academic and personal journey. I don't know where would I be without their support, and most frightening, I wouldn't know who I would be without having them by my side, supporting every decision that I've made. To both of them, a kind and emotive thanks.

Secondly, I have to recognise the importance and the support that the Faculdade de Engenharia da Universidade do Porto (FEUP) has had towards me over these years being a student of FEUP has given me some strong assets. Special thanks to *Prof. António Carvalho Brito*, for his guidance and help through the whole process of writing and fine-tuning the Thesis and to *Prof. Augusto Sousa*, who has helped me with all the bureaucracy and been there for me whenever I needed, from the moment I wanted to do *Erasmus* to the moment I showed my interest to fulfill the *Erasmus/Estágio* program.

A special thanks to Procter & Gamble for giving me the experience of working in a great atmosphere, with clever people that helped me get the knowledge that I needed, and provided me with the necessary tools to gather the necessary info and be able to contribute. Would like to mention the special help from the Western Europe Delivery Team, more specifically *Fabrice Zangl*, *Bruno Vanier* and *Axel Borlinghaus* with whom I had the pleasure to work.

Last but not least, an important note of thanks to the student organisation BEST (Board of European Students of Technology) [BES96], for giving me the passion and vision of an European mindset. The responsibilities that I took in BEST were important to understand how IT fits the Business and how can value be subjective. For this and for making my student path unforgettable with all the magnificent experiences, I'm deeply thankful.

João de Oliveira, Porto / 2009

*“We set sail on this new sea
because there is knowledge to be gained.” [Ken63]*

John F. Kennedy

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Abbreviations

CA	Competitive Advantage
CIO	Chief Information Officer
DP	Data Processing
HP	Hewlett-Packard
IDS	Information Decisions Solutions
IS	Initiative Solutions
IS	Information Systems
IT	Information Technology
MIS	Management Information Systems
SIS	Strategic Information Systems
P&G	Procter & Gamble
WE	Western Europe
WWW	<i>World Wide Web</i>

ABBREVIATIONS

Chapter 1

Introduction

“Through a series of actions/techniques, such as *careful phase distinction, distinction from capabilities and applications, strategic IT planning...* it can be observed that the Business takes more advantage of the same Software, consequently having a bigger impact and increment of value towards the Business.”

This Project has started from an observation, that people in companies (in the case-study, Procter & Gamble) were getting less benefit from Software than what they thought initially [[VVG99](#)]. This led to thinking that there is a missing opportunity that could be tackled resulting in the company getting more value from the same Software.

Although there was no visible reason for this in terms of the Software itself, meaning that the Software was fulfilling the technical necessities, good performance, all the needed functionalities implemented,... the users from the Business weren't using the Software, not even nearly to its full capacities. Furthermore, it was pointed out that users were disengaged from Software in general.

All these reasons led to specific measures to look into the structure of the whole IT Strategy and started discussions in order to understand how companies can take more advantage of IT. The research has brought insights regarding how close should IT be from the Business [[PDM97](#)], as well as approaches that contribute for the improvement of how

much value does the Software bring to the Business. The findings and conclusions taken by this research, will be presente in the following chapter(s) [2, chap. Case Study].

In the field of Computer Science and Management, researchers and companies are acknowledging the need of having IT in a more strategic position [VVG99], claims that the CIO should be always present in strategic organisational discussions, are just one of many other examples. Although this positioning of IT and Business is starting to take place, how the two play together is still relatively ambiguous and there's still room for improvement and definitions. This Thesis fits in such a scenario, bringing a beam of light into the matter.

The Thesis is targeted to any *Software Affectionate*, *Software Analyst*, *Software Manager*, *Strategic Software planners* but also to any *Manager* that is linked somehow with Information Technology or sees the importance that IT can play in his/her job. The Thesis was written in a very high level language, making it easy to be understood across different functions, different backgrounds and across people with different technical levels.

1.1 Context/Considerations

This Project/Thesis was elaborated in the ambit of the final course of the Master in Informatics and Computing Engineering [FEU03] from the Faculty of Engineering of the University of Porto with the aims to test the student with the responsibility of bringing a significant input in a project/theme for the scientific world. As an important part of this project, there was a chance to do the practical work/research in a Business atmosphere, by doing an internship with the Multinational Procter & Gamble , more specifically in the R&D headquarters, in Brussels.

Like it was mentioned above, there was a need from the company and the IT world, to understand better what can be done to enhance the value of Software. The nature of where the practical work/practical research was done illustrates perfectly this need.

The practical research, was done in the department of IDS [P&a] (Information Decisions Solutions), more specific in the WE IS Delivery Team. The team has the aim to support the Business by bringing Computer Solutions to ease and improve the way the Business works, to improve the Business processes. More information about the atmosphere of where this project was elaborated can be found in the (3rd) chapter.

Ultimately the idea is that Companies are recognising that Information Technology has more benefit to give than the ones that they are currently benefiting from. Therefore

new strategies are being undertaken in order to strive for a significant increase of the return that IT can offer to the companies. It is believed that this Project fits in this mindset and presents a contribute to such suggestions.

1.2 Project Description

It is known that after the delivery of a project, there's a strong need for follow up and for making sure that: the project was delivered in a good matter; proper lessons were learned from the delivery; all the needed steps were made; etc. This project comes to study and to create a better understanding of how to use such things for the companies' benefits, which is known in certain businesses as a "Leverage Process". The project goal is to give a concrete improvement to the last phase of the cycle in Software Management.

This framework comes in order to fulfill the gap that sometimes is found in computer solutions after their deployment. The benefit of this project resides in the impact that it will cause in the way solutions are deployed. With this project it is believed that the Software delivery teams will be able to take more advantage of the solutions in their final process, this should also enhance the opportunity for better upgrades and learning from a solution.

It focuses on the topic of Software Engineering and Software Management. It is the need of understanding all the parts of the software and how it combines with the needs of the business, together with knowing how to manage the software, and how to improve the deployment of the software solution in the business.

1.3 Motivation

There were various reasons that lead me to chase this topic. The main one was the fact that I like challenges, and knowing that there was still much to do on this field added to the fact that there's still some lack of research providing practical tips, was the challenge for me, the one I wanted to pursue. Also the fact that I truly believe that success in companies will have to go through adapting such kind of philosophy and stepping out from thinking of IT as the guys outsourced somewhere far from the company in some distant country, to a more cooperative thought and including Information Technology in the important definitions of the companies strategies.

Another reason that lead me to choose this topic was my passion towards Management, and strategic behaviour. Having a topic that combines IT and Business, has posed itself as something of great interest, and that would fit not only my current interest, but the ones that I would like to follow throughout my career.

One more important aspect, was the existing possibility of having a company supporting my work by guiding me through the practical work, by supporting me with ideas as well as giving me insights of the already existing knowledge inside the company. Connected to this, was the fact that knowing that my work can be valued directly by a company, and see direct impacts on my ideas, instead of just having it lying in a book shell, has provided me with the extra motivation to lead this project forward.

1.4 Thesis Methodology

1.4.1 Different parts of the Document

This project is structured into six chapters:

- **Introduction:** it is presented here the background regarding this Project which will help to give an understanding to the suggestions made in this Project, and the whole initial idea on why was this Project started.
- **Business - IT Linkage:** in this part, it will be explored an initial study about how does the Business and IT can link between each other. It is crucial that this is understood first, in order to get into the right set of mind to understand the remaining of the text and what can be done to make sure that this symbiotic relation works properly.
- **Case Study - Procter & Gamble :** more information regarding the case study can be found here. All the information about what has occurred in the Multinational of *consumer goods*, Procter & Gamble which was an important aspect of this Project.
- **Leverage:** the chapter, where the real results of this Project can be acquire, meaning the knowledge regarding on how to better leverage Software. It will be presented the different practices believed to give more benefit for the business.
- **Results:** in this chapter, it is presented the gains that can be obtained from following such ideology. These gains go in conformity with what companies would like to

enhance. It is also shown how can these finds actually contribute to the benefits of a company.

- **Conclusions:** conclusions about the work done are presented here, and can be of good help for the continuity of work in this area. There's also outlined some suggestions of what can be made for the future.

1.4.2 Planing/Duration

Since the Thesis had the component of the practical work in the company, the planning suffered a mild deviation from its original plan, more precisely in terms that sometimes more urgent tasks involving other projects, would get prioritized over the Thesis. Nevertheless the following scheme can give a good idea of what was planned and how the work was structured.

It is possible to find below the scheme that illustrates how the development of this project was thought out in the first place.

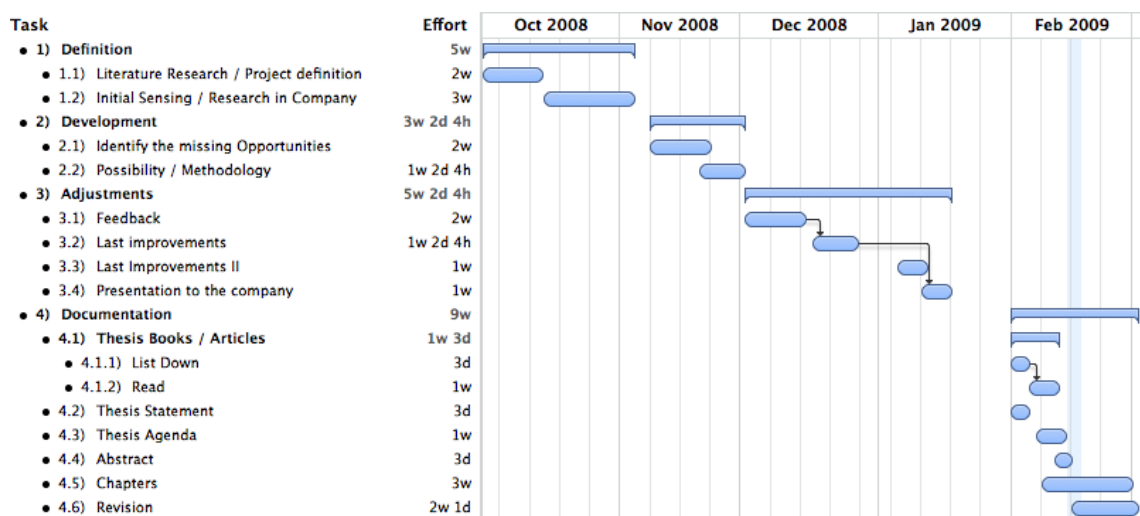


Figure 1.1: Project Plan

As it can be seen, this project had the duration of five months, four months of practical/research work in the company and one to fine-tune and develop the final documentation.

Introduction

Chapter 2

Business - IT linkage

In this chapter it will be presented the initial background ideas on the topic of Business and IT linkage. This chapter was created based on several articles and parts of books researched, assimilated all together and shaped according to the practical experiences gained throughout this Project.

Furthermore, this chapter presents the necessary background and knowledge on the topic and theme where this thesis fits.

2.1 Introduction

Like it has been mentioned several times before in this documentation, the linkage between Business and Information Technology is of great importance, not only to shape the way Software is understood and assimilated by the Business, but also to make sure IT understands the objectives of the company, and how can they make sure a contribute is made towards the needed direction.

If one goes back in time, there's three different types of epoques that can distinguish Information Technology [PW04]:

- Data Processing (DP) [Wikb]: which is the process of converting raw data into *information* and *knowledge* to be used by the Business. Since this kind of data is more

useful when well-presented and actually informative, the systems involving DP are called *Information Systems*.

- Management Information Systems (MIS) [Wikf]: is a term that refers to the group of information management methods that try to automate and support human decision making, through multiple Software.
- Strategic Information Systems (SIS) [Wikh]: is a type of Information System, which makes sure that there is alignment with business strategy and its structure. The objectives are that the alignment increases the capability to respond faster to environmental changes, consequently creating a competitive advantage [BG05] (2.2.2).

As it can be noticed, the way companies are using IT has been developing and it's still in mutation. IT has been evolving from looking at computers as mere means to process *data*, ways of displaying data in a better way, performing repetitive tasks to something more, something that can help with competitiveness. If one looks at it, it can be actually understood that the 3rd époque (SIS) does not exclude the 1st (DP) and the 2nd (MIS) philosophy, since it focuses a lot in how to use those as well to benefit and serve the strategic thinking.

There has been some research done in the contribution of IS to Business regarding the first two époques. One of the examples illustrates the idea that *Data Processing* enhances the efficiency (by focusing on how to automatise tasks and do more with less), whereas the *Management Information Systems* focus on how to improve Management efficiency [Eag95].

In the following scheme, it can be seen and analysed the three different levels which illustrate a good division of the capability.

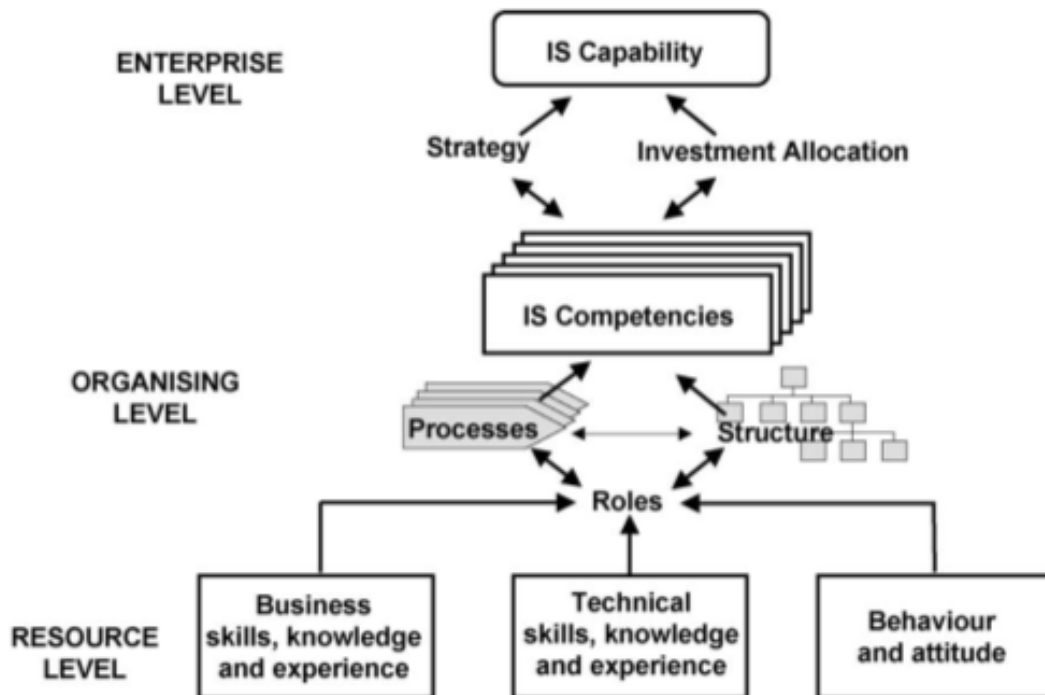


Figure 2.1: Model of Information Systems capability (Peppard et Ward [PW04])

Resource Level In the *Resource level*, it can be found the tools made/thought in order to perform the tasks, it is at this level that the actual tasks are done as well.

Data Processing (DP), focuses on this kind of level, and tries to bring benefit to the business by automation through IS/IT of these tasks. [WP02]

If one would make the analogy of the car industry, the *Resource level* would be all the assembly and mounting of the different parts of the car, the wheels, chassis, ...

Organisational Level It is in the *Organisational Level*, that the structure of IT and how the team works comes to matter more. It influences also the way the *Roles*, *Performance*, *Tasks* and *Products* are transmitted to the Clients.

Management Information Systems relies on this level, it is thought that if one structures the Information Systems, it will bring additional benefits to the *Data Processing* processes [BJW95].

Enterprise Level This is the level where IS plays a major role, and where IS focuses its attention. By having strategic thoughts of IS, having IT closer to Management, strategic investments in IT,... all this contributes to more relevance and therefore impact on value of IT towards the Business.

One of the reasons why this level is so important is, as Ravichandran and Lertwongsatien (2005) [RL05] have argued, firms will perform better if the core competences from the firm (their goals/aims) are known and supported directly by the Information Systems capabilities.

2.2 Value from IT

It is undoubtable that IT brings great value to companies, but how much that can be an asset it is still something underestimated, companies still tend to focus much more in DP [Bry93] and overlook at the true potential of aligning the Strategies of the firm with the strategy of IT.

In this section it is strived how much benefit IT can produce.

2.2.1 Importance of IT

Although there are several studies showing that IT contributes for the performance of Business and that it can be an asset [RL05] there is still a lot of room to investigate this in IS and MIS.

We can see quite some studies that provide a good testimony of how IT contributes to Business performance [BGJ95, MKK95, HB96], however there's some questioning, of whether this hasn't been mixed [RL05] and too focused on *Data Processing* and *Management Information Systems*.

The theory that IT is mostly important because it can enhance the Resources and support the structure of the Company (focusing on the 2nd and 3rd level) has been contested by [Bar99, Gra02, RL05] which claim that more focus on the internal factors of the firm should be taken, not only to the structure itself of the industry in order to understand where does the competitive advantage can be extracted.

Following this idea, one can find the study made by Tallon and Kraemer (2003) [TK03], which focuses on how one must recur to strategic alignment in order to take full advantage of IT in Companies. Tallon and Kraemer try to explore the fact that most

research was done with the alignment in a firm/organisational level (2.1), there has been still little done in a process/resource level (2.1) and by doing it so, they believe that they can take more advantage of the insights into the alignment of *Strategic Alignment* and *IT payoffs*.

Measurements There are several ways of measuring the importance of IT [TK03, DS03, Bry93, OBS06]. One of those will be presented thought to be closer to the reality and to represent in a better way a realistic model to understand how IT is affecting the Business.

This model tries to measure the extent of which *Information Technology* supports the Business by using a two-dimensional definition (*IT shortfall* and *IT under-utilization*) to visualise the different dimensions of Strategic Alignment.

Other models have a more itemized form of evaluating and displaying/modeling this kind of information. For example [PW04] does that by defining certain factors, such as *Causal ambiguity*, *Lead-time*, *Socially complex links*, ... and measure evaluate then in a scale.

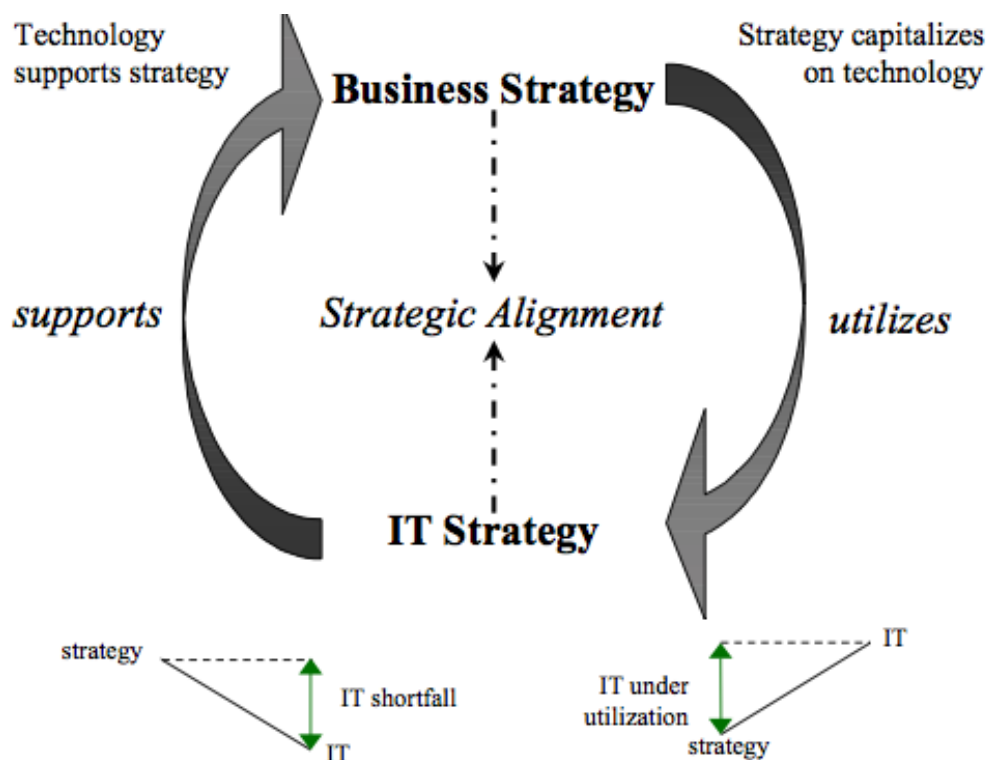


Figure 2.2: Exemplification of different entities in Strategic Alignment (Tallon and Kraemer [TK03])

Another example is the case of (Yi and Jackson, 2005) where a clear model is defined of measurements through giving values and punctuations to specific criteria that characterize the impact of IT towards the Business [YJPP05].

This Model is however very outdated and slightly over complicated.

As it can be seen from the figure (2.2), there's two main consequences of not having *Information Technology strategy* aligned with the business:

1. *IT shortfall*, which represents the lost when the IT Strategy/Performance, does not deliver the needed quality, does not support totally the Business Strategy. [BY96]
This can happen for example from a clear mis-alignment from the IT and Business Strategy, causing the wanted strategy to be misinterpreted.
2. *IT under-utilization*, representing clearly what can happen when the Business does not uses all the potential that IT can provide to improve the quality of the business. This can happen when for example the Business does not listen to the IT department or when IT does not take a more pro-active or a more strategic position. Another reason for this to happen is for example the cases where people do not understand the Software or refuse to use it. This clearly represents an under-utilization of IT [DB96].

Conclusion In general, leading companies spend a considerable amount of IT investment in order to improve/increase their Business capacity [LB99, MM93]. Despite this, quite some theories were still focused on achieving this by providing investment towards the infrastructure or the architecture of IT itself [BW97], meaning towards the resources level (2.1) and the management level (2.1), other than focusing on the strategy of IT.

So, in order to obtain the true value from the IT, it would be necessary to tackle (not exclusively, but principally) the Enterprise Level (2.1), meaning that it is needed to think how to align the business from the top of the pyramid [YJPP05, Luf00]. The model represented by (2.2) clearly gives, although very simple, an understandable theory of how the *Business* and *Information Technology* should be aligned together, and what consequences can occur if both are not fully aligned (*shortfall and under-utilization*).

2.2.2 Competitive Advantage

What is Competitive Advantage (CA)? Competitive Advantage is what occurs when a company has an advantageous position in the market in relation to the other players.

Michael Porter distinguishes three different characteristics/methods to become competitive [Wika]:

- cost leadership, which stands for when a company manages to have a lower price than the competition, therefore achieving *Competitive Advantage*.
- differentiation, it's when a company distinguishes itself from providing a better service or product for the same price, or competitive price, making therefore the clients to prefer their service.
- focus, is when a company is the leader in their field, and have reached a strong respectful position, making therefore the clients search for them, instead of the competition.

Given this, one can quickly make an assessment of how could IT contribute to the Competitive Advantage of a Company, in any case we'll go a bit here in detail and take a look on how can this be achieved and maybe present here other things that weren't thought thoroughly until recently.

One of the things that are very important to stress out is that companies take more advantage of their **IT Capabilities** rather than their **IT Applications** [BSZ99, RBG95]. This represents an important view and understanding of how IT can influence the Business and contribute to the Competitive Advantage. It means that one can even have the perfect Software, and the perfect conditions, but this won't be necessarily useful to the company and won't be delivering the company with what it is really needed.

Long-Term Competitiveness So it was already presented what CA (Competitive Advantage) means, but the fact is that Information Technology can be used not only to enhance CA but to make it more long lasting. By some specific measures, the structure and the practices of Information Technology can become permanent, and give the company the long-term advantage that benefits a company [RBG95].

In order for CA to be long lasting, the application of IT has to be difficult to imitate [KK86]. (Floyd and Wooldridge, 1990) have published a study with the ATMs, that show that Banks didn't benefit so much from this asset (ATMs), since soon all the other banks could also provide exactly the same service [FW90].

Figure 2.3, shows clearly how IT can enhance the capacities of a company to become Competitive Advantage. Despite this, like it was already mentioned, long-term CA has to come from innovation, from things that are unique from other businesses [FW90, Bar95],

and although this can be achieved with the resource of IT, it is very much related whether IT is aligned(2.2.1) in an enterprise level or not (2.1).

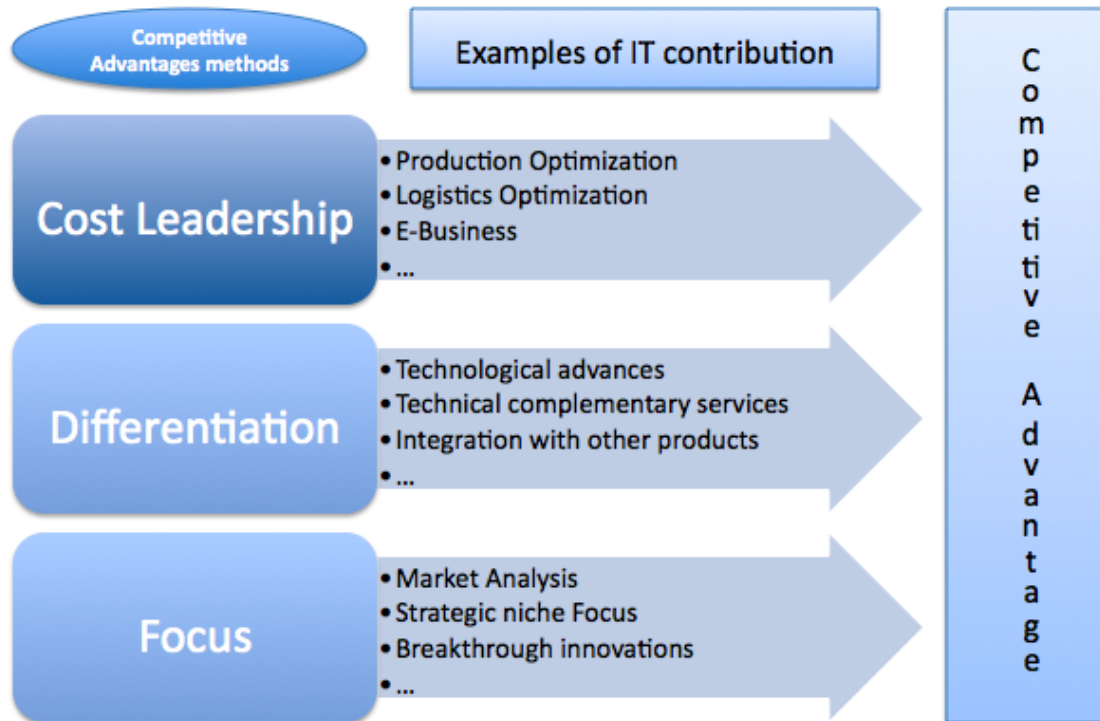


Figure 2.3: Examples of IT contribution to Competitive Advantage

The fact that a company has the required resources, the potential to become a big player on the market, and is strong enough to be ahead of the competition, does not necessarily mean that it will be able to take advantage of their assets. The structure of the organisation itself is something crucial to the success of the company [Bar95].

In the 90s a survey was made by the London School of Economics, that found that most of the business and CIO thought that they would use IT to be *competitive advantageous* instead of just using it to *catch up with competition or staying afloat*.. However with the failure of the internet bubble, IT as a competitive advantage has gone a bit down [G.04].

But this hasn't stopped companies to see IT as an important piece in order to achieve important value from the company.

Intellectual Property (IP) is a legal property rights protection both in artistic or commercial ambit. [Wike]

This is something that hasn't been touched yet in this Thesis, but corresponds to one of the

most important ways of achieving Competitive Advantage through IT. It is very common that in big companies, that IT Teams come to think of innovative ways of using the software, or create software from an idea of strategically affecting the Business. Such ideas could sometimes be stolen, or *re-adapt* in better ways (like the case of ATMs for banks), damaging therefore the possibility of having the *long-term* competitiveness (2.2.2) that was mentioned before.

Conclusion In a nutshell, companies can benefit a lot from having *Competitive Advantage*, as it was already mentioned, this can be achieved by recurring to Information Technology in order to help so, even if this has been contested already [G.04]. Despite that fact, one can see several examples of ideas (Figure 2.3) where IT can present itself useful in order to reach competitive advantage in the market.

But even if companies reach CA, nothing stops them to loose their position, so in order to have what it is commonly called, *Long-Term Competitiveness*, IT in companies have to innovate, to do something that is harder to imitate, for example *Intellectual Property* is a good way to protect against copies,... it made it possible for companies to legally protect their IT ideas, whether it is processes, organisation, software, ...

2.3 IT Strategic Assets

This section will present some of the work done on the area of finding out the Assets of IT and how can they be strategically used in order to help the Business.

Table 2.1, shows a study made by (J.N. Luftman, R. Papp, and T. Brier in 1999) [LPB99], which makes an improvement and analysis of the previous study around this idea made by (Wang, 1997) [Wan97].

The Table 2.1 represents the study made regarding what could be an *enabler / enhancer* to the success of IT alignment in the Business, and what could be the *causes or inhibitors*, for the alignment not to work properly. It brings understanding to the environment of companies, and what can be used to benefit the linkage, and what should be avoided.

This represents an important study/work that comes to complement the ideas that have been underlined along this Thesis. Since it was already outlined, what needs to be be done (Business - IT Linkage (2)) as well as the importance of it (2.2.1), then as well, what it can bring (2.2.2), and what this study does is to bring the focus to what the environment of a company looks like, and what can benefit the linkage

Enabler Categories	Inhibitor Categories
Senior executive support	IT/non-IT lack close relationship
IT involved in strategy development	IT does not prioritize well
IT understands business	IT fails to meet its commitments
IT, non-IT have close relationship	IT does not understand business
IT shows strong leadership	Senior executives do not support IT
IT efforts are well prioritized	IT management lacks leadership
IT meets commitments	IT fails to meet strategic goals
IT plans linked to business plans	Budget and staffing problems
IT achieves its strategic goals	Antiquated IT infrastructure
IT resources shared	Goals/vision are vague
Goals/vision are defined	IT does not communicate well
IT applied for competitive advantage	Resistance from senior executives
Good IT/business communication	IT, non-IT plans are not linked
Partnerships/alliances	Other
Other	

Table 2.1: Table exemplifying the Enablers and Inhablers from IT (J.N. Luftman, R. Papp, and T. Brier in 1999) [LPB99]

(Ross, Beath and Goodhue in 95) [RBG95], have created a model, showing the three main assets, that can exist regarding IT in a company:

- **Human**

Like a lot of articles try to underline it [RL02, RBG95, DC03, RN99], the biggest assets in the company aren't (or shouldn't be) the Technology, the Software itself. Instead of focusing on that, companies should think and look at their IT people, and get awareness of the benefit that they bring to the company.

However, this can also be an asset that can easily turn to be prejudicial to a company. Once a company starts to rely too much on the knowledge from individuals and these become unavailable, then this can harm a company quite badly.

When a good team is formed, and when there are reliable people, then they aren't just able to fulfill and tackle well-defined tasks, they are also able to solve important business cases, or think of how to solve them. [RBG95]

- **Technology**

This is obviously a very important asset, it is actually the asset that companies tend mostly to recognise and to value for its immediate visibility and easiness in terms of measuring its success [MKG04, BH00].

This asset refers to shared technical platforms, data storages, ... it's all the technology around trying to integrate systems, make cost-effective Business and IT operations, as well as support all the resources needs from the company. This asset also relates / connects a lot with the first one mentioned, since a strong Technology infrastructure and knowledge around it, helps the team to arrange their work better, and have a easier connection.

Specially nowadays where companies are getting more and more distributed, services have to reach across several distant points. IT plays a crucial role, and makes sure that the distribution is done in a sustainable away, and services can be easily scalable. This is clearly easier once it is dominated and controlled the infrastructure [BJW95].

- **Relationship**

Last but not least, the *Relationship Asset*, which refers the alignment of IT and the Business that it has been mentioned during this chapter (2). This asset happens when the Business unit and the IT share the responsibilities and cooperate with one and another, in order to make it successful the application of IT in the company [Roc90].

This requires trust and respect and coordinated tasks and strategic alignment together [Hen90], meaning that this goes into a good cooperation into the *Enterprise level* (2.1).

When there's a strong *Relationship Asset*, then there's also a Business partner ownership and accountability for the IT Projects and IT priorities established together in Top Management from IT and Business unit.

These assets give a good understanding of what is present in a company environment that can correlate with IT. The following Figure 2.4 taken also from (Ross, Beath and Goodhue in 95) [RBG95], illustrates more clearly how these assets **deliver business value**.

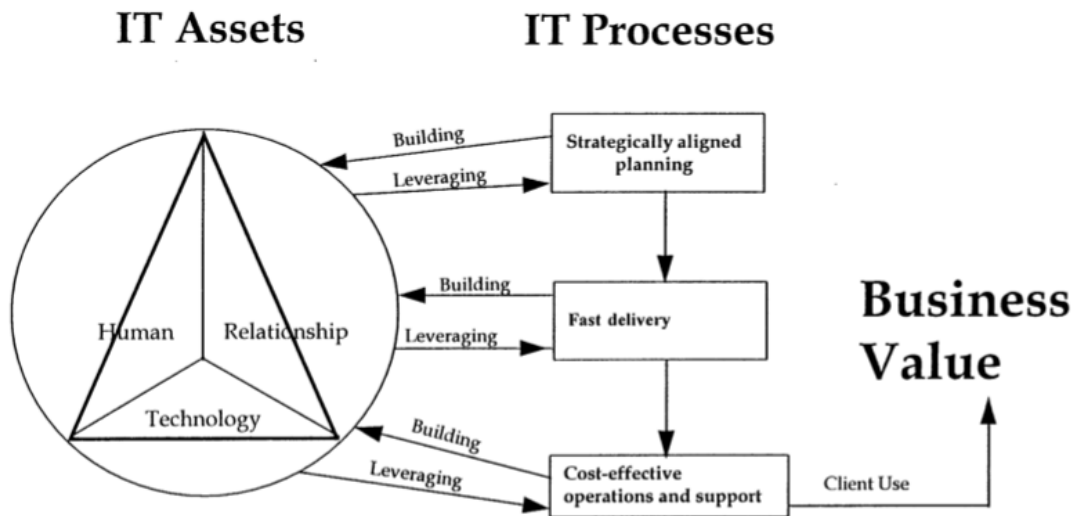


Figure 2.4: How can the IT Assets bring Business Value (Ross, Beath and Goodhue in 95) [RBG95])

2.4 Business ↔ IT's perspective

One can't really say that there's *one* Business perspective, when it involves the view of IT from the side of Business. It is far more complicated than that, and it depends considerably on which level it is been analysed such a view.

However, it will be presented here some thoughts about what it is believed to be the misconception that exists sometimes around IT from the Business units.

Knowledge Management There's still a view of Information Technology as a means to achieve Knowledge Management. While there's no problem at all regarding this, there's a strong lack of understanding that IT alone won't solve Knowledge Management issues [SL04, RN99], and Information Technology can't be accountable for it. Although true that Information Technology should be used to enhance the Knowledge Management, and create the infrastructures to achieve it, by itself it won't be capable to create Knowledge Management in the Explicit level [Del, Jas04, RN99].

Envision Business Processes One of the most tricky things for IT people is to understand well what are the Business processes and what can IT do in order to improve those processes. [FW98, Ola00].

(Teng et al in 94) [FGT94] has defined two dimensions of *Business processes*:

1. degree of mediation, that involves how many steps are needed to fulfill such a process.
2. degree of collaboration, which represents how many functions have to be involved in order to fulfill the process, how many functions are there, where there is exchange of information.

It is quite hard to tackle a case where both degrees are high, which means that the process has a lot of intermediate steps and involves a lot of functions/people, meaning it's highly interdependent. Nevertheless, IT can contribute quite intensively for such case, since sometimes, by having the need to have contact across several functions, and a high level view, can actually bring some powerful insight to such discussions.

Business perspective Venkatraman and Ramanujam in 87 [VR87], elaborated a study where senior executives were asked to rate their companies across competition, and found that the Executives' perceptions of IT investments correlated with the economic measures such as revenues, net profit and productivity [TKG00].

But despite this, CEO's are still relying on their perceptions of the organisation's use of IT [JI91]. This might cause some problems in trying to get some investment in IT, since IT value can't be only measured by the usage of Software, there are a lot of other indirect benefit from using IT, like for example simplification of processes/ competitive advantage / efficiency, ... that can't be easily measured.

Nevertheless, there are also other studies like Broadbent and Weill [BW93] that there is also a relationship between the perceptions from managers and the role of IT infrastructure. Showing that Business executives are quite aware of the role of IT, making it an interest from them to participate in the IT investment decisions making sure that IT delivers what it's supposed to. [TKG00]

There is however research done [KK88], passing the message, that another classification should be adopt in order to evaluate IT's investments impact. Such things like: administrative cost reduction, productivity improvement and customer service enhancement are examples of what could be used to take in account.

The Figure 2.5, illustrates in a very simple way, examples of other measures that can be assigned to IT. The understanding of this reality benefits both Business and IT:

- to the Business, since then they will acknowledge and be able to measure / control better if IT is indeed delivering the benefit compared with the investment on it, and

by creating a trust relationship, Business will also be able to invest more and get more Business Value.

- to IT, also for the same motives wrote above for the business, but also for opening horizons to start to think of IT as a way not only to perform tasks, but to improve other aspects in the company, the so called *Process-Oriented Approach* [TKG00].

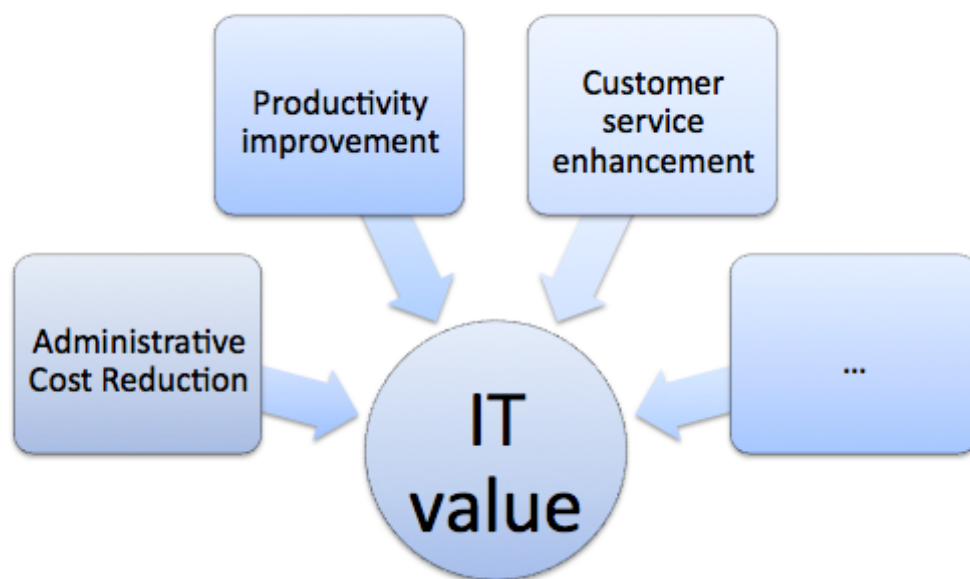


Figure 2.5: Examples of how to evaluate IT

Chapter 3

Case Study - Procter & Gamble



As already mentioned and outlined throughout the introduction of this Thesis, the practical part of this project was done throughout an internship with the multinational of Consumer goods, Procter & Gamble .

Procter & Gamble is the number one company in the world of household products, having around 25 brands which are billion-dollar sellers, examples of such include *Fusion*, *Always/Whisper*, *Braun*, *Bounty*, *Charmin*, *Crest*, *Downy/Lenor*, *Gillette*, *Iams*, *Olay*, *Pampers*, *Pantene*, *Pringles*, *Tide*, and *Wella*. The biggest acquisition from P&G was the case of Gillett in 2005. [[AOL](#), [CRN](#)]

This Chapter is meant to give a better understanding of that Case Study / internship and present the environment in which the internship was developed as well as the most relevant results taken from the practical work for this Thesis, although the concrete results will be described in the next chapter ([4](#)). In any case, it will be strived to protect the

company's privacy and safeguard its value, so throughout this chapter it might be omitted certain things in order to protect the company's privacy.

It will be first presented, in order to get a better perspective, a detailed info of the whole environment, and some add-ins of examinations done with the support of articles, explaining the nature of companies like Procter & Gamble (3.1), followed by the Objectives (3.2) of the Case Study. Further it will be given a full description of the work executed (3.3) and the methodology taken in this process. Finally it will be presented in a high level the findings made (3.4) which were crucial to reach and elaborate the content present in the chapter (4).

3.1 Environment

Since the project involved a close contact with a Business perspective and making a bridge between the Business and IT, this project was initiated in the heart of the Initiative Solutions (IS) Delivery Team for Western Europe (WE). The IS Delivery Team for WE is part of the IDS department [P&a] (Information Decisions Solutions) which is the department inside P&G that deals with all the Information Technology systems and is responsible for delivering value from IT to the Business.

Initiative Management represents the area inside Procter & Gamble that focus on initiatives/innovations, which can be from products or processes, ... Initiative Solutions, represents the Computer solutions that help this area to move forward.

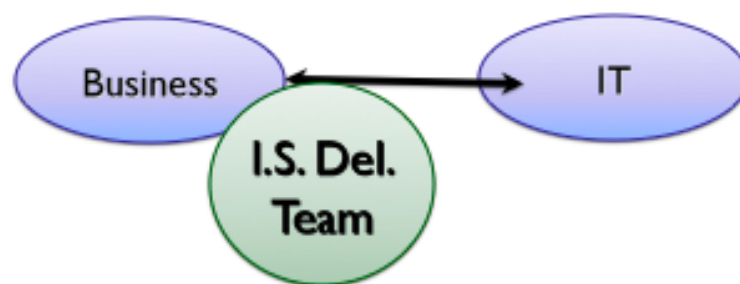


Figure 3.1: Where IS Delivery Team fits

Figure 3.1 illustrates how I.S. Delivery Team is close to the Business and a crucial piece in making the bridge between both Units.

Outsourcing Another important aspect, worthy of mentioning is that P&G had an outsourcing action, where all its mostly technical operations were outsourced to the giant of computer/electronics components Hewlett-Packard. (The part related with the 3rd level - Resources 2.1)

This outsourcing capacities has brought considerable advantage to both parties [CRN, Fas, CNe, HP]. But what is more worthy of understanding from this, is that Procter & Gamble has left all the coding and execution of IT tasks to other companies. This implies a strong outsource of the *Resource Level* (2.1) and a more focus on the *Enterprise Level* (2.1), which makes IDS easier to link with the business.

Given the enormous multitude of Procter & Gamble and its distribution throughout the whole world, P&G has a strong need to rely on IT to sustain such distribution [BLRS98]. Since HP was bigger in IT and could leverage that position better than P&G, there was the decision to make the contract of \$3 Billion come true.

Initiative Diamond The Initiative Diamond is a way to focus the management of an initiative/innovation into the things that are more important to achieve the success of launching the initiatives [CM05].

Bob McDonald [Wee] once said: "The Initiative Diamond played a significant role in improving the business results in P&G's Fabric & Home Care global business unit. This work brought us a new discipline to manage our innovation programs, and yielded a major increase in the in-market success of our initiatives. We aligned our organization on how to use Stage-Gate! success criteria and portfolio and resource management to deliver better innovations for the consumers we serve."

SIMPL Procter & Gamble has seen a need to create a framework in order to help make initiatives successful and manage to launch them into the market in an easier and efficient way. Such framework is called **SIMPL**TM - *Successful Initiative Management and Product Launch*.

This framework, similar to the standard Stage-Gate model ® [Coo01, sg] represents a way, a methodology to drive new products from the initial idea into post-launch. [CM05] It consists of five main stages: Discover, Design, Qualify, Ready, Launch.

Figure 3.3 illustrates it, throughout those five main stages, there are clear decisions/milestones that help going from one stage to another making sure that the process doesn't get to a different stage and then has to go backwards.

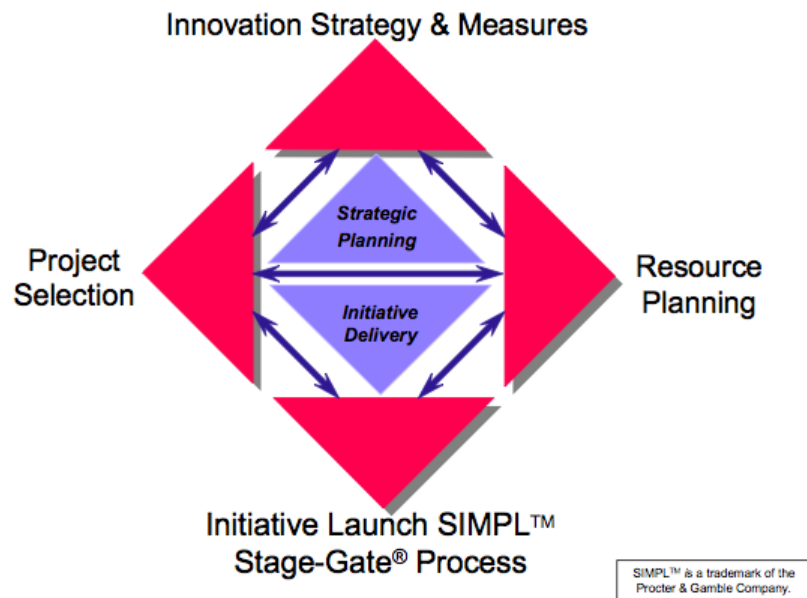


Figure 3.2: Initiative Diamond developed by Procter & Gamble [P&b]

Although this framework was initially designed for product launch, it is also used by IDS (more precisely IS), in order to keep track and make sure that solutions are delivered from idea to post-launch in a controlled and suitable way.

Something that is not represented in the graphic is that there's also another *distinct stage* which is commonly associated with being englobed in the 5th stage (Launch), but that in post versions of the SIMPL™ scheme it has envolved to also distinguish it as being the **Leverage Phase**.

3.2 Objectives

The objectives of the practical work done inside the company were related with the SIMPL™ (3.1) presented in the previous point.

So as it was referred already, all the SIMPL™ stages have clear milestones and step checks, to make sure that everything is prepared when entering a new stage.

But what happens when the product is launched? What it can be seen from the Figure 3.3 is that there's a control and milestone for launch (*Launch Authorization*) but nothing for post-launch of an IT Solution.

The Five Stages:



The Four Gates:

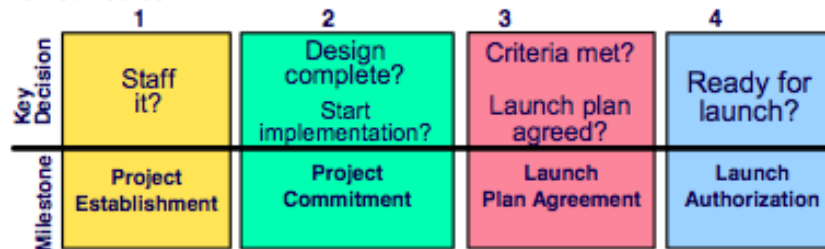


Figure 3.3: SIMPL™ Stages developed by Procter & Gamble [P&b]

Practical-work objectives Giving this, the goal of the project inside the company would be to investigate and elaborate a framework, in order to make more explicit what happens in the 6th Stage - *Leverage Phase*.

Although there was already something being done with *leveraging* the solutions (*trainings, communication, deployment plans, ...*), there was never a concrete plan, scheme of how to do it. Therefore, the company felt that there was some room for improvement in the way Solutions were being leveraged.

This was another proof that just like many others [RBG95, BSZ99] Procter & Gamble was not feeling like they were taking all the possible benefit from their Solutions. And cleverly launched a project in order to learn how to better leverage solutions.

Despite the fact that many people have been writing about this topic [HV99, NER00], things aren't that simple.

Learnings for the global project This practical project made it possible to understand two main things:

- the environment surrounding IT Management
- the importance around leveraging IT

Having such components, enabled a much better understanding regarding the linkage between IT and the Business, and get a picture of why wasn't *Leveraging Solutions* working for Procter & Gamble and most of the companies.

3.3 Description

The practical work consisted in first obtaining a good awareness of SIMPL™ and how it was being used. Furthermore, in a huge company such as Procter & Gamble a lot of work is done in different parts of the world, without being very possible to get awareness of it, unless someone takes a pro-active role. Therefore another initial thing to do was to consult people across other teams to understand what was the *state of art* in this matter and if there wasn't any overlapment on this topic.

Given the magnitude of this project, there was a thought to start by analysing an example of a *good practice* case. A good practice case, is when a practical example is studied in order to understand the processes/environment around it [EEM95, Ear01]. This approach enables the close study of an important IT Solution.

The Solution chosen for this, was the biggest IT Solution for the year that Procter & Gamble was launching in the Fiscal Year. Its launch took place on the 20th of October, making it then a perfect case study, since it fit with the timing of this project (Leverage Framework) as well.

Given the timing, it was possible to study/analyse how Leveraging of Initiative solutions occur in the Delivery Team, and point out / figure it out what are the strengths and the opportunities present in the current model.

Throughout the period of recurrence of this project, there was an initial feedback gathered in order to understand the *state of art* and since this process has a high *degree of collaboration* (2.4), then there was a need to first clearly understand the common thoughts and perspectives from the different functions.

After initial information was gathered, then an increment of the scope of the project was felt which drove this project to bigger thoughts but also to more harder to change practices.

3.4 Findings

Building up on what was mentioned in the previous point, regarding the results obtained by the series of feedback and analysis from the case studied. It was pointed out and noticed that there were certain things that weren't being done perfectly and that there were some opportunities that could be addressed in order to have a better revenue from the solutions.

It was surprising to the people working in this project the initial outcomes of the feedback.

The findings reflected that the opportunity wasn't so much in the *Leverage phase* itself, but more on the organisation structure, and on particular points during the whole SIMPLTM stages, how it was being done.

These points include:

- Progressive deployment
- Business Capacities vs. IT Capabilities
- One voice to the business

Although these items sound very straight forward, companies continue to overlook these little details and don't implement them from the beginning to the end, not taking therefore the whole possibilities that could have been taken otherwise.

All these points will be described in chapter (4), therefore there's not much of a need to specify each of the items here.

Case Study - Procter & Gamble

Chapter 4

Leverage



Leverage [\[Wiki\]](#): "In physics, a lever (from French lever, "to raise", c.f. a levant) is a rigid object that is used with an appropriate fulcrum or pivot point to multiply the mechanical force that can be applied to another object." (...)
"The principle of leverage can be derived using Newton's laws of motion, and modern statics. It is important to note that the amount of work done is given by force times distance."

Before going into the main subject, it is important to make sure that it is all clear about what Leverage means, and why is this term so much used in several articles [RBG95, HV99, NER00] concerning the importance of Software.

So as it can be understood, Leveraging software is the act of acquiring *greater Business value* with the *same Software*. There's already some literature on how to do this [RBG95, HV99, NER00, GW08] but certain points will be proposed here that could be used in order to effectively Leverage Software.

Existing ways of Leveraging Software (Ross, Beath and Goodhue in 95) [RBG95] refers to a model focused on three main assets that used together and combined, can leverage the Software (already presented in (2.3)). Ross et. all, believe that by enforcing the relationships between those three main assets (*Human, Relationship* and *Technology*) and the assets themselves, not only will there be an impact over the IT processes, but the processes itself will also gradually alter the state of the assets. Therefore, there's a big focus on the interplay between the three assets, since they will determine how the three IT processes (Figure 2.4) will generate Competitive Advantage (2.2.2) in the future.

A curious study by (Nuseibeh et. all in 2000) [NER00] claims that tolerating or even encouraging **inconsistency** can be used as a tool to provide three main things:

- "improve the development team's shared understanding, "
- "direct the process of requirements elicitation, and "
- "assist with verification and validation."

But in order to be able to use these strengths or these outcomes, there's a strong need to have a inconsistency Management to control and address the situations accordingly.

(Henderson and Venkatraman in 99) [HV99], have created a study focusing on Strategic Management and its value towards IT. They have developed a model (*Strategic Alignment Model*) which has four pillars in the domains of strategic choice:

- *business strategy*
- *information technology strategy*
- *organisational infrastructure and processes*
- *information technology infrastructure and processes*

This model is then evaluated according to two characteristics of *Strategic Management*:

- *strategic fit*: which evaluates the degree of integration between the external and internal components
- *functional integration*: which evaluates the integration between the Business unit and the functional part (which was also partly mentioned and focused on here. (2))

Although there's a strong belief that the current literature regarding this topic is correct and worthy to take into account, the findings that will be presented here will touch a more practical side of the theme and could be described as simplified processes which can directly contribute to the benefit of the organisation.

Structure of the chapter It will be firstly presented here the need to have this kind of focus on these points (4.1), then a description of the two main values which will be here focused in order to bring the so called Business value from the Business (4.2). These values are the *Adoption of the Software* (4.2.1) and *Scope of the Software*(4.2.2). Afterwards it will be then presented the **three main points**(4.3) that can be focused and reshaped to achieve the already mentioned Leverage:

- *Capabilities vs. Applications* (4.3.2)
- *Progressive Deployment*(4.3.1)
- *Grouped vs. Splited Deployment*(4.3.3)

With this it is expected to make it clearer, the knowledge and overview of the importance of the findings made here.

4.1 Identified Need

Although it has been already more than once here briefly presented and strived the need to have the Leverage of Software, it will be here briefly mentioned some of those advantages which are more close to the case study effectuated (3).

It will be here focused two main reasons to Leverage Software (in this case):

- Productivity / Savings
- Spread of scope

One of the most evident and most important reasons why in general companies should strive to improve Software Productivity / Leverage Software is its **immense cost** nowadays, which is not decreasing, it is instead growing fast. Making it therefore that any savings will be larger and will grow larger in time. [Sel07].

An example by (Richard W. Selby in 2007) is the one from the US Department of Defense, which in 1985 has spent overall \$140 billion worldwide, since the rates evolve roughly 12% a year, then within 10 years (1995) the values would be \$450 billions. If one thinks that it would be possible to achieve a 20% improvement, then the values in money would be of \$90 billions of savings for worldwide.

Another important reason is the advantage of using Software in terms of **productivity/savings**. As it is widely known, Software enhances *Productivity* as well as *Savings*, and other important values of the Business [Ola00, TKG00]. In case there's no Leverage of Software and no focus in making users comfortable and utilizing the software, then there's a strong chance that part of this additional value and productivity that the software is supposed to deliver is being lost or at least not seized to its full capacity.

This was actually the main reason that lead the project inside Procter & Gamble to start, in order to find answers on how could the productivity and the savings provided by the software be Leveraged.

The final reason here presented, also one of the reasons why the project started in Procter & Gamble, is regarding the **scope of the Software**. Nowadays Software has two main characteristics suitable for increment of scope:

- easiness of customisation: More and more, customisation is trendy, and believed to bring several benefits. [SBF01] Such thing also makes it easier for scope to be spread, since it makes it possible for customising Software to new markets/users, ...
- easiness of scalability: Also linked with the previous point, the easiness to scale things, since more and more things are easier to reproduce and to implement in other places, given the understanding of Software and scale processes that one can find nowadays [DMM98].

Both these conditions make it easier for an increment of the scope, so basically with the same Software, it is possible to increase its scope and its users. This will obviously save considerable amount of either *Time*, *Money*, *Human Resources*, ... since otherwise

another Information System/ Software/ ... would have to be created to sustain the needs of the *extra scope*.

4.2 Values to Enhance

Before starting to Leverage things, it is necessary to first think about what can be leveraged and about what were the most important things to leverage in the Case Study (3).

For example, one could say that it would be advisable to Leverage / Enhance the values of:

- **Cost:** As already mentioned above, cost is a considerable high constraint of Software, and nowadays is not getting any lower, quite the opposite. So one of the possible values that could be of great interest to enhance, or to work upon, would be the **cost**.
- **Capabilities:** Another thing that would be important, or *useful*, would be to leverage the capabilities of the software, meaning that with the same capabilities, it could be possible to leverage those into greater things.
One example of this would be the case of the iPod, which with the capability of easy *add-ins* created a great Leverage in terms of the capabilities of the device. [KHMM07]
- **Scalability:** Scalability is something particularly interesting for multi-national companies, something that can save a lot of time and costs.
Something normal from scalability, as well as very useful, is to first focus on a small controlled group and then fix the little details and have the possibility and capacity to expand those functionalities/scale the possibilities to other functions/areas/markets/...
- **Reusability:** Also very common is the reusability of Software. Nowadays it is possible and very common to have in mind this kind of *reusability* from the early times of Design [RBG95] in order to have the possibility later on to save costs by reutilizing Software, instead of building it again from scratch.

But the Case study (3) and this Project has focused in two main values: Adoption and Scope.

4.2.1 Adoption

Adoption, can be reflected into more than one thing. Many think that adoption only refers to the number of users that a Software/Solution has, but this is far from being true, since a lot of times this number doesn't mean anything.

Number of Users It would be a big lie saying that the number of users is totally irrelevant to measure and get awareness of how much has a solution been adopted, but to say that this is the most important aspect of adoption, can be a serious *overstatement*.

A clear case where the *number of users* doesn't play such a big role in defining the adoption of a solution is when there's basically only one solution and it is mandatory for users to use it. In this particular, but very common scenario, it's obvious that the *number of users* measure will be of 100% or at least close to it.

But this is also a very important value to measure, and that should be included in the adoption. By increasing the *number of users*, in most of the cases the adoption will also increase, therefore having as well an increment of the Business Value that the Solution can deliver.

User Satisfaction This might be the most important component of adoption in most of the times, but curiously as well the most discarded one in the majority of solutions. The reason why this component plays such an important role is that by having a high User Satisfaction, the Users / Clients build a trusting relationship of great value for the future, one which can bring many benefits. From better upgrades, to more susceptibility of usage of more capabilities and more exploration of the Solutions, to a very important aspect, the spread of word-of-mouth effect.

An easy way to measure this is by organising User Satisfaction questionnaires. This is probably the most common technique to measure the User Satisfaction, but not the only one. For example a very powerful tool is the sensing done by talking with Users and Clients in order to understand this. [MBGJ00]

Specially in the cases where the Solution is the only possible Solution to be used, and users are forced to use it, this is a component very easy to discard, causing some important consequences. For example, getting the relations between the IT and Business crumpled to an avoidance of usage of the software, and unwillingness of new version, ...

Capabilities used Another thing, maybe not so easy to spot or to focus the attention, is the degree in which the capabilities of the Solutions are being used.

It is totally different to be using a Solution with the only basic components/capabilities, and to take the full advantage of the solution, meaning to use its full capabilities.

Most of the times, there's just a focus for: *"having the Solution build"* and *"having the Solution used"*. But not really a concern of to which *degree is the Solution being used* upon or *how is the Solution being used*.

This is also something a bit more tricky to measure, since most of the solutions don't have or can't have measurements variables throughout all the capabilities present in the Solution, therefore it's much more easy to focus only in the number of users.

A good tool that exemplifies how taking this component is important, and that focuses on getting awareness of not only how many people are using the Solutions, but also how is it being used, it is the case of Google Analytics [[Goo](#)] for the WWW.

Conclusion Now that it was already broken down the different components present in Adoption, it is more clear the reasons why it's so important or useful to leverage Adoption, and how can that increase the Business value.

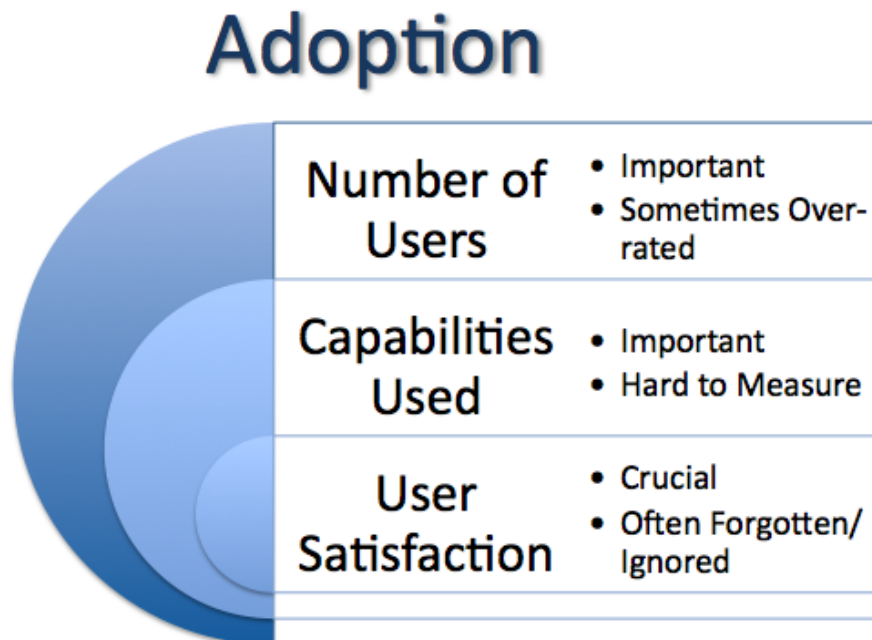


Figure 4.1: Adoption and its components

Figure 4.1 gives a visual representation of a very simplified version of what was

mentioned here. It can be seen from the picture as well that the most important value, the most *nuclear value* is the User Satisfaction.

As can be observed, by focusing on the adoption, as a value to Leverage, Procter & Gamble wanted to focus on its greatest asset the people and the way they use the Software/Solutions.

Leveraging *Adoption* will reflect directly into two main Business Values, the **Productivity and Savings**. This might not be so straight forward at first, but it's actually quite easy to understand.

One of the things that Procter & Gamble is certain, is that its Solutions are able to enhance productivity, therefore if more users use the Solution, or a bigger part of the solution, then more Productivity is generated out of the Solution. The same kind of thought can be applied to savings. Since it's quite clear that Productivity in Companies means Savings / Increased revenues, then by increasing Productivity, it will also be increasing the Savings / revenues.

Figure 4.2 is a simple exemplification of how this works, and of how leveraging adoption can accomplish the benefit of the Business.

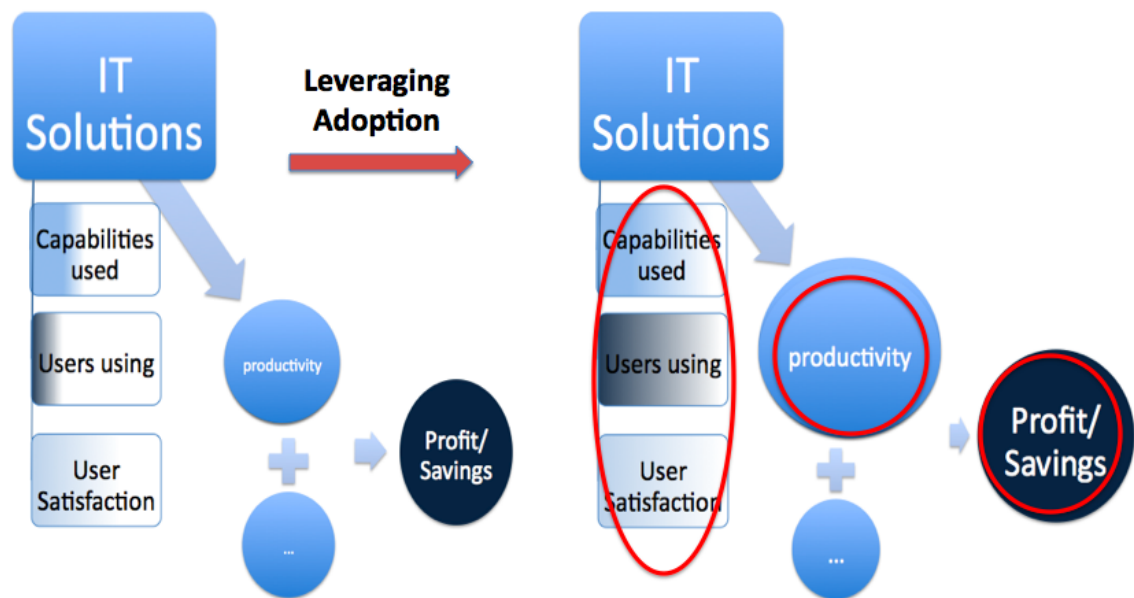


Figure 4.2: Scheme of how Leveraging Adoption can benefit Business

4.2.2 Scope

Leveraging Scope is based on and relies on one important value/measure from the previous point which is the number of users.

The whole ideology behind this is that as described previously in (4.1), nowadays big companies know very well the importance of increasing the scope of Solutions, which probably caused it to be easier as well to improve the scope (for the reasons already mentioned above).

Scope can be divided into two main values:

- different location/market but same functionality: which occurs in a case where for example, we're talking about the same kind of job but performed by people in different zones.
- different functionality but adaptable: a good example of this, could be Management of Salaries, this doesn't depend so much on the division, or position, the solution could easily be adapted or shaped to work across different market-areas.

Enormous size of companies Probably the biggest motivation to strive for Leverage of scope is that the bigger the company, the more there is to gain from this Leverage.

Considering an example with 10 locations spread across the world, and that in one of those locations there's an implementation of a Stock Management Solution which has proven to provide a saving of \$ 5 millions per year. The solution has costed \$ 1 million. If someone would Leverage the Solution across the 10 locations, spending \$1.5 million on adapting the Solution in order to scale/increase the scope, then (s)he would have saved \$ 7.5 millions, and managed to have the 10 locations using this Solution, that provides \$5 millions per year, making therefore that the company will gain a \$50 million of savings per year, having spent only \$ 2.5 millions, instead of \$ 9 millions to create 9 new applications.

Obviously those things don't work so simple, but this example might be easier to understand. The curious thing is when one imagines 100 locations for the previous example, and thinks of the possible savings.

Since the company in which the Case Study was focused on (Procter & Gamble) is the biggest *consumer goods* company in the world, it makes sense that this was a particularly interesting point to focus upon.

Leverage

Integration Another strong reason to have a leveraging of scope, is the fact that nowadays companies are striving for Software Integration. This can bring several benefits to companies, from *cost savings* (e.g. upgrading/updating one system, it is automatically been done for the other as well), *centralised information*, *re-usage of information*, *better analysis*, ...

And by focusing in Leveraging the scope of the Solution, there's an avoidance of starting to break down Solutions, and the risk of creating two different Solutions for the same purpose only different people/function, gets dimmer.

Having said this, it can be concluded that Leveraging the scope of IT Solutions, can contribute for other indirect things such as a bigger opportunity of *integration*, *centralised information* as well as *more feedback* (the bigger the scope, the more feedback will be generated).

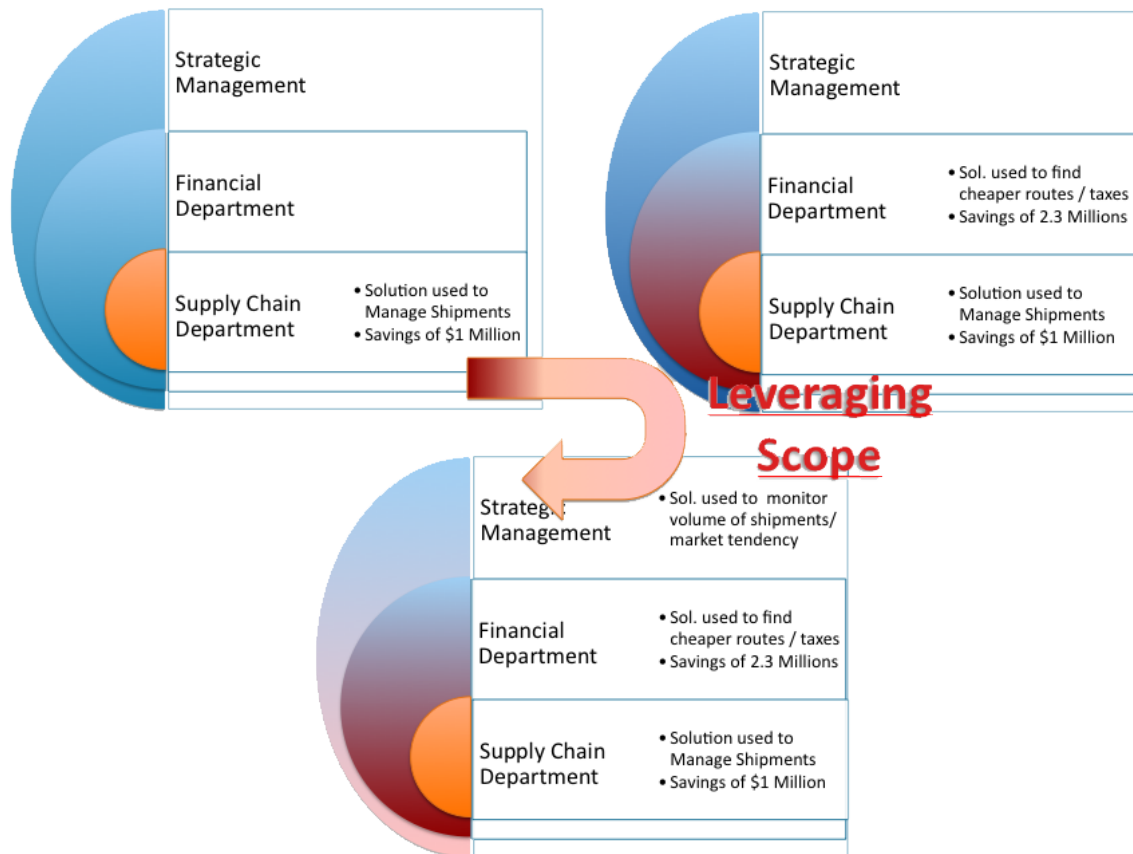


Figure 4.3: Example of Leveraging Scope

Figure 4.3 above represents a simple example of the Scope Leveraging that was already mentioned throughout this Section. It clearly shows the value that can occur and how this leverage can be used to get advantage of the Business Values.

4.3 Deployment

Deployment stands for the process of preparation for the Launch of the Software Solution, or the preparation for the time once the Software is ready and the Users are ready to start using the Solution itself.

There's a set of activities or occurrences present in *Deployment* which consist a high importance to understand what to do. The understanding of these activities also help and are present in a way in the SIMPLTM (3.1) (although it was not taken into a very deep level here).

The activities more relevant for our case are [Wikd]:

- Release: Which corresponds to the date itself of which the Solution will be available officially to the *users*
- Training: The period in which the Solution is being advertised and *users* are being prepared to use it
- Adapt: Period in which the Solution might be readjust to fit the *users*
- Update: Point in which the Solution can evolve

Social phenomenon An important finding for this Project was to realise that just like Orlikowski [OR91] wrote, *Deployment is a Social phenomenon*, the way the teams interact with each other, the way communication is passed through the Users, the trainings are done, ... all these are strong contributors (if not, the most important ones) to the quality of deployment and all them rely strongly on the *social aspect of teams*.

A consequence of realising this aspect of deployment, has led companies to focus on the employees without so much technical skills, and focus on people with more social skills that can make the bridge between Business and IT thinner and understand better the Business processes.

In the following subsections, it will be finally presented the consistency of the findings, as well as the measurements or the actions that are possible to make in order to enhance the Software.

The three next suggestions are pretty much correlated, but at the same time they are distinct things, and having one doesn't necessarily mean that the others will follow because of it.

4.3.1 Capabilities vs. Applications

One thing that was already mentioned here (2.2.2) is that companies get much more value from Software by focusing on their **capabilities**, rather than their **Applications** [RBG95].

Since this might seem a bit blurry or confusing, let's try to clarify which is which.

- **Applications:** The Applications is what most of the IT people, or developers are usually focused upon. There's usually since the design stage a strong focus on what can the Solution/Software do. This includes the tasks that the Solution is supposed and can offer, as well as the details of it.

Having a clear understanding of what are the *Applications* of a Software, and its implications is very important, and by any means it should be understood that there's a discouragement from this Project to think about the Applications of a Solution. What is however believed, is that such Applications most of the time tend to be:

- Too detailed: Specially to the Business Unit, Managers. There's not so much interest in knowing all the application of a Solution, the facts are the most important things for the users;
- Unnecessary to know for most of the users: Usually end-users will only need 40-50% of the whole application;
- Take focus from other more important points: By focusing on the applications of a Solution, there's not much focus on what is the big picture, on why are the users using that application;
- Overrated its potential: "It doesn't matter to be able to put a man on the moon, if there's no need for it".

Examples: If one considers the example of *Logistics Software*, a tempting selling strategy would be to focus on its Applications: "*capable of inserting 10.000 trucks in the system*"; "*capable of displaying all the routes from the company to the client*"; "*capable to assign a route to a truck*", ...

- **Capabilities:** The Software Capabilities refers to what can the Software be used for. What is meant with this term, is to represent the real utilities of a Solution/Software. In other words, one could also call this the Business Value, it isn't totally the same thing, but very closely correlated.

The capabilities of a Solution could be translated into some questions:

- *What is this Solution really going to be used for (reasons)?*

Leverage

- *What is the big picture, what value/profit does it bring using the Solution?*
- *What do Users gain from using it?*
- *What do Users lose from not using this Solution?*

So as it can be observed, these are questions that address the big picture and that focus on the Business Value/Profit that the Solution is bringing to the company.

Examples: Picking the example from the previous point, the *Logistics Software*, it is possible to understand that some important focus could be stressed. For example one could stress out certain characteristics of the *Logistics Software* which are Capabilities: *"possibility to save \$1 million per year with combustibles savings, by always finding the shortest route"*, *"possibility of saving three hours per week in planning routes"*, *"possibility to have a better reporting of the Market distribution"*, ...

Now trying to think what makes sense in a *Business environment* it is clearly the 2nd, the perspective of the Solution Capabilities, that's what Users want to hear, what users will be able to relate better therefore creating an engagement relationship with IT.

Let's see now an example of car selling, it is possible to make an analogy between the two different perspectives with the case of selling a car. For this the roles assumed are as followed:

- Car seller → IT Team
- Car → IT Solution
- Client → Business Unit / Client / Users

Figures 4.4 and 4.5, give a better visualization and explanation about what it is tried to pass here with the distinction from Applications and Capabilities.

1. In the first Figure (Figure 4.4), a way to sell the car can be seen that focus on its applications, where the person *deploying* the *car* to the Client/User, will break down the car into all its functionalities and try to pass with this way the full picture of the car. This will of course not have the desired impact since the Users/Clients won't be able to form the big picture of the whole car.

Selling arguments:

- *"Car has an amazing wheels system, can hold 200 km/h on a steep road with a good grip"*



Figure 4.4: Car with an Applications (mostly IT) perspective



Figure 4.5: Car with a Capabilities (mostly Business) perspective

- *"Has shock protection on the sides, airbag system, link to emergency line"*
- *"Can go 100 km/h in 5.8 sec."*
- *"Place to hold 500 cm³ of luggage"*
- *"Robust fiber material, unlikely to get damaged, scratched"*
- ...

2. Taking a look at the second Figure (Figure 4.5), it can be found that things change a lot. The language and focus used on selling the car changes totally, and so does the perspective of the car. The seller (IT Team) will be more focus on the Capabilities of the car and on the benefit that the car brings, rather than its Applications.

Selling arguments:

- *"The car is safe, even driving fast"*
- *"In a crash situation, the car will bring 70% chances of survival to all its passengers"*
- *"Car can accelerate easily, go fast and overtake other cars"*
- *"Spacious for the family and to carry needed items"*
- *"It's a car that given its beauty will also bring prestige and admiration"*
- *"Very limited maintenance per year and not a big devalorization within the years"*
- ...

As it can be observed, the two distinct perspectives are very different one from another. It is not intended here to state that it's advisable to think about IT Solutions only in a

capabilities perspective, and discard the *applications*. This is totally not advisable, since in the process of "*selling the car*", there will definitely be enthusiastic and curious Clients that will want to know all the applications, and that wouldn't want to "*buy/use*" the car otherwise.

What it is here strived is that given the unique circumstances of a Business environment (shortage of time, fast evolvement, few technical background / interest, ...) it is much more advisable, and this will bring more benefits if one focus on the *capabilities* of software, rather than trying to pass to the clients the picture of the Solution by giving all its functionalities.

4.3.2 Progressive Deployment

Probably one of the most important measures to focus upon and to make sure that should be improved is this *Progressive Deployment*.

This was also the most important and first discovery from the Case Study([3](#)).

4.3.2.1 Opportunity

Figure [4.6](#) shows an illustration of the opportunity spotted that was thought to be improved, bringing more value to the Business

What can be identified in this figure, is two axes which signify,

- Value Creation: which refers to the value that the Solution has towards the business. This can be measured through *profit, productivity gain, competitive advantage*, ...
- Time: the period in which the solutions are being released / assimilated / deployed / used by the Business. This is important, specially if one considers that the Business trends change, and that the market is in constant change and can't be thought to be stable.

What this figure shows is that the value that the Solution starts to decrease over time. This can happen due to several motives, from *change of business environment*, to *discontinuity of the promotion of the Solution*, *change of people assigned* , ...

Usually what happens is that the value reaches a critical value, for example in our case *5.5 out of 10 values* and then there's a need to increase that value, quite most of the times by releasing new software.

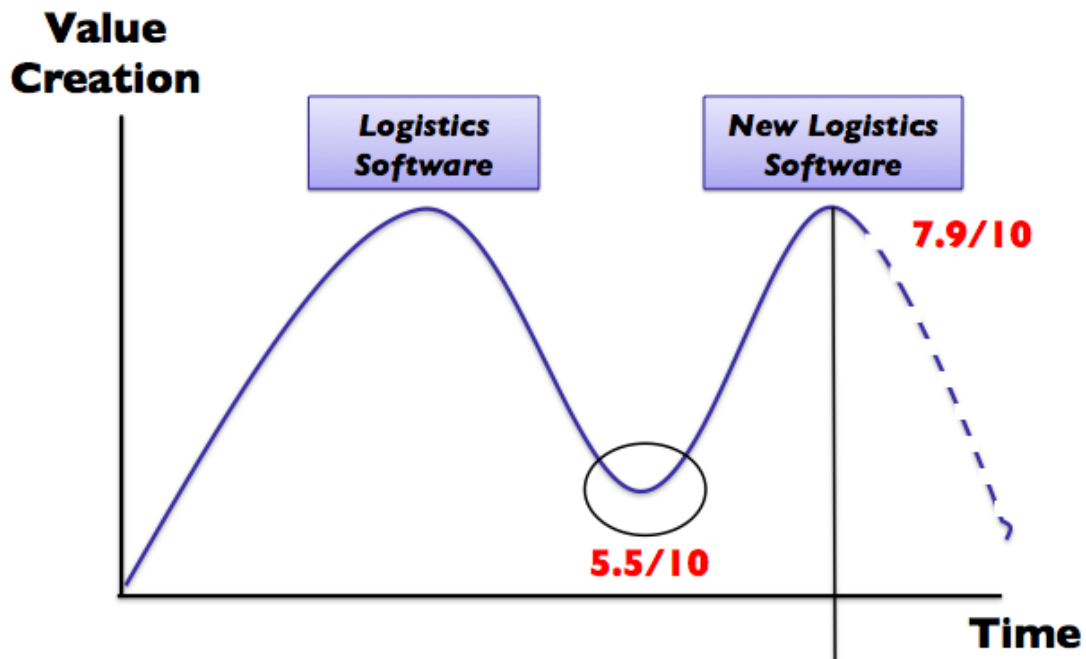


Figure 4.6: Opportunity that could be enhanced

Obviously this causes huge investments which could be avoided most of the times. Not that there wouldn't be a need to have updates, but the updates could be done in an incremental way, instead of bringing hard updates to the market.

Hard Updates: Hard updates are extremely expensive, and not just in terms of the *costs*, but as well in terms of *time to assimilate* the new release, the *commercialization*, the *people involved*, ...

Although necessary and sometimes even advisable, Hard Updates can and should most of the cases be replaced by a more frequent release / updates, Soft Updates.

4.3.2.2 Distinct Phases

One thing that was discovered also thanks to the feedback, and to the contact with the experts that worked close to deploy Solutions to the Clients/Users, was that there's a clear need to have two distinct Phases in the period of deployment of Solutions to the Business.

The feedback gathered suggested that one of the things that could/should improve in the process of deployment of Solutions is this kind of distinction, since the idea or the impression that the actors involved in this have, is that there's a mix of Phases and IT tries often to do two things at the same time, which can only cause confusion.

The two distinct Phases are the:

1. Stabilization represents the period in which the Solution is ready, where users are getting acquainted with it, and where often the startup-issues are being solved/fixed. It is also in this period that the users get in touch with the Solution and understand it.

This phase is mostly a technical Phase, and phase of transition.

2. Expansion refers to the period once the Solution has adopted itself to Users and Users have adopted themselves to the Solution. This means that the solution stays the same, and there's now a need to do something more.

This something more refers to expanding the Capabilities that Users are not yet using, to them. So for example, understanding what are the users using and then trying to increase that usage to other things that might be benefit for their work.

This phase is also much more focus on the Business value that solutions can bring, and how to increase it.

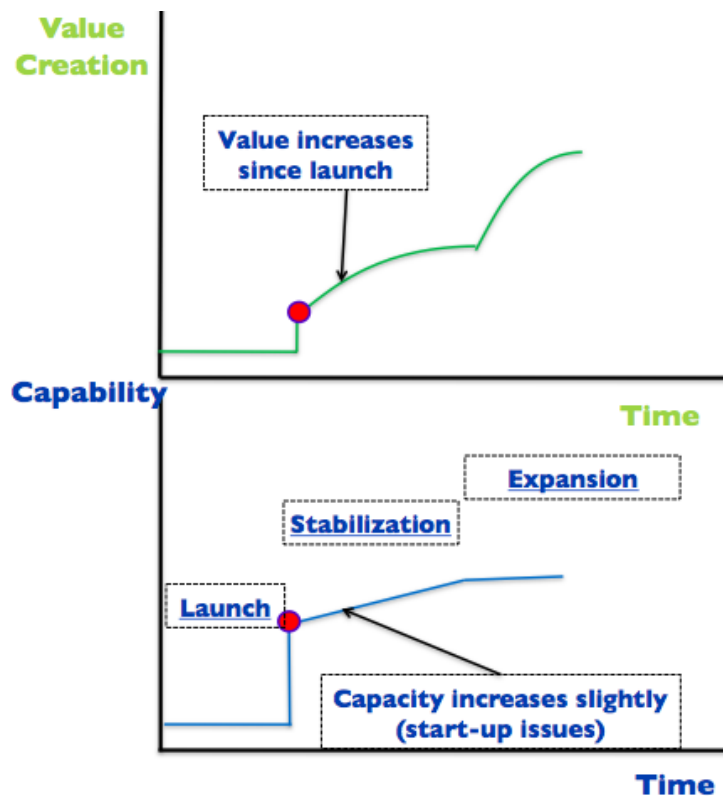


Figure 4.7: Graphic showing the two Phases

Figure 4.7 represents what was here mentioned regarding the two phase. This is a two dimension graphic. While it was being elaborated in the Case Study (3) there was a

need to differentiate between the Capability that the Solution has, and the Value Creation that the solution brings to the Business (same dimension that the one in (Figure 4.6)).

What it can be observed from the figure:

- as soon as there's the Launch of a Solution there's a big increment of Capability as well as Value Creation, although this is smaller.
- The period post-Launch brings automatically a big increment of the Value Creation, the reasons for this can be many.

For example, *excitement over something new, word of mouth waiting for the release, commercialisation campaigns, ...*

Another reason is that it's the period of Stabilization in which "*deployers (IT people)*" are very pro-active in contacting users and trying to promote the Solution.

- During Stabilization, there shouldn't be any urgent fixes, or much of a Solution improvement. Meaning that the things that were agreed in the design stage will keep on being the same. However there will probably be some *fine-tuning* once the solution is launched, where people will understand that things are not working properly, and need to be fixed.
- In the Expansion, the solution is already technically ready, so there's no more Capability increment. However, this is the phase where all the *capabilities* are "pushed" to the Business that are not using them still. This brings a huge increment of Business Value, even if the solution maintains the same. To this, one can call it **Leveraging a Solution**.

Something important to phrase here is that these phases don't necessarily need to happen one after the other, there might be a need to have both simultaneously. For example when the Solution is related fully or mostly with processes, there's a need to have the Expansion straight after (or before) the Launch, since the users/business needs to be prepared as soon as possible for it.

4.3.3 Grouped vs. Splited Deployment

An important thing, that could also be connected with the previous section of *Capabilities vs Applications* (4.3.1) is that most of the times, given the big size of companies, the impact of a single Solution can be big as well as the effort to bring it to the Client. This

causes that Solutions are broken down into smaller solutions (sometimes called *releases*, or just *new solutions*) when in fact they are all part of the same thing.

What this causes is that Business units get overloaded with communication leading most of the times to frustration and not eagerness to cooperate and being engaged (since communication is more likely to be decentralized). Also the linkages between this *small solutions* or *releases* aren't so much evident and loss of capabilities often happens from it.

A simple example to illustrate this effect can be shown from Figures 4.8 and 4.9. Another common work for this would be **Packages**. Meaning the whole solution as *Package* vs *several different Solutions*.



Figure 4.8: Splited deployment



Figure 4.9: Grouped deployment

As the figures show (Figure 4.8 and Figure 4.9) with the grouped version there's more intersection, and a bigger chance the curve of Value Creation increases with the time, instead of the *ups and downs* (4.3.2.1). This will be more clear in the next section (4.3.4).

4.3.4 Exemplification

It will be here presented an exemplification of what was said throughout all this Chapter. Figure 4.10 contemplates:

- Enhancement of adoption
 - Increment of the number of Users

Leverage

Increment of user satisfaction

Capabilities used

- Enhancement of Scope
- More focus on Capabilities than Applications
- Progressive Deployment

Taking the opportunity, eliminating the gap

Distinct Phases

- Grouped deployment, think of solutions as a integrated environment

Explanation of the picture, and it's details

- The same dimensions as mentioned in (4.3.2.2) is used to illustrate the example;
- three main Capabilities releases, which can be seen from the same example used in (Figure 4.9 and Figure 4.8) was used in order to illustrate this exemplification;
- There's still the distinction from Stabilization and Expansion, but like it was mentioned previously, this bi-phase doesn't necessarily need to occur for example in *Cheaper Routes Calculations*;
- The particular case of Cheaper Routes Calculations is interesting, since it illustrates a case where, for example the capability grow is not big, (in this case let's just say it's creating a new user type for financial users) but the Value Creation is huge, since having the Financial Users access the calculation of cheaper routes represents a huge Value to the Business;
- Contrary to the example in (Figure 4.6), the Value created is increasing gradually;
- All the three main Capabilities releases (*Managements of Shipments*, *Cheaper Routes Calculations*, *Market Tendency*) are viewed in the same charter, they're seem as one unique Package.

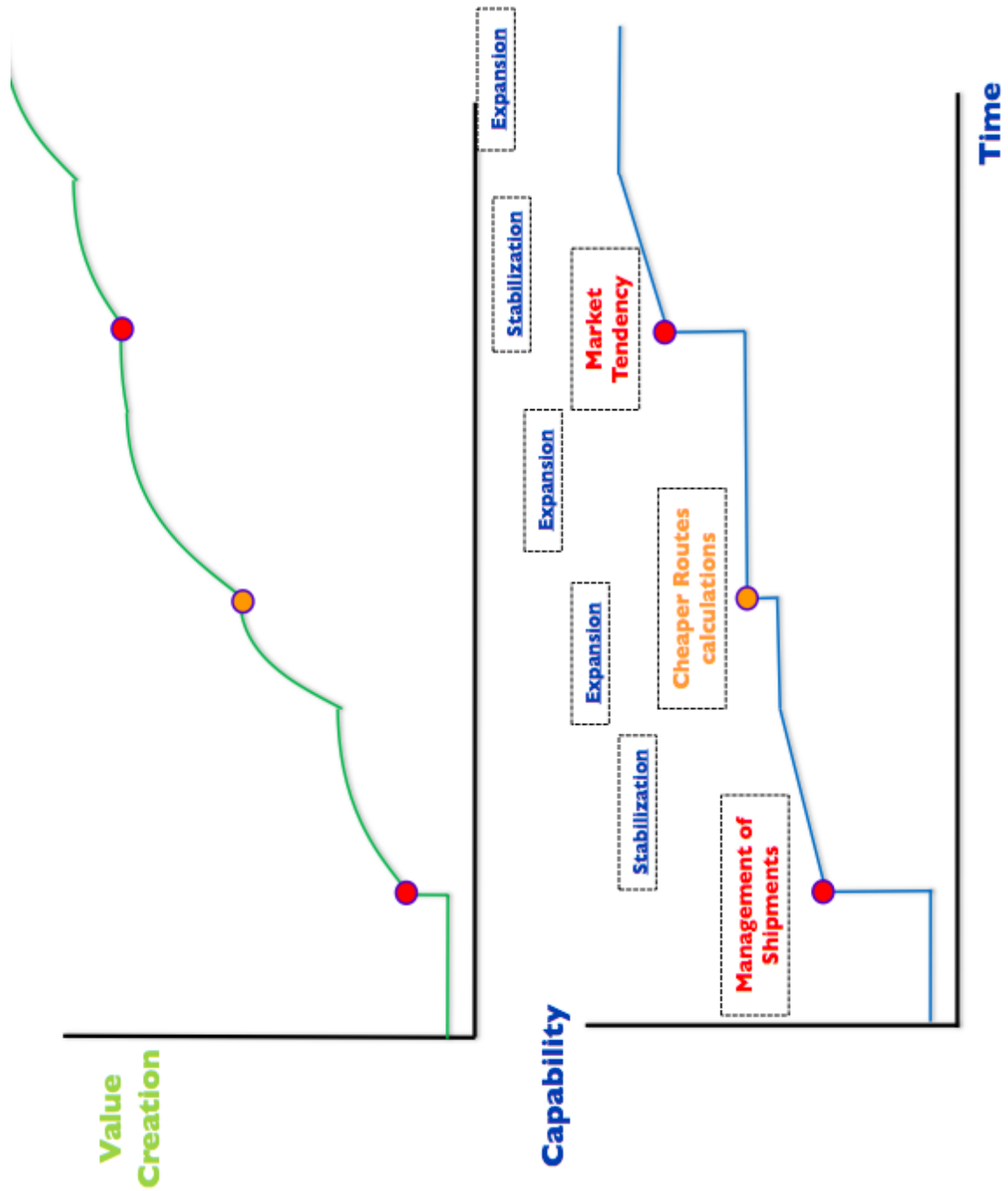


Figure 4.10: Exemplification of Leveraging a Solution

Leverage

Chapter 5

Results

Something important when involved in a Project like this is to think about what they can contribute, and focus on that so that it can be measured and maybe even enhanced.

With this Project it's no different, it is important to think what advantages does the Project bring to the field of Information Technology Management and Information Systems in order to understand it better.

In this chapter it will be briefly presented what are the benefits / gains of Leveraging Software, but not only that. It will also be briefly given some guidance of how to measure (5.2) the degree of Leverage or value created by it.

Another thing important is to bring up the discussion about what was here presented. It will be made a conclusion and bring some questions thought to be relevant.(5.3)

5.1 Main Advantages

Throughout the whole Project it has been outlined more than once advantages that these changes can bring. But let's try to see in the big picture and find the other advantages that might be a bit hidden.

Better position of IT One of the biggest advantage, is that the image and position of the IT department gets stronger from this.

Results

Reasons why:

- *IT Department/Team* will be more accountable by the impact of IT in the company;
- Focus will be in the big picture (what's the final benefit), therefore IT Strategy will be (re)-aligned with the Business Strategy to serve that purpose;
What is meant with this point is that this way IT will be more focus in acquiring a strategic value and serve the company needs not just in the *Resources Level*(2.1) but also in the *Entreprise Level* (2.1);
- It's easier for the Business Unit to recognise the value of IT and give recognition of the value of IT in things like productivity gain, competitive advantage, ...
- Communication will be funneled and perceived as one towards the *Business Unit*, instead of having several sources of communication;
- More structured approach towards deployment, having a clearer view of what needs to be done and when should it be done;
- Obviously, if there's an increment of the value that Solutions bring to the Business, but still having the same costs, this will be seen as a great promotion for the image of IT Department.

Strengthen of Business - IT links Mostly for the reasons pointed out in the previous point (5.1), which by making the visibility and importance of IT bigger, will obviously strengthen their links. But this is not the unique reason.

An important consequence of the approach here mentioned is that IT needs to have a much more *pro-active* role in communication and with a much better attitude (more focused on the *Business Value*). Consequently the *Business Unit* will also be more comfortable in collaborating with the *IT Department*.

This benefit is linked with what has been here written regarding Business and IT Linkage (2). This presents itself as a powerful tool to generate more Value from companies.

5.2 Possible Measurements

There are several kinds of measures, in order to evaluate these advantages.

For example (Thocas C. Powel et. all in 97 [PDM97]) has wrote about measures focusing on the variables of *Human, Business and Technology*. However the measurements of these variables, don't really give the intersections and can't be conclusive. Therefore it was taken further to measure as well IT Performance and Financial Performance.

These Performance measurements were made with a 5 survey items, which was designed to measure two main things: *impact of IT on financial performance* (IT Performance) and *a subjective measure of financial performance* (Financial Performance).

Another example, (Banker, Kauffman and Morey in 1990 [BKM90]) proposes a *data envelopment analysis* [CST00], which is believed to be good for *modeling the production process*.

Bad Measurements Despite all the literature around the topic, it is not easy to measure the impact IT has in the Business profits.

(Erik Brynjolfsson in 1992) [BH00] has elaborated a study *challenging* the measures and findings made by several known researchers (Loveman 88, Weill 1990, Roach 1990) regarding the measures they have done to evaluate the IT impact in *Manufacturing companies* as well as *Services companies*.

Brynjolfsson found 4 main pilares that could lead to defected results.

- Mis-measurement of outputs and inputs,
- Lags due to learning and adjustment,
- Redistribution and dissipation of profits,
- Mismanagement of information and technology.

SAM Model But the best model is believed to be the **SAM**(*Software Asset Management*) [Mic, Wkg] test, which provides a Competency/Value Measurement on the management practices and strategic IT choices that an organisation makes.

This tool provides the inclusion of measures for cost efficiency, cost effectiveness as well as human-related measures.

The most important fact is that Business and IT measures, shouldn't be *one-dimensional*, only technical considerations. They should be multidimensional in order to be able to contemplate all the important variables for this case. [KP05]

5.3 Discussion

This topic (*Software Management, Leverage of Software, Business - IT linkage, ...*) is not an easy topic to approach, mostly because of its ambiguity and the uncertainty surrounding this topic.

There's several reasons that makes this not an easy topic, it is important to mentioned here some that seem more relevant.

The difficulty to analyse the environment surrounding the topic, makes it hard to create a concrete and definitive model of Leveraging Software, in the end it is easier and more feasible / reliable to have a backbone of *common practices / tips and tricks* to help Leveraging Software.

Another thing that one has to keep in mind is that we're in an Enterprise Environment, and this makes it very subjective / dependent from *Market to Market, Business Area to Business Area, ...* One can't really expect to focus, or think only in taking the example of *consumer goods market* and think that Software is the same for that industry as it is for example for the Educational Sector, nor the way it is/should be deployed ...

The findings here made allows *practically*, any sector to implement them and to re-shape or modify the habits in the cooperation, in order to contemplate the actions (4.3) here advised. Although there's not a magical formula on how to implement them, it is believed that understanding very well the context and the actions here posted will help the company.

However, one important thing should be taken into account. This Thesis was elaborated in the hearth of a multinational (Procter & Gamble) and there's two important factors that shape considerably the outcomes of this Thesis:

- IT in Procter & Gamble is delivered by an internal IT Unit (*Internal IT consultancy*) but outsourced its implementation;
- Productivity, savings and profit, would be the main incentives to have this leverage of Software.

Results

The reason why this is pointed out is because in other companies it can be very different.

For example, IT can be delivered by an external company, making therefore the linkage harder, or there might even be the case, that there's not as much motivation to have this linkage as in other companies.

Another thing that could change is the environment, if the case would be in an *educational environment*, then the main incentives could be improvement of knowledge and quality of the technology.

Results

Chapter 6

Conclusions

Throughout 5-6 months, this Project has been developing and been shaped to its final form. But despite this, there's still more to be done, and there's still room for improvement and for update ([6.3](#)).

It will be presented here the knowledge that this Project brings to the *Scientific* and *Business* community. The effort spent in elaborating this Project/Thesis, is only a (*modest*) part of other ongoing efforts that have been studying this topic [WP02, [G.04](#), PDM97, [PW04](#)] (and many others more).

A surprising thing was the naive idea in the beginning of this Project, that there isn't much things done in *Strategic Information Systems* , and that it is still a relative new field. After immersing in the study of *Strategic Information Systems* and its implications, it was surprising and encouraging to notice that studies from this topic date back to **1978** [[Kin78](#)] and continue until the days of today. But one thing was surprising to notice, that there's too much vast knowledge about the topic, but the majority of the studies made are very Theoretical, and don't go so much into the practicalities of what it means to have a strategic alignment and how to use it.

This project (*Leveraging Software to enhance Business Value*) is a Project with the aim to give more understanding and clear tips on how software can be used in better ways. There are several ways to improve Software. Either by *cooperative development*, trying *different management methods*, *promotional campaigns*, ... this approach is another way of enhancing Software, by focusing on the **deployment process**([4.3](#)).

By doing it so, it has been allowed to reach some concrete results and suggestions on what to do in the phase of deployment to reach the enhancement of Business Value. The Knowledge presented in this Thesis (6.1) can bring considerable benefits (5) to companies, although it is still in an early stage.

For one side it is slightly pity that it hasn't reached a level of detail that would be prepared to be called a framework and model ready to be used by companies. But on the other hand it is the most mature thing to do. To first focus and align the theory behind these thoughts, and make sure that they are in conformity with other *types of companies, with other markets, other IT departments, ...*

6.1 Knowledge

Getting more practical and underlying how can this thesis contribute, and how to use the knowledge here underlined:

1. **Underlines the importance that IT can have towards the Business**
2. **Presents a view of Competitive Advantage and how IT can have a role there**
3. **It brings three best practices and how to use them:**
 - Focus on Capabilities rather than Applications*
 - Progressive deployment: eliminating the gap*
 - Group mini-solutions/releases into one Package*
4. **Presents the value that they (three practices) can bring towards the Business**

The first two points were build on articles, and mounted in order to form the desired picture to help provide a good understanding about the *field* where this Thesis is inserted. But these two first points are also *critical* to undertand the importance of the three best practices. They are the introduction to the work here performed and the support from *Literature research* done in order to understand/be able to perform this Project.

The 3rd point is the practical work discovered in the Case Study (3) and shaped according to the research effectuated. Bringing a continuity to the same ideology and effort spent into understanding this *field*.

The final one, the 4th point is in a way the linkage between the 3rd and the *first two points*. It is what enables a linkage between the chapters and understanding about the implications of the findings here presented.

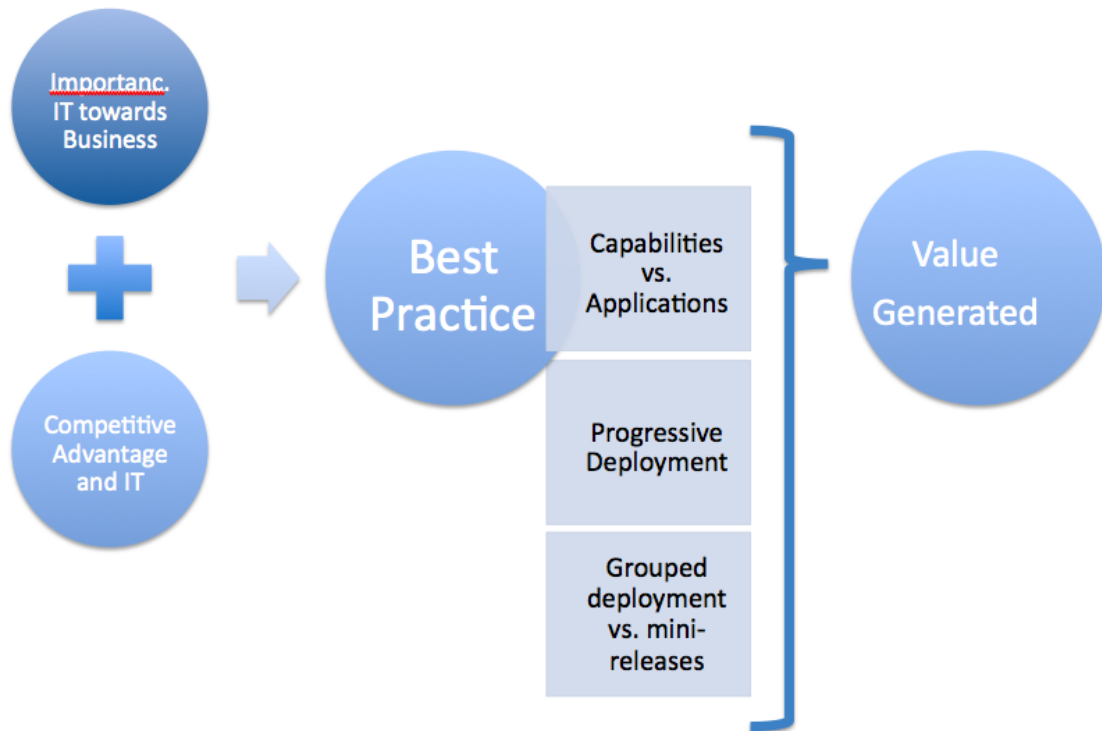


Figure 6.1: Representation of Thesis knowledge / Contribution made by the author with the Thesis

Figure 6.1 represents a graphical view of what was mentioned before regarding the knowledge and value that this Thesis brings.

6.2 Conclusions

The lessons learned with this Thesis, present some practical advices for companies to know how they can benefit more from their IT.

This is the result (like mentioned above) of the practical experience from the author in the branch of Delivering Software (3) and of the work and feedback from experts/champions of this area. Combined with the theoretical knowledge acquired from the literature used in this Documentation (6.3).

Some ideas for further work were presented(6.3) which can bring more insight and get this theory and approach closer to the final stage.

The final stage of an idea like this, would require to have (in sequential order) :

Conclusions

1. Idea finalized and proved with measures (consists of prototyping this kind of thoughts)
2. Gathered the learnings / measures from the previous point and build a concrete framework

Presenting first the Idea and the general concept and reasons for it (this Thesis)

Step by step framework adaptable for different sectors

3. Test this Framework

The big constraint regarding this *further work* is that it would take several months or year(s) to complete it and to make this work totally final. But once this is done, the benefits for companies would be immense.

This Thesis opens the doors to doing something more concrete about Strategic Information Technology alignment. Although the work is very much focused on the company of the case study, the idea is easily transported to other sectors, and even more best practices can surge after understanding this ideology.

The findings and suggestions here presented in this thesis chapter (4) (summarised in (6.1)) were done by the author, but with feedback and suggestions from people in the already mentioned team, WE IS Delivery (3.1).

6.3 Further Work

There's however still quite some room for more things to be discovered, shaped and finalised. As mentioned above most of the studies effectuated in this area are **Theoretical Studies**. There are however some **Empirical Studies** [MM93, BSZ99, HT92, CH93] but the problem with them is that they're all either focusing in a single industry or company, or focusing on a small part of this field. [Luf00]

Also in the same line of thought, my work is also mostly Theoretical and its Empirical side only concerns the studies/observations performed in a *consumer goods company*. It would be stretching the truth to say that these findings would have the same results and that these approach would work the same in any sector / industry.

Therefore, it would be suggested that further work would be done by:

- Researching if these findings could suit other *Business areas / sectors*

Conclusions

- Build a concrete Framework for this steps, a more detailed information on how to do the three best practices
- Verify if these thoughts would work in a different IT environment (one that doesn't have *internal consulting*), for example: companies that have their own IT development; companies that don't have any IT department, ...
- Do some practical tests and measures to evaluate how much these findings enhance the Business value

Conclusions

Glossary

Adoption	Adoption deals with the transfer (conversion) between an old system to a target system in an organization. So if a company works with an old software system, it may want to use a new system which is more efficient, has more work capacity etc, 33
Business	Represents throughout the Thesis the entity inside the company focusing on setting the companies goals, achieving the company's objectives. Administration., 22
Business Processes	A business process or business method is a collection of interrelated tasks, which accomplish a particular goal, 18
Competitive Advantage	Competitive advantage is a position a firm occupies against its competitors, 12
Competitive Intelligence	A process that transforms disaggregated information into relevant, accurate and usable strategic knowledge about competitors, position, performance, capabilities and intentions, 13
Data Processing	Computer data processing is any computing process that converts datas into information or knowledge, 7
Deployment	An arrangement or classification of things; An implementation, or putting into use, of something., 38
Explicit Knowledge	Explicit knowledge is knowledge that has been or can be articulated, codified, and stored in certain media, 18

Functional Integration	An integration approach that combines the components or systems for the purpose of getting a basic functionality working early., 31
Intellectual Property	Intellectual property refers to creations - including inventions, artistic works, names and designs - that are legally protected. Intellectual property includes patents, copyrights, trademarks and trade secrets, 14
IT shortfall	IT shortfall is where the implementation of the business strategy is hampered by inadequate levels of IT support, 11
IT under-utilization	IT under-utilization is when the business strategy fails to utilize existing IT resources to the fullest extent possible, 11
Knowledge Management	The process of capturing, organizing, and storing information and experiences of workers and groups within an organization and making it available to others. By collecting those artifacts in a central or distributed electronic environment (often in a database called a knowledge base), KM aims to help a company gain competitive advantage, 18
Leverage	Leverage (or gearing) is using given resources in such a way that the potential positive or negative outcome is magnified and/or enhanced., 29
Management Information Systems	Management Information Systems (MIS) are designed to provide past, present, and future routine information appropriate for planning, organizing, and controlling the operations of a functional area in an organization, 8
Outsourcing	To utilize a third-party provider to perform services previously performed in-house. Examples include manufacturing of products and call center/customer support. In this case, coding of Software., 22
Scope	In project management, the scope of a project is the sum total of all of its products and their requirements or features, 36

SIMPL

SIMPLTM is a methodology for driving new product projects from the idea phase through to launch and into post-launch, and incorporates many P&G best practices., 23

Strategic Alignment

Strategic Alignment is assuring that investments in IT projects and assets are directed toward achieving the organization's strategic vision and maximizing the profits, 10

Strategic Fit

The extent to which the activities of a single organization or of organizations working in partnership complement each other in such a way as to contribute to competitive advantage., 31

Strategic Information Systems

Systems designed to support the strategic management decision processes and implementation, 8

Glossary

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