Reducing product failure rate in products and product development projects for multinational companies in high-tech industry.

Oleg Paliy

Thesis work
International Business
April 2012

HAAGA-HELIA
University of Applied Sciences

Abstract

25.04.2012

Degree programme

Author or authors Oleg Paliy.	**Group or year of entry** IBe-06
Title of report Reducing product failure rate in products and product development projects for multinational companies in the high-tech industry.	**Number of pages 83.**
Teacher(s) or supervisor(s) Elizabeth SanMiguel (Thesis supervisor and counsellor) Tanja Vesala-Varttala (Methods counsellor) Teppo Varttala (Language check)	

Companies whose core business revolves around development and the launch of new products are facing the challenge that the majority of new products fail on the marketplace. Product failures in high-tech industry is actually greater compared to other new product development industries. Therefore, companies are interested in determining reasons for product failures as well as in seeking improvements to reduce failures.

This thesis is aimed to address and research the area of failing new products.

The Key research questions of the thesis were:

- Why do new products fail?
- What are key reasons for new products to fail?
- How can new product failure rate be decreased?

This thesis outlines the key reasons for product failures and proposes the solution on how to reduce the current high product failure rate by introducing a set of business practices to be included into project and organizational management when it comes to new product development.

The proposed practices were tested in a real business environment and they proved to be working and applicable for the current environment.

Keywords
Product development, project management, strategy, consumer focus and experience.

Table of contents

1 Introduction

Working for many years in high-tech industry in this thesis I try to overlook the industry in terms of why some high-tech products and services are accepted by consumers and skyrocketing while others are failing dramatically. In the further parts of my work I will be presenting some of the greatest product failures of the last decade and later on I will analyse how those failures could have been avoided by adopting a new project management framework.

According to Robert Adams (2008, 2) and Product Development and Management Association failure rate of new products today exceeds 65 per cent, a significant figure which remained very constant over the past years. According Burkitt and Bruno (Forbes 2010) the actual failure rate of new product launches is actually much more substantial and is as many as 90 per cent. There are more misses than hits when it comes to new product launches. Failure rate is claimed to be same high for the products that are developed and deployed by big companies and backed up by powerful brands.

Adams (2010, 2) confirms that the number for product failure rates is substantial. Product failure rate for established big companies is more than 65 per cent, but for the start-up companies' failure rate is even higher at 90 per cent. Adams (2010, 2) claims that high failure rates are not related with recession or financial crisis, but has always been that high and constant for the past 30 years. The statistics of failure rate is even worse when it comes to innovative initiatives. Approximately one in ten product concepts succeed and only one in four development projects are reaching commercial success. Even by the launch phase after all the product tests and market testing are done, one-third of product launches still fail commercially. In the high-tech industry the situation is even worse where only twenty per cent of software projects are commercial winners (Brown, Leavitt & Wright, 2004, 7).

High failure rate when it comes to new product development makes it one of the most uncertain and risky endeavours. Management has to face significant risks and demands for a product or service market relevance and high quality, new products lie at the very heart of many companies' success and survival.

In my thesis I will describe on the new product and service development process within a global and cross functional organization, where the process starts with the organizational strategy which leads to project and product management and finally marketing and go to market. The successful companies known to delivering successful products and services are known for being able to implement that process as smooth and integrated rather than fragmented functional deliveries.

I have over five years of project management experience with a strong focus towards delivering consumer products or services. I can ensure that the classical approach to product or service development has always been formalized around project management as a tool to focus resources around delivering a product within a planned budget, timeline and scope. However the high failure rate seen on the market today dictates the necessity to implement changes to project and product management to decrease the product failure rate. And this is what you will see in this thesis.

1.1 Thesis Objectives

This thesis has three key objectives that are planned be reached along the thesis project. First objective is to address the issue of failing new products by conducting a desktop literature research. The new product failure rate is very high across different industries and even higher in the high tech industry. In later part of this thesis I present and analyse a very high rate of new product and services failures. I try to identify failure rates across industries and focus on the high tech industry where I have most of experience.

Second objective is to conduct a desktop research to find out key reasons of why new product fails. I will overview and analyse internal and external factors affecting successful product development and launch. The research is however will be focused on a global organization, its internal structure, processes and environment and find out what are the key factors that enable companies to succeed when it comes to new product development and launch. I will touch all the business areas which are directly linked to a product development such as corporate strategy, marketing, product development, project management, product marketing and so on.

Third objective is to propose, based on the research conclusions, a list of improvements, later on called framework, that should have a positive effect on the successful product development and launch. Based on that conclusion there will be proposal formulated to introduce key improvements that will lead to successful product and services design, development and launch.

1.2 Thesis scope

There are three common objectives outlined in the previous chapter. When all three objectives are reached the result of research will contribute to formulation of a set of improvements as a framework proposal aimed at increasing the chance for development projects and programs to deliver successful products and services as a final result.

Scope of this thesis is to formulate a framework based on the research results and test its applicability within the real business environment of the multinational company. Framework will be formulated around a series of common business practices assembled in a way that should improve product development and project management practices and will lead to lower level of failures when it comes to brining product and services to the market.

It is important to mention that thesis focus is around key development projects which as a rule are wide scope projects required great financial and human resource investments as well as good alignment with strategic organizational objective.

I believe that a framework will enable any organization or a company to create a consumer focused environment that will incorporate consumer focus as well as product or service validation during the whole process from the organizational strategy formulation, concept creation to development and first time use experience.

This thesis objective is to answer a question of what kind of product and service development process improvements need to be considered by the organization to reduce the risk of failure when it comes to new product and service development and launch.

As part of this thesis I aim at proving that the proposed framework is applicable for current high tech business environment. As a conclusion I will test framework within my organization and present the final results as well as I will conduct interview with my colleagues who are driving strategic projects to verify framework and collect feedback for improvements.

1.3 Thesis demarcation

According Burkitt and Bruno (2010, 1) in many cases product failure is caused by quality issues. However in the context of this thesis products that failed due to quality related issues are not in the scope of the research and framework formulation. Quality on the other hand is an important topic of its own, but the assumption that is such that companies to apply the framework have a solid quality assurance process in place that allows getting product to the market with no or a few minor quality issues.

This work as well overlooks strategy formulation process within a big size company and strategy implementation on the organizational context, review how strategy is translated into actionable items; see how those are implemented in a cross functional and matrix organizations. However strategy formulation and implementation as such is also not in the scope of this thesis, but overview is used as an important requirement and enabler for successful product development as well as an actionable process improvements of what type of changes need to take place to allow more consumer focused approach in development and deployment of innovative products and services.

Important to mention that any company competing in the new product development domain also run operational and internal projects that do not deliver a consumer product as such, but are rather directed at improving internal operational objectives and in the context of this thesis will be out of scope. I will address and underpin how strategic project should differ from the operational and internal projects and what type of things they should deal with.

1.4 Key concepts

Framework in the context of this thesis and defined by the author is a list of business and management improvements assembled around improving project management approach to decrease product or service failure rate.

Product failure rate failure rate represent the percentage of new developed products that fail on the market place Adams (2010, 5).

Customer is a person or company who purchases goods or services, but they are usually not the end consumer of that product or service (Charter Institute of Marketing, 2011).

C**onsumer** is an individual who buys and uses a product or service (Charter Institute of Marketing 2011).

Objectives a company's defined and measurable aims for a given period (Charter Institute of Marketing 2011).

Strategy describes the direction the business will pursue within its chosen environment and guides the allocation of resources and effort (Charter Institute of Marketing 2011).

Resources describe what an organization poses to able to operate and most companies have six resources types such as money, manpower, equipment, facilities, materials, technology (Kerzner 2009, 8).

Project is an endeavour that is undergone with a purpose of delivering a goal or purpose that must be completed according to specification, in time and within allocated budget according Kerzner (2009, 53).

Project management is a centralized approach of planning, organizing, directing and controlling company resources for a short-term objective that has the aim to complete specific objectives (Kerzner 2009, 4).

Consumer Experience is an interaction between an organization and a consumer and therefore it is a mix of organizational performance, what kind of senses that interaction stimulated and emotions evoked during all the time of contact (Colin Shaw 2005, 51).

Organization means a formalized intentional structure of roles or positions of people within a company working together to ensure the required activities are done (Koontz & Weihrich 2006, 144).

2 Thesis project planning

This thesis is organized in a project manner, where the project is split in a few milestones following each other.

Project objectives:

Research what is current new product failure rate.

Review key reasons of new failing products.

Propose how to reduce product failure rate.

Project scope:

Outline key reasons of new failing products in the high tech industry.

Propose and test improvements aimed at reducing high failure rate.

Project duration:

Research: two month

Framework definition: one month

Framework Pilot: three month

Project milestones named with “E” and presented in the following table. Each of the milestones in the following table has key tasks that need to be completed in order for a millstone to be reached. Each milestone has a planned duration to be completed. Please see table 1 for more details.

Table 1. Project milestones, key tasks and milestones duration

Milestone	**Key Tasks**	**Duration**
E-0: Planning and Research	General overview of significant product failures. Identify actual new product failure rates. Outline key reasons behind new product failures. How to reduce new product failures.	2 months
E-1: Framework formulation	Framework proposal and outline Trial plan to test the framework Review and validate framework with stakeholders	1 month
E-2: Framework testing	Framework application in a real business project Review results of the project and framework appli-	3 month

	cation. Interview project managers.	
E-3: Go or No-Go decision	Decision of the framework to become part of project management practices in the organization where it has been tested.	NN month

Following the milestones and tasks assigned in table-1 there is a project plan outlined in figure-1. There all the same milestones and tasks have been depicted. Each milestone can be reached only if all the tasks that it comprises have been successfully completed.

Important to mention here that E-2 milestone is the longest one and has the aim of taking framework proposal into actual business environment project. The project that will test the proposal because of its nature has the aim of delivering a new service to be deployed in the service partner network. Therefore not all of the framework aspects can be thoroughly tested, but the key aspects will. If you take a look at appendix-1 you will see a real project that have been successfully conducted and two out of three framework objectives have been used there very successfully.

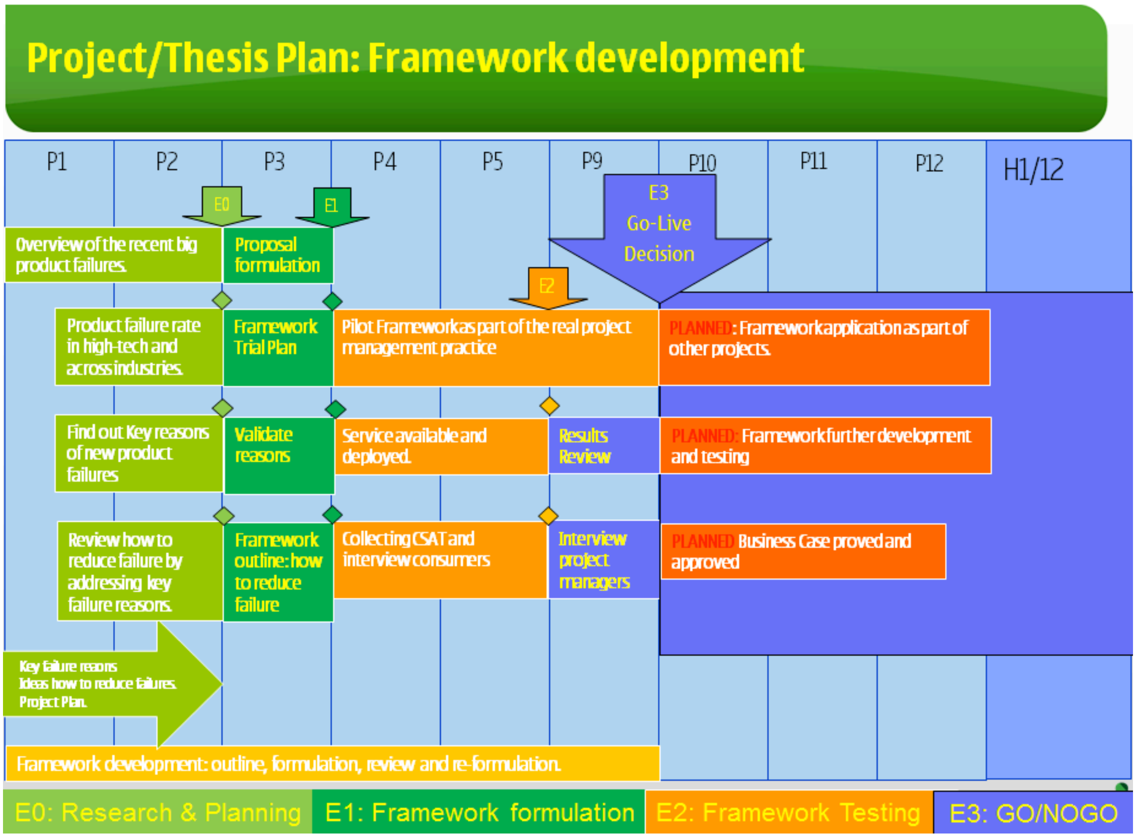

Figure 1. Project plan with key milestones and tasks to be completed.

After all the milestones have been reached, tasks completed the outcome of the project, as stated earlier in the scope, will be a set of practices and proposals that will be presented to organizational management. Proposal among other things have the aim of having an approval from organizational management to start deploying proposal into project management practices to lower product and project failure.

3 New product development

For many organizations developing and launching successful products is actually the only and most important factor driving success. The facts presented in my thesis acknowledge that many new product developments are failing and driving the failure rate down is vital for many organizations to survive and stay in business. Development of successful products on the other hand is vital for the organizational and company growth and success.

Successful product and services launches and acceptance by consumers provide many completely new business opportunities. However a new products and services development needs to correlate to the overall company purpose, scope and most importantly strategy.

Soldatos and Hardy (2007, 62) claim that there has been more and more emphasis put on the new product development process within the companies where in order for the product to be successful a company need to meet two critical objectives:

- Maximizing the fit with consumer needs.
- Minimizing time to market.

Soldatos and Hardy (2007, 62) outline that there is a potential conflicting demands when it comes for a company to reach both objectives, however they reassure that a company needs to employ a proper strategy definition to successfully meet these objectives. A company or organization that is truly successful in term of new product launches is the one that properly articulate strategic goals and align research and development project portfolio to find a balance between the new product development goals and its current resources and competences. The overall company success also depends quite much on how well the new product and its development technology area contribute to the long term strategic direction of the company (Soldatos & Hardy 2007, 62).

Soldatos and Hardy (2007, 62) develop and idea that companies need a process to both reduce product development time and to better incorporate customer and supplier requirements in the product design as well process should have a very strong focus on the consumers.

New product developments are implemented through projects which need to gain the resources and organizational commitment necessary to their completion. Project team includes people from different functional departments which are diverse in range of functions and include suppliers. Consumer focus is central to the product success and therefore it is vital during the whole project phase to keep consumers as key project stakeholders to maximize the fit with essential consumer requirements while increasing speed of delivery and potentially reducing costs (Soldatos & Hardy 2007, 62).

3.1 Product development Great Failures and Successes

According to McIntyre (2009, 1) over the last decade there has been a list of very public product failures in hi-tech industry. McIntyre (2009, 1) claim that quite many well-funded companies with significant market share, experience of successful product launches and competitive advantage brought up failure products that never took off or failed after the being on the market for some time but failing to deliver the potential and expectations that its creators anticipated. (McIntyre 2009, 1).

Microsoft Vista operating system was released worldwide on January 30, 2007. It was a much awaited flagship product from the largest software company in the world. Vista OS had the target to improve and easy user interface and improve the security level of consumers' PCs. However according to Douglas and his referenced reviews the actually the operating system security was not much better, but most importantly Vista was also not compatible with a number of PCs which limited the number of consumers. Vista was running more slowly compared to the previous XP operating system. These factors prevented Vista to become a new successful operating system. After Vista launch Microsoft quarterly revenue dropped for the first time in 23 years according to Douglas. Consumer satisfaction with the operating system was lower than with its predecessor XP. Vista operating system, which was released to public in early 2007, never took off like the company had hoped. According to Schneider and Hall in their article for Harvard Business Review after the Microsoft Vista was ready and launched the company allotted over $500 million for marketing and raised its expectation that over 50 per cent of consumers would run the operating system within two following years. (McIntyre, 2009, 1-2).

Palm Computing Incorporated was founded in 1992 and acquired by Hewlett Packard in 2010. Palm was producing an operating system (Palm OS) for portable handheld devices and desktops. Palm launched its first Palm Pilot hardware device in 1996 as a personal organizer. Since that moment it released a list of Personal Digital Assistants (PDAs) and managed to get to a point where it became one of three companies that dominated the smartphone market. Two other companies were Research-In-Motion, manufacture of the Blackberry devices, and mobile phone giant Nokia. In 2007 Apple entered the smartphone market introducing its iPhone device. During that year Apple sold more devices than Palm, one of the earliest producers of smartphones. It became evident that Palm was unable to follow up its success in the personal organizer business. Analysts were quite critical about the fact that the company was unable to realize what real consumers' needs were which is wireless voice and data from the same device. According to Douglas, "Palm just couldn't find the formula for over-the-air synchronization with Microsoft Outlook, which business user's demand and RIM nailed with its BlackBerry device". Company was experiencing difficulties with delaying a few product launches. Palm could not sustain its original success by losing consumer focus and failed to translate its lead position into a consumer oriented device. (McIntyre 2009, 4-5).

Sirius XM according to Douglas and Times a satellite radio service was supposed to be one of the most successful consumer services and electronics devices of all times. Original idea was that the radio service would be commercials free and opens over a hundred stations available either using a portable version of the device or installed within vehicle radio. Service went live in September 2001 and was offered by the merged two companies Sirius XM was XM Satellite Radio. At the end of the year, the service had almost 28.000 subscribers, a year later 350.000 and 5.9 million subscribers by the end of 2005. Analysts expected the company to be extremely profitable once it reached subscriber levels of more than 10 million, however later in the year 2007 the subscriber growth slowed down. Most likely this was caused by an introduction of new and more popular consumer electronics devices like the Apple iPod and iPhone as well as a portfolio of multimedia cellular handsets from other smartphone producers. In the first quarter of 2009 the number of subscribers for the combined service declined dramatically. (McIntyre, 2009, 3).

Iridium is a satellite-based phone system that was designed and developed during the 90th. According to Adams (2010, 5) this is one of the very bright cases to be examples of how even big and sustainable companies with a strong industry background and experience can lose their consumer focus in products they develop.
Iridium Communications Inc. was founded in 1980th and exists today as the only satellite communication company that offers global voice and data communications coverage (www.iridium.com). A technology innovator and market leader, Iridium is advancing the way global enterprises conduct daily mission-critical activities through reliable, near real-time, communications services. Iridium was aiming to deploy a low-earth-orbit satellite system to deliver a strong competitive solution against the cell and land line communication systems. According to Adams (2010, 5) the system required 77 satellites all together since the radio waves can only travel in straight line and satellites needed to be places in orbit in such a way that one satellite could always see another to relay its phone calls.

Adams (2010, 5) claims that there have been multiple challenges along getting the system in place, which actually took place in 1990. This has been quite an expensive exercise to first of all build 77 satellites to survive in space and doing the extensive communication, but also place all of those satellites appropriately. On the ground Earth the company faced not less challenging telecommunication sector regulations. The system was originally planned for a worldwide usage across countries and continents that no other company has done before. However in the end of the day all the business and technological barriers were overcome and the system went live in early 1990s. But there was only one big problem - nobody called. The satellite communication system was targeted for the international business travellers who would pay premium for a device and a single phone number across the entire world. Adams (2010, 6) assures that company must have analysed the market size and potential to model a business case and forecast sales revenue to be generated. However he believes that after that there has not been enough market validation done to analyse the market during development and deployment phase. During the late 1980s the cell phone usage has been growing and business consumers used mobile devices already quite extensively. On the other hand worldwide business travellers have been identified and could get an international phone number worldwide. Importantly those consumers at that time could already get a device that would fit a pocket, but the satellite handset was large and bulky that came with a small briefcase full of attachments to be applied. Another big flaw was a substantial delay during the conversation between two devices. This off course was caused by the distance between the phones and satellites. Adams (2010, 8) claims that consumer had pretty much to say "over" when finished talking to indicate it was the end of his turn talking. This was a bad way to compete with cell phones. Another technical issue that could have been identified earlier is that satellite signal could not penetrate building. And in the age when cell phones were around for quite some time already with penetration everywhere the handset had to have a clear line of sight to the sky and satellite. That also created problems using the device outdoors in urban areas between the building blocks. The satellite phone call cost was estimated to cost 5 to 10 times what a cell call would have costs Adams (2010, 8). Also the device itself cost a few thousand dollars, plus the owner had to attend a two day training to get to know how to use the device with all the configurations required.

Any of those significant system drawbacks could have easily be spotted and understood much before the massive development and deployment work started. One could have surveyed the potential consumers to get more insights about their current pattern of using cell phones when traveling internationally. The data could provide early indicators in terms of the need from the consumers' perspective for the type of everywhere available service and what kind of premium the target consumer would be willing to pay for the kind of offering. In the end of the day it was evident that the actual consumer focus was lost during the initial start-up and also during the actual deployment. Adams (2010, 8).

The above examples of product failures and successes outlined that quite many companies find it really hard to be successful at developing and deploying new products and services. Developing and launching a successful products goes way beyond simply coming up with a great new idea for a product or a service. Even a great invention or innovation does not guarantee a success as in the end of the day developing a successful consumer product is a complex job that comprises many complex tasks that are split between company departments and people with different skills and backgrounds. Examples that listed above have shown that even strong industry leaders with a portfolio of successful products getting trapped with the approach of developing a product or service the company thinks the market really wants, but when they launch the product and start shipping it; it underperforms so that company scrambles to fix it, improve it re-design it and so on or even stop its production completely.

3.2 Consumer focus and experience is of the most importance.

Adams (2010, 16) claims that getting the product right and focusing on a tightly define target group consumers and market will eventually get a company closer to launching a product on schedule. According to Adams (2010, 16) that by focusing a product or service feature set to a defined target group would allow company to address the real needs by the majority of target consumers instead of wasting and effort of trying to address a broadly defined market with lot of generic features that targeted at addressing the average market but directly appeals to no specific target group or market.

Today management around the globe realizes the increasing necessity of their companies to develop needed skills and knowledge to compete effectively in domestic and international markets. The emergence of open market economies, globalization trends and expansion of Internet dictated the new approaches and rules of competition therefore companies and organizations regardless of their sizes a proper and up-to-date management in place. Key success and sustainability factor is the way organization is managed and performs. (Doole & Lowe, 2008, 3)

Hulbert, Capon & Piercy (2004, 1) from their first page outline that today companies live in an era of total competition. That implies that company commitment to its customers is at its highest value. Nowadays senior management of global companies more and more talk about their companies to become customer-focused, market-focused and so on. These senior management direction drives company strategy formulation, however in realities these companies in today's competitive market cannot win by delegating marketing problems to marketing department. Therefore traditional approach to strategy formulation and its implementation needs to undergo significant and fundamental modifications as well as rethinking company's entire approach to the marketplace or so called go-to-market approach. (Hulbert, Capon & Piercy, 2004, 2).

According to Hulbert, Capon & Piercy in (2004, 2) success in a marketplace today demands total company capabilities integration into a seamless process and system with the goal of high customer satisfaction with a product or a service provided by the company. Nothing else will ensure company success in the market of tomorrow. Successful companies share one common characteristic which is they act around things that mater the most to their customers – they provide customer value through a really integrated offer.

Consumers are basically the only source of sales revenue that any company gets; all the other activities are pure costs. If a company has customers it has generated revenue and that revenue exceeds the costs it makes a profit. From this perspective customers are basically the only necessary condition for the company to get profit. Therefore customers are the most important company assets. Securing and retaining customers is the only necessary condition for making profit, on the other hand customers is essential element for any company survival, growth and economic value creation. Company value which is measured by its market value represents the company perceived ability to secure and retain customers over the long run and this essentially becomes the management job to ensure that company strategy will accomplish that. (Hulbert, Capon & Piercy, 2004, 6).

Schmitt (2010, 8) is discussing a change from the traditional product marketing approach where marketing is wrapped around consumer product-oriented approach focusing on functional features of the products towards consumer experience approach where focus is on the consumer experiences with the product. Rather focusing on a defined product category and product features Schmitt (2010, 8) argues the importance to focus on consumer experiences with the product, which are not only rational, but frequently driven by emotions.

Therefore Schmitt (2010, 9) states that experience marketing is a form of consumer-focused marketing that creates a tight connection to consumer and consumer essential preferences and feelings. Based on this product experiences are evoked by product, packaging, communication, in-store interactions, sales relationship, and events and so on.

> "The customer experience originates from a set of interactions between the customer and a product, a company, or part of its organization, which provoke a reaction. This experience is strictly personal and implies the customer's involvement at different levels (rational, emotional, sensoria, physical and spiritual). Its evaluation depends on the comparison between the customer's expectations and the stimuli coming from the interaction with the company and its offering in correspondence of the different moments of contact or touch-points." (Schmitt , 2010, 9).

3.3 Consumers at the heart of corporate strategy

Talking about intense competition among service or product providers a focus on the customer needs becomes absolutely essential. The customer therefore takes the centre stage in any business activities, which in its turn implies that satisfying customer essentially is at the heart of any company strategy Hulbert, Capon & Piercy (2004, 5). Strategy meaning on the corporate or organizational level can be defined as the big picture of which business the corporate is in and what it wants to do and achieve with the business (Coulter, 2008, 9). Every company that exists and makes profit has some kind of strategy even if it has not been clearly stated and defined. Company is simply following the steps to move itself closer to achieving the goal of existence and profitability. However the important question is how good this kind of strategy? It may clearly miss great opportunities to do better or not take into account threats that originate from competitors or business environment itself.

Dransfield (2000, 69) argues that performance management as well as human resources management process concerned with getting the best performance from individuals, teams and organizations as a whole, where effective performance management involves sharing and outlining what needs to be achieved in terms of objectives and then managing and developing people in the way that enables such objectives to be achieved. Performance management therefore helps organizations to achieve their strategic goals.

Summary of the above discussed and the realities of today's business environment dictate the necessity of strategic planning in modern companies that reflects the significant benefits gained through an explicitly formulated strategy. The strategic planning insures that the company policies and directions as well as functional departments are coordinated and directed at some common defined set of goals. More and more today we hear about strategic management and now we can define that as a process of analysing the current situation the organization is in; developing appropriate strategies; putting those into action; evaluating, modifying those strategies if and how needed (Coulter, 2008, 6). It is wise mentioning however that strategic management does not focus into one organizational area such as human resources or marketing, but rather encompasses all the organizational functional areas – internal focus as well as external focus where it looks into external factors affecting the organization.

3.4 Product early market introduction

Adams (2010, 16) claims that getting the product right and focusing on a tightly define target group consumers and market will eventually get a company closer to launching a product on schedule. According to Adams (2010, 16) that by focusing a product or service feature set to a defined target group would allow company to address the real needs by the majority of target consumers instead of wasting and effort of trying to address a broadly defined market with lot of generic features that targeted at addressing the average market but directly appeals to no specific target group or market.

Adams also cited that approach that there needs to be a change from a classic marketing approach where a company develops a narrow set of targeted features rather than a wide range of product features for a broad markets as in classical marketing model. Adams (2010, 16) suggests that the right way is to get a product or service quicker to the market with a narrow feature set, but that would allow to enhance product quickly by prioritizing the effort to reflect the must-have features really demanded by consumers versus nice-to-have features that matter, but are not critical to the target market.

Soldatos and Hardy (2007, 62) claim that there has been more and more emphasis put on the new product development process within the companies where in order for the product to be successful a company need to meet two critical objectives:

– Maximizing the fit with consumer needs.
– Minimizing time to market

4 Strategy as a core to product success.

In the previous chapters we have discussed the new product failure rate and its impact in terms of company overall success. A solid and completive strategy is the first step towards consolidating corporate resources around developing new and successful product. Any company that competes on the market with activities around new product and services development should have a clearly articulated product development strategy compiled around clear company strategic goals, strategic arenas delineated with resources, performance measures and a long term commitment (Brown, Leavitt & Wright, 2004, 7). It is hardly possible to visualize a big size company today that would lack conceptual pieces of strategy such as company direction and goals. However companies quite often lack not the strategy defined, but rather the operational aspects of successfully implementing strategy, such as mapping product development activities and initiatives to supplement a current strategy.

A solid and well-articulated corporate or organizational strategy is the first step towards bringing a high product failure rate down for the companies whose core business whose core business revolves around development and launch of new products.

Simister (2007, 1) believes that business strategy became more important today and management of the organizations realizes its top importance. Simister (2007, 1) points out a few major reasons that we can try to look at:

- **Increased competition**. Over recent years there has been a number of attempts to consolidate for example smart phone industry, where new competitors entered the market brining cost reduction and products advancements.
- **Changes in customer needs, wants and expectations**. Customer needs and expectations can change drastically over a relatively short period of time.
- **Poor company or organization performance**. If business is performing high the assumption usually that management team is very skilful and effective and overall performance will remain at its level.

Simister (2007, 1) provides also few barriers for companies to formulate and implement efficient strategy:

- Management team could have closed mind-set, which could usually happen when management has been in the industry for so long that the idea how to compete is limited to current understanding and approach. This leads to only one current strategy and the absence of need to review and changes to it.
- Lack of knowledge on how to implement a formal strategy and put it into action. Strategic planning sometimes is viewed as a complicated procedure which is based on the lack of formal knowledge what strategy really is.
- Change reluctance. People usually are very reluctant when it comes to changes. A new strategy can imply that there will be changes alone the strategy formulation and implementation phase. People may feel that they have something to loose alone the change rather that they are gaining something new and valuable. This also lead to a fact that as a rule people may have little or no motivation and incentives to prepare a strategic plan.
- Absence of the Advocate! If there is no one to put and push the idea forward it will never receive needed attention and support.

However let's also revise a few definitions of what strategy from different perspectives could be. According to Coulter (Coulter, 2008, 5) strategy can be defined in a variety of ways. Early definitions ranged from strategies as integrated decisions, actions or plans designed to set and achieve organizational gals to strategy as simply the outcome of the strategy formulation process. More adequate and up to date would be organization strategy as goal-directed decisions and actions in which its capabilities and resources aligned with the opportunities and threat in the operational environment.

According to Campbell, Stonehouse and Houston (2004, 4) strategy is a continuing process as the company operates in a constantly changing environment where it aims at concentrating its resources on the greatest opportunities. The purpose of business strategy is to make business fit into its environment (Campbell, Stonehouse & Houston, 2004, 4). On the other hand according to Michael Porter (1998, 1) every company competing in industry has a competitive strategy, whether explicit or implicit. This strategy may have been developed explicitly through a planning process or it may have evolved implicitly through the activities of the various functional departments of the company.

I would also like to define what kind of strategies there are, what connects them and what their distinction is.
Mary Coulter in (2008, 7) identified three major strategies:

- Corporate. This is broad and long term choice of what kind of business the company is in, what the company wants to be and what the company wants to do with the business.
- Competitive. This strategy deals with how the company is going to compete in the industry and what and how it would gain its competitive advantage.
- Functional. Answers the question what resources and capabilities do the company has to support corporate and competitive strategy.

Objective of any company strategy is to direct organization towards the well-defined goal where organizational resources and capabilities well aligned to realize the goal. But formulating the strategy (goal direction) is not enough. Goal directed actions is what makes any organization to implement the strategy and ultimately reach the goals. Therefore an organization needs to have a process to analyse the current situation, develop appropriate strategy and putting strategy into action.

4.1 Importance of having a strategy.

First of all word “Strategy” is the most abused and misunderstood words in the management vocabulary (Hulbert, Capon & Piercy 2004, 81.).

Though Hulbert, Capon & Piercy in (2004, 84) provide main four reasons on why to have a strategy, those reasons are:

- Strategy provides direction for integrated effort
- Strategy guides development and allocation of scarce resources
- Strategy helps to identity and secure competitive advantage.
- Strategy provides the basis for achieving coordination.

In the context of new product development effort the successful corporations tend to have a well-defined strategy in place to guide new product development effort to help focus limited resources and competences in the search for new product and services ideas and also to assist in the selection of new product development projects Brown, Leavitt & Wright (2004, 10). Strategy therefore is translated into clearly defined long-term goals for new products and services in terms of strategic objectives such as percentage of sales, profits generated or others that will come as a result of new product launches over the next three to five years.

Now to summarize previous definitions any company that competes in the domain of new product and services development needs to wrap up its management activities around the following:

- Identify consumer needs and wants
- Focus on the essentials of needs and wants
- Identify the best method of satisfying those needs and wants
- Define strategic goals and company objectives around those methods
- Direct the company towards the process to provide product or service that would satisfy consumer needs and wants
- Meet organizational objectives

We have talked about organizations that have its core business model around new product developments which success is at the heart of company success. If the company has identified essentials of its product consumers' needs and wants it has to provide a product that would enable satisfying those needs and wants. Therefore a company needs to formalize its products as such and this is where marketing mix comes to play. Marketing mix of product, price, promotion and place defines the means by which the company translates its strategy from the statement of intent to effort in the marketplace. (Hooley, Saunders, Piercy & Nicoulaud, 2004, 50).

Figure 2. Marketing Mix (Cole, 2004, 272).

Typically the marketing mix starts with the product "P". The heart of marketing mix, the starting point is the product offering and product strategy. It is hard to design a place strategy, decide on promotion campaign or set a price without knowing the product marketed Lamb, Hair and McDaniel (2011, 47). On the other hand product as such is not only the physical unit, but comprises the package, warranty terms and commitment, after-sales support, brand image and so on. Product needs to clearly articulate consumers value as enabler for purchasing decision. By product here I also mean a service which is intangible product that creates consumer value.

Once the product strategy has been defined it becomes clear that the elements of the marketing mix shown at cannot be considered in isolation from the overall company strategy. Meeting and following the items defined the organization is well prepared to achieve competitive advantage in the marketplace. However it then needs to work to maintain this advantage through making one or more marketing mix decisions across national boundaries. (Doole & Lowe, 2008, 6).

There are multiple quite strong influencers when it comes to marketing mix and product decision. Let's look at the list of factors that have direct influence on the product decision:

Social and cultural environment influences on marketing strategy and marketing mix in an immense way. Differences in cultures and social conditions affect in a great way consumers' perceptions and experience. This area determines to which extent consumers across the globe are either similar or different. Cultural differences and language significantly affect the way consumers are using the particular product and the way it's marketing campaign as well as brand to be positioned. (Doole & Lowe, 2008, 7).

Legal systems vary from country to country and a global company is not bound by the laws of its home country, but also by the countries where it operates and the growing importance of international law. Legislation affects many areas of international marketing strategy formulation as restrictions can affect advertising, product appearance, packaging and so on. It makes it highly important that a company has a thorough understanding of the legal environment of the markets it runs its operations. Laws will affect the marketing mix decision in all of its terms – product, price, place and promotion. (Doole & Lowe, 2008, 11).

Economic environment comprises such factors as income, wealth, inflation, balance of payments, pricing, poverty level, interest rates, credit, transportation, employment and much more. Any company that plans to compete on a specific market needs to know the economic policies of the market and the direction in which a market is developing economically. A key challenge for any company is to how the company should implement its strategy across a number of international markets when the markets are diverse in terms of economic development level and maturity. (Doole & Lowe, 2008, 12).

Political environment encompasses any national and international political factors that can directly or indirectly affect the company operations as well as a product development or sales in a particular market. If a country political environment is unstable it exposes business to variety of risks. It is difficult to argue that political and economic environments are very dependent and connected to each other. Any company dealing with international marketing needs to assess the country it operates in and understand the distinctive features and characteristics of the market. (Doole & Lowe, 2008, 15).

Technological environment today is the driving force in international marketing and it shows a trend of growing usage of sophisticated means of technology from Internet connectivity and usage to e-commerce and mobile banking and computing. It affects the forces which can create new products, new markets and new marketing opportunities. It is about application of tools, methods and techniques to improve business production and processes. Healthy technological environment leads to innovations. Innovation is more than just being creative – it is developing and marketing something that can generate revenue. (Doole & Lowe, 2008, 17).

Intense competition on the marketplace forces companies competing in domain of new product development to define and implement a successful marketing mix which must be carefully designed to satisfy target consumers. Marketing managers' role becomes of an inventor of marketing strategies to gain advantage over the competitors and best serve the needs and want s of particular target market segment with an offering that corresponds and addresses the marketing mix decision. By manipulating elements of the marketing mix, management can fine tune consumer offering to address consumer specifics and this way achieve competitive advantage and success Lamb, Hair and McDaniel (2011, 47).

Competitive advantage is a position of a company in a competitive landscape what sets company apart from its competitors. Competitive advantage is necessary for an organization's long term success and survival. (Coulter, 2008, 35). Competitive advantage therefore should be gained through implementing a proper competitive strategy which in the case of new product or service development domain means that marketing mix decision needs to be competitive enough to enable company profitability and survival.

4.2 Strategic Management

So what is strategic management exactly? In simple words, it is what managers do to develop an organization's strategies. And as with most management definitions, the answer usually brings another question: what are an organization's strategies? Basically they're the decisions and actions that allow organization to develop and maintain a competitive advantage (Coulter, 2008, 34). In other words, strategic management is an important task, and ultimately comprises all of the basic management functions – planning, organizing, leading and controlling.

Strategic management influences the organization's performance. That's why you can have organizations that face the same environmental conditions, but with different performance levels – and considering recent studies, there is a wide belief that organization's that use strategic planning usually have better performance that the ones that don't.

Another reason that supports the importance of strategic management has to do with the continually changing situation that organizations face these days, because it helps managers to examine relevant factors before deciding their course of action, thus helping them to better cope with uncertain environments (Coulter, 2008, 23).

Finally, strategic management is important most organizations are composed by diverse divisions and departments that need to be coordinated; else there would be no focus on achieving the organization's goals (Coulter, 2008, 23).

Strategic management is a process of analysing the current satiation; developing appropriate strategies; putting those strategies into action and evaluating, modifying or changing those strategies as needed. (Coulter, 2008, 6).

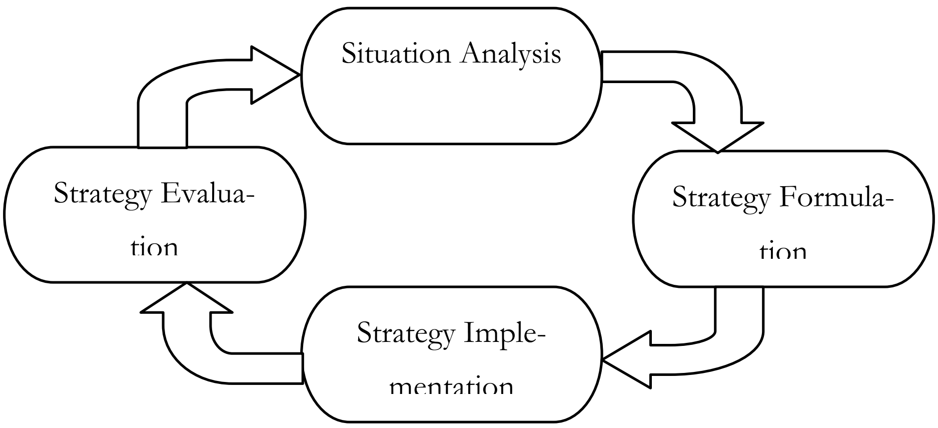

Figure 3. Strategic management process (Coulter, 2008, 6).
Now let’s look at the process of how an organization should develop and implement strategy.

Situation Analysis aimed to help to define and outline the appropriate strategy organization needs to build. First an organization needs to go through the current situation analysis. Situation analysis is scanning and evaluating the current organizational context, external environment and internal organizational environment. (Coulter, 2008, 7)

Strategy Formulation is about developing a competitive strategy by means of creating a unique formula for how any business is planning to compete. Competition in this case means a definition of goals the company is aiming to achieve and policies and processes which needed to carry out those goals. Classical approach to strategy definition is depicted below. The circle illustrates the goals the company is striving for and the means by which it is seeking to get there. (Coulter, 2008, 7)

Strategy Implementation means that the strategy formulated needs to be translated into actionable objectives which then need to be reached. According to Coulter (2008, 8) it is not enough to formulate a great strategy as the strategy has to be properly implemented. So basically at the strategy formulation phase management need to make sure that application of the strategies defined is feasible.

Strategy Evaluation this phase of the circle deals with an actual evaluation of the strategies implementation. Be able to force and then match the outcomes of the strategies application is essential. Organization should constantly monitor both strategy implementation and the outcomes. If the expectations do not match the initial intent – strategic goals, strategy implementation as well as strategy formulation may need to be re-evaluated and changed accordingly. (Coulter, 2008, 10).

Summarizing the strategy management process around the company competing in the domain of new product development we can see that it is extremely important for any organization to provide and keep a strategic direction which will enable corporate resources and capabilities to focus around new product and services development to gain industry competitive edge. Marketing mix at the same time is a consequence of the selected market strategy that is aimed at successfully competing on the marketplace. (Hulbert, Capon & Piercy, 2004, 109).

For companies operating in consumer products industry implementing a competitive strategy would mean that company needs to cultivate internal consumer centric corporate culture that will incorporate consumer focus along the product development process from the early strategy formulation and product concept developments to the final product verification and first time use experience. (Hulbert, Capon & Piercy, 2004, 109).

4.3 Challenges to implement strategy in development projects.

Shenar, Poli, and Lechler (2011, 10) outline that strategy and project managers are having challenges to make strategic thinking part of project management experience within organizations. Corporate and organizational strategy as a rule outline very high level plans and in many cases is too vague. On the other hand projects are about focus and achieving specific goals. Therefore strategic focus needs to be part of managing projects so that project execution becomes competitive weapon for any organization in the coming years (Shenar, Poli, & Lechler, 2011, 10).

In a matrix and cross functional organization strategy brings four common benefits (Hooley, Saunders, Piercy & Nicoulaud, 2004, 84):

- Direction for integrated effort
- Guides development and allocation of scarce recourses.
- Helps to identify and secure competitive advantage.
- Provides basis for achieving coordination.

First of all today's reality in global organizations is that strategies must be coordinated across countries, continents and cultures. Secondly with a rapid changing market environment a company may require changes of the strategy at a high pace. Product development projects executed within organizations are also undergoing pressure from a competitive environment. Thirdly strategy in a global and diverse organization means different things for different people especially in case of companies comprising several managerial layers (Hooley, Saunders, Piercy & Nicoulaud, 2004, 84).

Shenar, Poli and Lechler (2011, 8) discuss about the need to have a different project execution strategy. Project execution and therefore management they claim needs to differ depending on the organizational strategy. Final product or service is seeking competitive advantage on the marketplace and depending on the strategy a product development project as such needs to have a focus.

Shenar, Poli and Lechler (2011, 8) build a link between project management and Porter's competitive strategies, such as cost advantage, product advantage and consumer focus, which we touched briefly in chapter 3.1. Project management practices are wrapped around corporate strategy and are as presented in the following table.

Table 2. Strategic focus and project management (Shenar, Poli, & Lechler, 2011, 10).

Strategy	Positioning	Policy	Process
Cost Advantage	Lowest cost product	Save costs during the whole project lifecycle. Vendor selection, standardisation, development, materials, assembly, deployment will be done at lowest costs possible.	Review product cost frequently within project phases.
Product Advantage	Superior product due to features, quality, design, technology.	Find ways to make product to stand out. Invest in quality and testing, design, features, packaging and so on that will create a superior product.	Review product quality and performance within project phases.
Consumer Focus	Addressing a specific consumer needs.	Achieve consumer intimacy. Understand essential consumer needs, ways of work, problems and people. Learn to think like consumer. Make consumer part of your team and daily work. Let consumer voice be heard in the project decision making process. Let the con-	Include "the voice of consumer" and review consumer needs at each phase of the project lifecycle.

		sumers test the product as soon as possible and adapt consumer suggestions. Create an excellent and outstanding consumer experience.	

The concept of project strategy that has a direct effect on the project management practice is still quite new and not common. Defining, articulating and managing project strategy in a formal way will add a new dimension to the project development products and will get project management closer to becoming competitive weapon for organizations in the recent years (Shenar, Poli, & Lechler, 2011, 10). It is of the very importance to bring project management closer to business strategy which in turn will contribute to project and product success as well as overall business results (Shenar, Poli, & Lechler, 2000, 10).

5 Managing product development

In the previous part of this work I have talked about dependency of business survival for many companies scoped around launching new competitive and consumer compelling products. We concluded that the ability to develop and deploy new products to compete in existing or new markets is one of the most important attributes of many successful companies. It becomes extremely important for these companies to understand which factors are affecting successful product development and launch. As discussed before organizational resources needs to be aligned and directed to reaching one common goal which is an appealing and successful product or service from consumers perspective. Getting the alignment and development direction is usually done through well-articulated strategy which lies at the heart of organizational and company management. Any product development company starts with identification of market opportunities and consumer needs, develops a product that meets market requirements and launches the actual product. This off course sounds very simple and evident, but in between market opportunity identification and product launch there are lots of development activities: product requirements and design, product concept and market validation, suppliers sourcing, manufacturing and marketing. All the activities need to be planned, managed and completed. Company needs to have a product development process it follows and which involves managing and overseeing projects, meet consumer requirements and actual business needs and costs.

According to Schimmoeller (2010, 25) product development activities and efforts are typically organized as project and managed by the classical triad of project components: scope, schedule and costs. Schimmoeller (2010, 25) claims that over the last decade there has been a number of studies to identify the key success factors used in the process of successful product development are as follows: cross functional teams, support of upper-management and support of the organizational structure.

Any organization or a company is comprised of people with different backgrounds and abilities, working in different departments and having different targets and objectives. However, as discussed above, it is management responsibility to make people to work around developing and launching successful products through a well-articulated and clear strategy, which allows individuals to have a clear understanding of what is required of him or her and how assigned tasks are contributing to overall company strategy.

Now let's also have a short recap on the definition management as such. Koontz and Heinz Weihrich (2006, 5) define management as a process of designing and maintaining and environment in which individuals, working together in groups, efficiently accomplish selected aims. Management comprises planning, organizing, staffing, leading or directing, and controlling an organization, where organization can be defined as social arrangement which pursues collective goals, controls its own performance and has a boundary separating it from its environment. One of the key management role within an organization in terms of success is to improve the way organization is managed and performs.

In reality management is needed in different kinds of organizations regardless of their size and operating environment. On the other hand as the global business environment is becoming more and more complex and dynamic management understands how important it is to have a strategy development office to clarify objectives and organize people to accomplish those.

5.1 Matrix Organization

I have mentioned this earlier in this chapter that product development activities and efforts are typically organized as project and managed by the classical triad of project components: scope, schedule and costs (Schimmoeller, 2010, 25).

According to Kerzner (2006, 102) and (Project Management Training and Resources, 2004-2010) in matrix organizations the organizational objectives are delivered via projects – "project driven", where organization attempts to combine advantages of functional structure and product organization.

On the other hand Kerzner (2006, 87) talks about so-caller hidden management revolution that took place over the last thirty years resulting in a new organizational structures to adapt them to be dynamic in their nature and be adaptable to rapid business environmental changes. Business environmental changes are derived from increasing market competitiveness, changes and evolvement of technology and better control of the internal scarce resources.

The best way to present organization is to take a look at the figure 4. There each project manager reports to project manager of project managers and functional staff reports to functional managers. The project manager bares the responsibility and accountability for the success of a project. However to deliver the objective of the particular project several functional staff members will be involved. Functional department in this case have responsibility to maintain excellent accountable staff and resourcing.

The aim of the matrix organization is to maintain synergy of shared responsibility between project and functional management. Among primary advantages of the matrix organizations are the next things (Kerzner, 2006, 105):

– Maximum project control over all the resources through the line managers.
– Critical project resources can be shared within project which minimizes costs.
– Better balance between time, cost and performance.
– Authority and responsibility are shared.
– Stress distributed among the project team and functional teams.

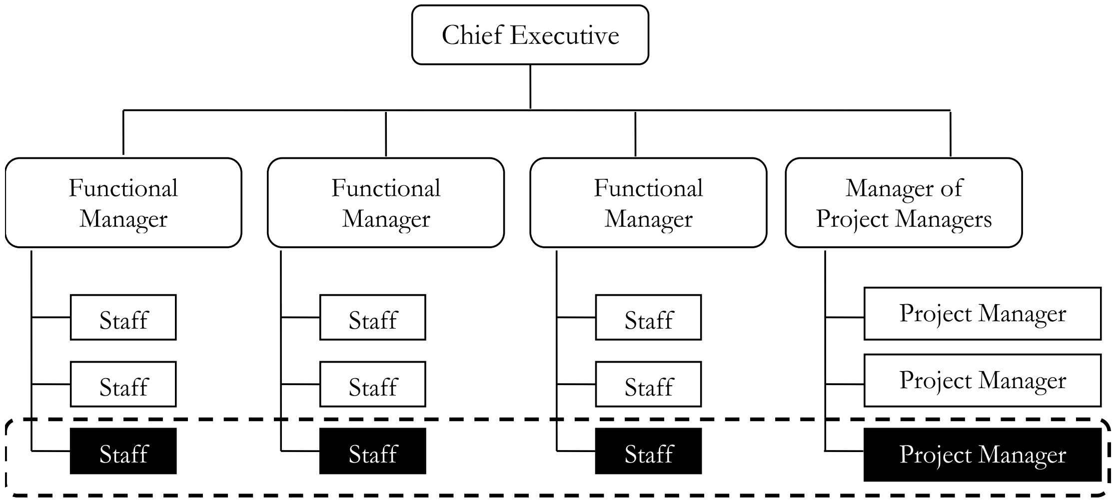

Figure 4. Matrix organization structure (Kerzner, 2006, 102).

Let's also review how strategy comes to play when we are talking about organizational structures and management. In a matrix and cross functional organization strategy brings four common benefits (Hooley, Saunders, Piercy & Nicoulaud, 2004, 84):

- Direction for integrated effort
- Guides development and allocation of scarce recourses.
- Helps to identify and secure competitive advantage.
- Provides basis for achieving coordination.

Now if we look back at the marketing and competitive strategy, take into consideration of the organizational structure it makes it very clear how the strategy could be driven through the organization, however in reality the situation is drastically different.

First of all today's reality in global organizations is that strategies must be coordinated across countries, continents and cultures. Secondly with a rapid changing market environment a company may require changes of the strategy at a high pace. Thirdly strategy in a global and diverse organization means different things for different people especially in case of companies comprising several managerial layers. Companies that have different organizations which are dealing directly with customers face different customer requirements which requires different marketing approach even if the product or service is the same offered across various markets and consumer segments. In big organizations the potential for conflict and discord among key functional managers is significant. (Hooley, Saunders, Piercy & Nicoulaud, 2004, 84).

5.2 Project Management.

Before going into definition of organizational project management we should define what project really is. Project is an endeavour that is undergone with a purpose of delivering a goal or purpose that must be completed according to specification, in time and within allocated budget according Kerzner (2004, 53).

Wideman (2004, 1) defines project as the work required to take an opportunity and convert it into an asset. Assets in this context are instances that will be used in the future for generating a benefit. This definition is a key differentiator of normal organizational operational activities from the project development activities.

Therefore any project is a sequence of activities that aimed at delivering something unique be it a product, service or specific organizational goal. Every program, project, product or service has certain phases of development known at life-cycle phases. Each project has the beginning and the end. This way a project is a sequence of activities or phases through which it will evolve. According to Wideman (2004, 1) this is absolutely fundamental to management of projects. We will be talking about project lifecycle later on in this chapter.

Project management according to Kerzner (2004, 5) is the planning, organizing, directing and controlling of company resources for a relatively short-term objective that has been established to completed specific goal or objective. In order for objectives to be delivered project manager utilizes a systematic approach to manage functional personnel assigned to a particular project. Kerzner (2004, 5) defines classical project management to comprise five functions or principles:

- Planning
- Organizing
- Staffing
- Controlling
- Directing

Planning is one of the key roles and the first one that project manager needs to carry out. Project as we defined before is constrained with time and internal resources to execute therefore formal and precise project plans need to be in place before any project is kicked off. Kerzner (2004, 396) outlines project planning as a function of selecting the organizational objective and establishing policies, procedures and programs necessary to achieving those. Planning objective is therefore an establishment of actions and tasks that need to be carried out within a forecasted and changing environment. However project planning needs to flexible enough to adapt project to constantly changing environment therefore project planning is an iterative process and must be performed during the whole project lifecycle from the conception through the execution and deployment phases. An outcome of a project planning is a solid project plan that identifies all work and tasks required so that it will be clear and understandable to each project participant and stakeholders.

Kerzner (2004, 296) points out three key reasons for a well-developed and clear plan:
- If the tasks within a project plan a clear and well understood prior to being performed much of the work can be pre-planned and accurately estimated.
- If the task is not understood then during the actual task execution more knowledge is gained which leads to changes in recourse allocation to execute the task which in turn leads to changes in schedules and priorities.
- The more unclear the task the more information is needed to be processed to ensure effective performance.

All above mentioned considerations are important in a changing project environment. Projects can differ from each other in terms of its objectives which requires different resources, but any project is performed under the same common constrains which are time, cost (resources) and scope (performance).

Kerzner (2004, 298) outlines four key objectives for a proper project planning:

- To eliminate and reduce uncertainty.
- To improve efficiency of the operation.
- To obtain better understanding of objectives
- To provide basis for monitoring and controlling work.

There are nine major components of project planning (project plan) Kerzner (2004, 298):

- Objective: a goal, target, or quote to be achieved by a certain time.
- Program: the strategy to be followed and major actions to be taken in order to achieve objectives.
- Schedule: a plan showing when individual or group activities are accomplishments will be started and completed.
- Budget: planned expenditures required to achieve or exceed objectives.
- Forecast: a projection of what will happen by a certain time.
- Organization: design of the number and kind of positions, along with corresponding duties and responsibilities, required to achieve objectives.
- Policy: a general guide for decision-making and individual actions.
- Procedures: a detailed method for carrying out a policy.
- Standard: a level of individual or group performance defined as adequate or acceptable.

There are two proverbs that I would like to mention here to underline the importance of planning when it comes to project development:

- "If you fail plan you plan to fail."
- "The primary benefit of not having a plan is that failure will come as complete surprise."

Kerzner (2004, 299) an item that become important in recent years is documenting assumptions that go into objectives and project plans. Assumptions are made and changed because of change nature of economy, technological advances or market conditions. These changes could mandate that project is cancelled. Projects can be defined as strategic, tactical or operational. Strategic planning is generally for five years or more, tactical is one to five years, and operational is now and for six months to one year. Although most projects are operational they can be considered as strategic especially is spin-offs or follow-up work is promising. In strategic or long term projects the future economic outlook can vary from year to year and re-planning must be done at regular intervals because objectives can change.

5.3 Product Life Cycles

Kerzner (2004, 66) states that over the past few years there has been partial agreement about the life-cycle phases of a product or a service. Life cycle refers to a period from the product introduction in the marketplace until its withdrawal. However one is certain - product life cycle is divided into several stages. The best way to introduce those stages is to look at Product Life Cycle Curve shown in figure 5.

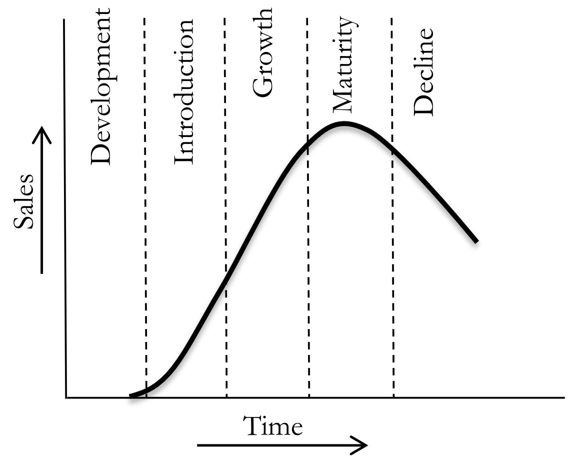

Figure 5 Product Life Circle Curve (Business Knowledge Centre, 2010)

The curve depicted represents the relation of the product life circle phases to the sales revenue the product generates (Business Knowledge Centre 2010). Now let's define all the product circle phases:

Product Development phase begins when a company gets and idea for a new product and starts to concept it and later plan to develop a product out of it. Product development is the incubation stage of the product life cycle. This phase includes market research and validation, gathering and translating various types' information and knowledge and based on that creating a product. During the development phase the actual product goes through a lot of changes starting form an early product concept and product market testing. Company can develop a list of products at the same time, but it will introduce product into the marketplace only and when product survives the market test and proves to be acceptable by consumers (Business Knowledge Centre 2010). During this phase there are apparently no product sales as the company is more in the preparation phase. During this phase product marketing strategy is outlined and marketing mix decision needs to be done. Also marketing strategy and marketing mix could undergo through major changes as the product progresses through its life cycle to adjust to risks and opportunities.

Introduction phase starts when product is introduced into the marketplace. As a result of the introduction the sales of the product are expected to be low because of the low consumer awareness. On the other hand this is the time when a company starts to advertise the product brining the advertising costs up. Advertising costs are usually quite high, but the rapidly increases consumer awareness which is needed to enable sustainable company business and product moving to the next life circle phase. The primary objective for the company at the Introduction phase is to create consumer awareness, establish a market and build primary product demand (Business Knowledge Centre, 2010). During this phase there could be other costs incurred related to for example distribution and so on. These costs can be higher than the low sales which is usually the case for the introduction phase resulting in a negative company profit. However if the product competes in a hi-tech industry the companies seek high profit margins with high prices as the early adapters and technology leaders are eager to buy the product.

During introduction phases there are some key product decisions have to be made that are affecting marketing mix (Business Knowledge Centre 2010):

- Product - one or few products, relatively undifferentiated.
- Price - generally high, company strategy is to seek high profit margin as the early adopters buy the product and the firm seeks to recoup development costs quickly. In some cases a penetration pricing strategy is used and introductory prices are set low to gain market share rapidly.
- Place - distribution is selective and scattered as the firm only starts implementation of the distribution plan.
- Promotion - promotion is aimed at building brand and product awareness. Trials are executed and there may be incentives towards early adopters. The introductory promotion also is intended to convince potential resellers to carry the product.

Growth phase starts when product is proved to be successful and there is a consumer demand for the product. The growth stage is the period when product sales generate a rapid revenue growth. Product awareness is growing and more and more consumers are aware of the product and its benefits. This is the phase where distributors seeing a sales demand are becoming interested in carrying the product. Therefore distribution channel is growing rapidly. When competitors enter the market during the growth stage, there may be price competition and/or increased promotional costs in order to convince consumers that the firm's product is better than that of the competition. (Business Knowledge Centre, 2010)

During the growth stage, the goal is to gain consumer preference and increase sales. The marketing mix may be modified as follows (Business Knowledge Centre 2010):

- Product - New product features and packaging options; improvement of product quality.
- Price - Maintained at a high level if demand is high, or reduced to capture additional customers.
- Place - Distribution becomes more intensive. Trade discounts are minimal if resellers show a strong interest in the product.
- Promotion - Increased advertising to build brand preference.

Maturity phase is the phase where most of the profit generated. However while sales are increasing during this stage the increase is at a slower rather than during the growth phase. Because brand awareness is strong, advertising expenditures will be reduced. Competition may result in decreased market share or prices. The competing products may be very similar at this point, increasing the difficulty of differentiating the product. The company need to place effort into encouraging consumers to switch from competing brands, increasing consumer product usage and converting non-users into consumers. Sales promotions may be offered to encourage retailers to give the product more shelf space over competing products. (Business Knowledge Centre,2010).

During the maturity stage, the primary goal is to maintain market share and extend the product life cycle. Marketing mix decisions may include (Business Knowledge Centre 2010):

- Product - Modifications are made and features are added in order to differentiate the product from competing products that may have been introduced.
- Price - Possible price reductions in response to competition while avoiding a price war.
- Promotion - New distribution channels and incentives to resellers in order to avoid losing shelf space.
- Promotion - Emphasis on differentiation and building of brand loyalty. Incentives to get competitors' customers to switch.

Decline phase is when product sales start to decline and the market becomes saturated. The product starts to fail behind the technology or consumer preferences change. There are cases when product has created a brand loyalty and the product can maintain profitability during the decline phase. Product costs may increase as the production volumes are usually declining- (Business Knowledge Centre 2010).

According to Business Knowledge Centre (2010) at this point company has three options:

- Maintain the product and hope that competitors will exit the market. Reduce costs and find new product use.
- Reduce marketing costs and support and continue harvest the product until no more profits is made.
- Discontinue the production when no more profit is made or develop and launch a successor product.

The marketing mix decisions (Business Knowledge Centre 2010):

- Product – reduce the number of products in the product line and refurbish the performing products to make them look new again.
- Price – prices may need to be lowered to reduce inventory of the products that will be discontinued. Prices to be maintained for the products that continue serving the target market and consumer group.

– Promotion – distribution becomes more selective. Channels that no longer profitable are discontinued.
– Promotion – Expenditures are lower and aimed at reinforcing the brand image for the products that continue.

It is important to mention that product life circle as such can vary substantially between products and industries. Life circle concept as such is not suitable for predicting product sales. Product life circle concept helps marketing managers to plan marketing strategies to address challenges that new product are to face on the market (Business Knowledge Centr, 2010). Today there is no agreement between industries over the common life circle phases of the product and that is due to complex nature of products and industries, but there is an agreement in terms of project life circle phases Kerzner (2004, 66).

5.4 Project Life Cycles

The life cycle is the only thing that uniquely distinguishes projects from non-projects (Wideman 2004, 1). According Wideman (2004, 1) project life cycle is the sequence of phases through which the project will evolve and it is absolutely fundamental to the management of projects. It will significantly affect how the project is structured and managed.

Every project has certain phases of development known as life circles. A clear understanding of those phases permits managers to better understand and control resources needed to achieve project goals (Kerzner, 2004, 66). The basic life circle phases follow a common generic sequence, but exact wording of those phase vary between industries, organizations and project natures.

Wideman (2004, 2) talks about the basic project life cycle which follows a common generic sequence: Opportunity, Design & Development, Production, Hand-over, and Post-Project Evaluation. The exact wording varies between industries and organizations. However in this work I will be using definitions of lifecycle phases defined by Kerzner (2004, 66)

Project life circle phases include:

- Conceptual
- Planning
- Definition and Design
- Implementation
- Closure

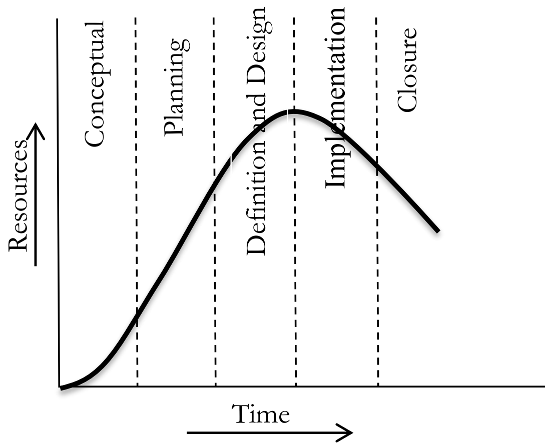

Figure 6. Project Life Circle Curve (Kerzner 2004, 73).

Conceptual phase starts with an idea. Conceptual phase includes the preliminary evaluation of an idea. Important focus of this phase is a preliminary analysis of risks and resulting impact on time, cost and (potential) project resources together with the potential impact on company resources. The conceptual phase also includes the preliminary feasibility study to justify whether the project delivery is actually feasible to implement. (Kerzner, 2004, 68).

Planning phase starts when preliminary feasibility is done and the idea can be turn into a project scope. This phase is mainly refinement of the elements in the conceptual phase and requires a firm identification of the resources required to develop an idea.

During this phase project manager required to establish and evaluate key project constrains which are scope, time and cost (resources). During this phase a required project performance metrics needs to be defined. Also this phase requires the initial set of documentation to support the project. Planning phase is one of the most complex phases as there needs to be a cost and budget estimation completed. Preliminary cost estimation is done during the conceptual phase and should be completed with a more accurate statement during the planning phase. Project costs can be broken down into operating (recurring) and implementation (nonrecurring) costs please see figure 7 for the project cost curve. Operating costs include expenses such as manpower. Implementation costs usually include one-time expenses such as fixed cost development software or construction. (Kerzner 2004, 68-69).

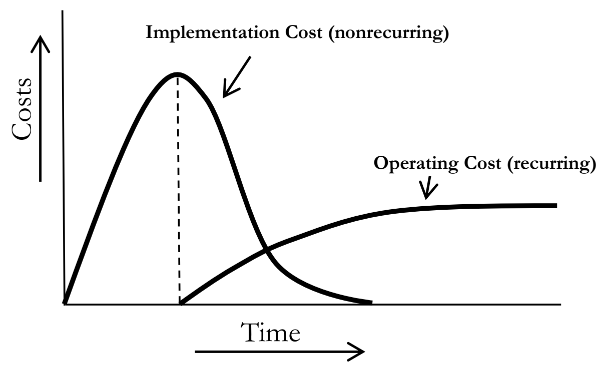

Figure 7 Project Costs (Kerzner 2004, 69).

Definition and Design phase starts when project costs, schedules and scope are defined. Project plan at this stage needs to be approved. During the definition phase all the requirements need to be gathered and listed. Key project stakeholders have to be identified and their expectation of the project needs to be clear and documented. Once the list of requirements is completed and project manager has a solid understanding of the project expectations the design of the product is developed. Depending on the nature of the project the design can result into product sketches, flow charts, diagrams and so on. Project stakeholders and business owner needs to sing off the design and once design is defined it cannot be changed at later phases of the project. Kerzner (2004, 67).

Implementation phase is the phase when the actual work takes place. The project team is working towards delivering project results. This phase constructs the defined and designed project scope as a final product. During this phase contractors are developing agreed deliveries and the product becomes visible inside of the organization. Implementation phase is the actual product doing phase. The final product or service evaluation is the result of implementation phase. The evaluation is done against the design specification which was used as an input for product or service implementation. Kerzner (2004, 67).

Closing phase is the final phase of the project and includes reallocation of project resources into other projects. The closure phase evaluates the effort that was needed to complete a project. Former lessons learnt session takes place to analyse how well the project was done and what kind of process improvements could have taken place and need to be taken into account during the next project to improve overall project performance and avoid some of the mistakes from the current project. The outcome of the closing phase serves as the input to the conceptual phases for new projects. Kerzner (2004, 71).

Important to mention here that we have a same situation as with product life circle model where not all of the projects can be transposed into life circle phases as such because of its nature or industry.

6 How to reduce product failures

Theoretical part of my thesis conducts research and overview of the very vocal product failures and successes that took place over the last decade. The astonishing number of at least 65 per cent of new product launches fails miserably across industries. Failure rate in the high-tech start-up companies accounts for as much as 90 per cent which is even more extreme number. These numbers made it clear for me and off course companies' management that there is a lot of space for improvement in the area of new product development. In my theoretical part I researched areas of the operational company activities which might be improved within any company that operates in the domain of new product development to limit the number of failing products. Therefore big sized companies and international organizations having their core business around new product development should invest time and money to research further area of reasons of failing products and bring failure rate down as much as possible.

Important part that I have on purpose left out of the thesis scope is new products that failed due to quality issues. I believe there is a great amount of products that fail because of poor quality; however this is not part of this thesis research.

In the previous parts of my thesis I overlooked and described the key topics which are related to successful product development and launch. Successful product and services launches and acceptance by consumers provide companies with new business opportunities and open them a fast revenue stream bringing some of the companies to the top list of most successful companies. Based on the research conducted I have outlined three key areas of failing new products:

- Vague link between company strategy and product development projects.
- Product design and decision missing consumer experience.
- Early product introduction and consumer testing.

Now let's review each of the reasons in more details.

6.1 Empower strategy and project links

In chapter 4 we started with a company that competes on the market with activities around new product and services development should have a clearly articulated corporate strategy, which should be clearly linked to product development. If a company wants to be successful it is obliged to have a clear and well-articulated strategic direction, otherwise the company is increasing chances of failure. Reasons for having strategy is that any company has a limitation of the corporate and human resources and to make most of those resources company needs to get them around what is of the most importance and this is where strategy comes to play. However we have also outlined that in many organizations the whole concept of strategy is misunderstood which leads to the fact that company strategy is not clear enough or vaguely reflected in the products that company is producing. This leads to an increasing number of failing products and makes company to suffer financial loses or sometimes complete closure of the business.

Over the last decades management has understood the importance of well-articulated strategy and its successful implementation. In chapter 4.3 we discussed the key aspects of strategic management, where it is about of analyzing the current satiation; developing appropriate strategic direction; putting that direction into actionable strategic objectives; evaluating how well the strategy has been implemented and modifying or changing those strategic objectives as needed.

It therefore confirmed that strategic management influences organizational and corporate performance quite significantly. Recent studies referenced in chapter 4.3 outlined that companies facing the same environmental and business conditions, but the one having clear and defined strategy direction and use strategic management usually have better performance level than the ones that don't.

When it comes to international and big sized companies an organization within such a company needs to address partly the corporate level strategy by compiling a set of stra-

tegic goals which it is contributing to as well as performance measurements through which it then coordinates strategy implementation.
Companies nowadays quite rarely miss corporate level strategy defined, but rather miss the operational aspects of successfully implementing strategy. If we look at the companies that have core activities around new product development we can see that missing operational strategic aspects is about mapping product development activities and initiatives to support a strategy. New products development needs to correlate to the overall company purpose, scope and most importantly strategy. Therefore first aspect of the proposal is an increase of importance to build a strategic link of the product or service towards the organizational strategy. This in practice means that organizational strategic objectives need to be tightly integrated into products and therefore product development projects.

In chapter 3 we reviewed the fact that business environment never remains static and organizations are constantly facing challenges in terms of making decision to steer their actions to be profitable and enhance service they are providing. Any organization within a company should concentrate into delivering its strategic objectives and goals by prioritizing strategic goals over the operational ones. On the other hand quickly changing competitive environment dictates a strong need for adjustments and changes to strategy. Therefore any product development projects within organization should have a clear link between strategic organizational goals and products it is contributing to.

Product development projects that are missing link with a strategic objective should not be executed and management should be able to release scarce project resources to allow better resource pool for those projects that are contributing to the strategy implementation. Important to mention here that within any international and global organization there are projects that are contributing to internal or operational improvements. Those projects should be not considered here.

As discussed in chapter 4 long term projects that contribute to strategy implementation must undergo a regular review and possibly re-planning which is dictated by rapidly changing future economic outlook and therefore changing business strategy. If the outcome of the project is the consumer product then re-planning and product market validation needs to take place even more frequently as the consumer needs and wants change rapidly, especially when it comes to high tech industry products.
In chapter 4 we touch based different organizational structures that are most common for the big international companies. Most common structure today is a matrix organization. In a matrix and cross functional organization strategy brings four common benefits (reviewed in chapter 4):

– Direction for integrated effort
– Guides development and allocation of scarce recourses.
– Helps to identify and secure competitive advantage.
– Provides basis for achieving coordination.

One of the most significant reasons for having strategy planned and implemented is that it can make a difference in how well an organization performs. The most basic questions about strategy look at why firms succeed or fail, and why, when faced with the same environmental conditions, their performance levels vary. The organizations that use strategic management do have higher levels of performance, and that makes it pretty important for managers.

In chapter 4 we reviewed what strategy planning and implementation means in theory, but in the end of the day this is people who make it happen. Corporate marketing and competitive strategy does not take into consideration of the organizational structure and internal development practices. It however makes it very clear how the strategy should be driven through the organization, but in practice the situation is quite different.

Product development projects have the outcome either a product or a service. That product or service is likely to face competition in the market from other competitors. Thus, for each of development product or service project manager needs to have a clear understanding of how well the product fits the overall company strategy, what strategic objectives is the product meant to deliver. At the same time important to have an understanding of how does the product stand-out, how is it going to succeed in the face of competition, which competitive advantage does it have and what is the overall consumer experience that the product is going to create ones it reaches the target consumer.

Selecting the right strategy, making it compatible to the project objectives and scope at the project initiation will contribute to project success and overall business viability. Project managers, project business owners, stakeholders and strategy managers have to learn how to define project link to the strategy, how to define the final product or service and its explicit competitive advantage, how to differentiate project types and alter project management approach.

Project results are aimed at delivering competitive advantage. Competitive advantage should be decided at the project and product definition phase. However project and strategy integration is not part of the common project management practices which we discussed in chapter 5. A failure to clearly define the product and its contribution to the strategy before development projects starts is one of the major causes of new product failures. Missing clear and strategically articulated product definition creates serious problems with product contribution to the overall organizational strategy and in the end of the day causes the product to fail.

6.2 Consumer focus and experience into product decisions

In chapter 1 we discussed that competition today in the global market is getting more and more intense. Customers for many companies are basically the only source of revenue. That implies that company commitment to its customers is at its highest value.

Nowadays senior management of global companies more and more talk about their companies to become consumer-focused. Success in a marketplace today demands total company capabilities integration into a seamless process and system with the goal of high customer satisfaction.

In chapter 3.2 we have talked about the importance of consumer experience design as the sum of all experiences a consumer has with the company or organization. The experience lasts for as long as consumer is using the product or service, starting from the product awareness, discovery, first impression, sales personnel interaction, trial, purchase, use and ends when product is recycled. Experience can also mean a one-time individual transaction. Consumer experience can be positive or negative.

Consumer experience is created any time there is an interaction between consumer and product or organization that has deliver the final product. Consumer perception of a company and its brand is a result of that interaction between consumer and multiple channels that are available like in-store sales personnel, web services, call centres and support centres and so on.

Ultimately any company is striving to create a positive or superior consumer experience to get consumers as loyal as possible. Company aims to create consumer journey which will make consumer feel happy, satisfied, respected, served and cared about.

Therefore it is not enough to make product decisions based only on the marketing mix. Product and service decision needs be based in terms of overall consumer experience that the product is aimed to build. Marketing mix is an enabler for making the right product decision, but it needs to extend to the next level.

For a company that competes in the new product development domain it is essential to organize company scarce resources around key projects that are delivering differentiated products and create consumer satisfaction through a positive product experience.

This way a clear product definition in terms of complete marketing mix and anticipated and articulated experience that company wants to create are essential elements. It is important to have a clear understanding of both a product and service itself, how it will be promoted, what should be the ultimate consumer journey, what kind of consumer experience product is aimed to create, what other corporate functions are going to do to support consumer during the product awareness, first time use and experience in the after-sales period.

Wise to repeat a few key elements of consumer focused products projects that we have looked at in chapter 4.3.

Table 3 Product development policies and processes.

Strategy Type:	Positioning	Policy	Process
Consumer Focus Product Project	Addressing a specific consumer needs.	Achieve consumer intimacy. Understand essential consumer needs, ways of work, problems and people. Learn to think like consumer. Make consumer part of your team and daily work. Let consumer voice be heard in the project decision making process. Let the consumers test the product as soon as possible and adapt consumer suggestions. Create an excellent and outstanding consumer experience.	Include "the voice of consumer" and review consumer needs at each phase of the project lifecycle.

Consumer focus should be the primary objective of any consumer oriented product development project. Essential consumer needs have to be listed and addressed. This will ensure that the product development team is striving to deliver a product that is consumer focused rather than oriented on the organizational needs and priorities. Consumer product satisfaction is the primary indicator of the successful product development initiative that needs to be taken into account when deciding upon the overall project success.

6.3 Product early market introduction.

In chapter 3.1 I referred to a proposed change that needs to take place in terms of classical marketing model and its applicability to realities of today product development. We talked about the need of change from a classic marketing approach where a company competing in the new product development area needs to develop a narrow set of targeted features rather than a wide range of product features for broad consumer segments. This way a company will develop and deploy a product or service much faster to the market with a narrow and targeted feature set. Focusing on the essentials and delivering those faster allows to enhance product or service quickly by setting priorities to reflect the must have feature set.

In chapter 3 we also reviewed the latest companies' trends where claim that there has been more and more emphasis put on the new product development process within the companies where in order for the product to be successful a company need to meet two critical objectives:

- Maximizing the fit with consumer needs
- Minimizing time to market.

Early market introduction is the way project lifecycle and product lifecycle will be merging earlier allowing consumers to experience product at the early product development phase. Consumer focused projects have to have regular business deliveries to the market and set up a way to collect consumer feedback that would allow steering product development as well as cancel the project to save costs in case product perception is poor.

As we pointed out in the previous chapter 3 time-to-market becomes increasingly important when it comes to winning in the marketplace. Product development projects that has a focus of contributing to organizational consumer focus strategy need to understand that time to market becomes one of the key project success metrics. Therefore project managers that are linking their projects objectives with the consumer focus organizational strategic objectives need to have a clear understanding of the competitive consumer environment as well as have a clear go to market plan that is integrating and early market introduction indicator.

Now let's discuss how time to market can be shortened through linking product and project lifecycles tightly. In chapter 5 we agreed that any product or service development is done as projects. Product is the result of aligning resources with the company around one common goal which is a consumer product. In a classical project management a project is done successfully if the outcome of the project delivered on time, within the planned budget and according to specification and scope approved. However a great product failure rate discussed in the beginning of this work brings questions whether projects completed "successfully" by project management standards (on time, on budget, to spec) have been considered failures because they did not address a business need.

There is no clear answer to this, but I believe that with the presented theoretical background one solution could be to eliminate a classical split of project and product life cycles and bring those two closer together. This would allow meeting bother project management success requirements as well as enable consumer focus aka business needs.

Let's try to link project and product lifecycles to see how they are linked. Figure 8 represents the classical model where project results into a product which later on delivered to targeted consumers. This model is supported by Kerzner (2004, 72), but with a note that lifecycle phases of product generally do not overlap, whereas the phases of project can and often do overlap. Following the classical model product or service lifecycle starts after the project is complete and delivered to market.

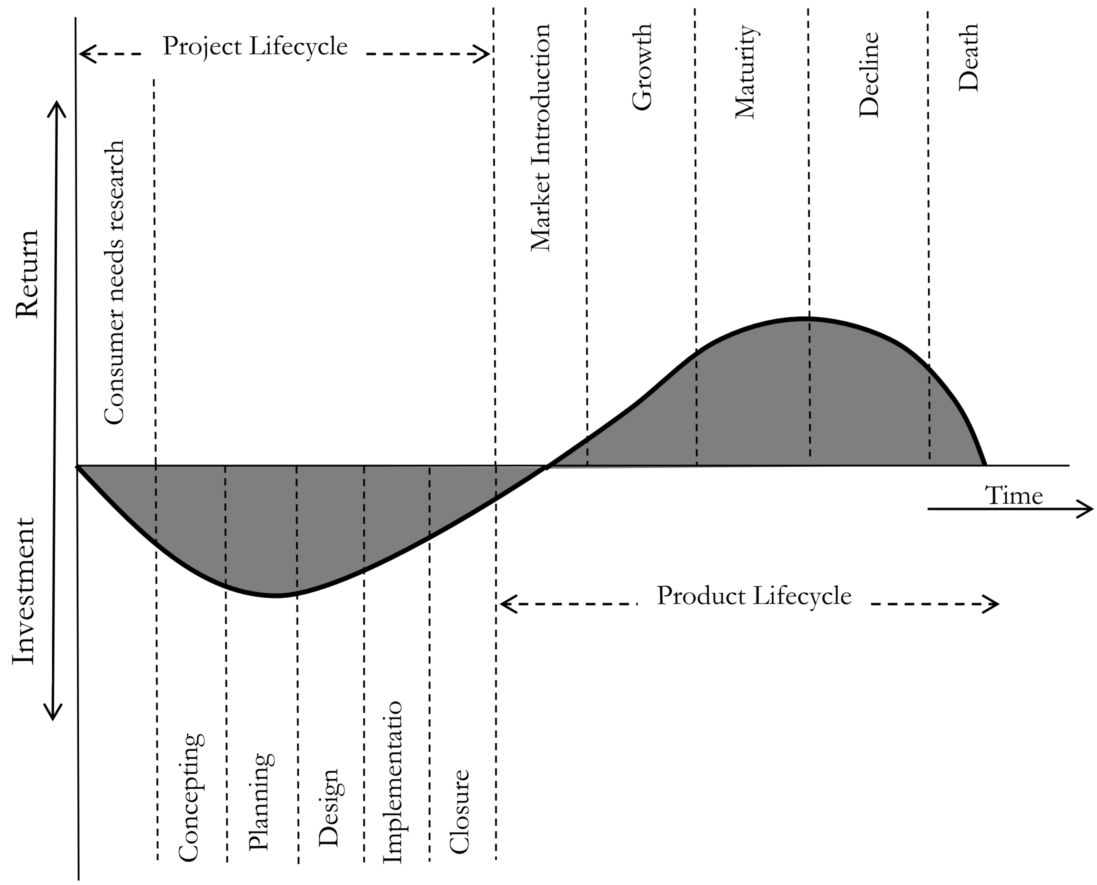

Figure 8 Project and Product Lifecycles (Kerzner 2004, 72)

On the other hand in the previous part of this work we concluded that the speed of execution in a highly competitive environment is one of the key success factors for strategic projects in an organization. Project results into a product and product success is measured by addressing critical consumer needs. This requirement however can be delivered through a consumer focus at every phase of product development. Therefore project and product lifecycles need to come closer and allow early market integration to allow consumer feedback be taken into product development at early phases.

Next figure 9 depicts how link project and product lifecycles earlier to allow early product concepts developed to be introduced to the market for feedback and adoption.

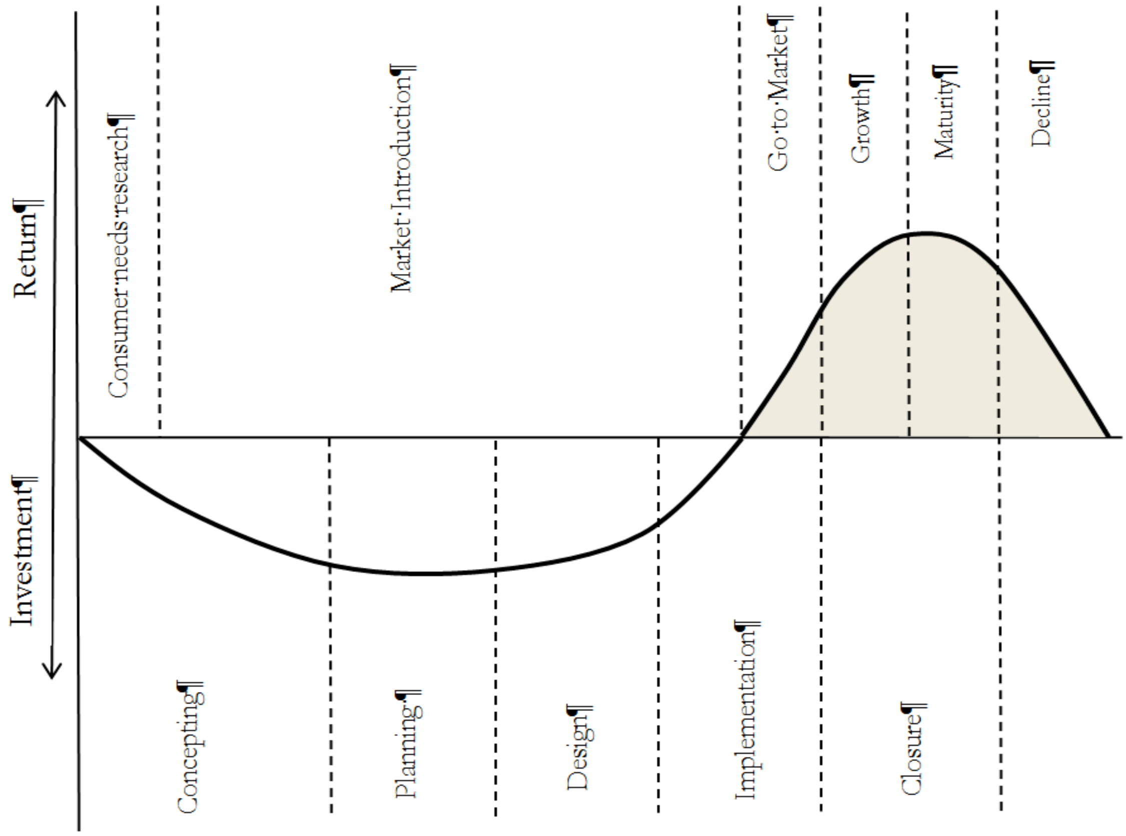

Figure 9 Product early market introduction by merging project and product lifecycles closer to each other.

We have talked earlier that any strategic project implements a strategy or has a direct link to a strategic goals or objectives. On the other hand it also has an objective of delivering consumer focused product or service. Therefore strategic project goes through the very same life cycles and once the product is delivered the actual product again goes through the very same product life cycles as described earlier. Consumer product that has a strategic objective to deliver is usually quite complex endeavour. The product has many essential features and aimed at addressing consumer needs. The marketing mix decision needs to be well researched and evaluated from the consumer perspective. When it comes to development project to actually deliver a product it can take a very long time. Quickly changing consumer preferences can be an obstacle for a successful product introduction. To eliminate the risk of mismatching essential consumer preferences product needs to be introduced and perceived by consumers as early as possible. Off course early introduction should provide a good consumer experience. Therefore a key success factor is to actually consider project and product life cycles as one cycle rather than a consecutive life circles as described in figure 5.6. Merging life cycles into one can enable an early product adoption and use by consumers which will provide an essential consumer feedback. Feedback and consumer KPIs allow organization to evaluate whether product addresses consumer preferences and creates the experience that it was designed for. A properly evaluated consumer feedback should steer further product development in terms of setting priorities for really essential features and dropping ones that do not create value for consumers.

7 How to apply a new approach

This thesis had the aim of outlining how to decrease product failure rate in product development projects. Product projects that have been in the scope of my research are the ones having aim of delivering a consumer product, which means that project as a rule has wide scope and require substantial financial resources. Therefore such projects can be called organizational key projects. These projects are the ones that should have a clear and defined link between organizational and project strategy, but as the research part concluded that is not always the case.

Organization or a company that competes in the domain of new product development as a rule has a consumer centric strategy, where consumer product satisfaction is of the key success factors and at the same time key performance metric for the overall organizational performance. This way any organization can and should differentiate between key product development projects, that have aim of delivering a set of strategic objectives and the operational and internal projects having the aim of improving some internal processes to increase organizational operational performance.

In the theoretical part of my thesis I defined key elements which a project aimed at contributing to organizational strategy and having the aim of delivering a consumer product needs to comprise. After that key findings and elements of strategic project management had to be tested within the organizational context.

Framework outlined in the previous chapter is aimed to be used by professional project managers that are responsible of delivering consumer products or services as a result of their project initiatives. Projects in their nature should be the ones that are run within cross functional organizations.

7.1 Clear project objectives and strategy links

Corporate and organizational strategy is vaguely linked with the product development projects. In chapter 3 we spoke about an importance of having a solid and well-articulated corporate or organizational strategy as the first step towards bringing a high product failure rate down for the companies whose business revolves around development and the launch of new product and services.

First step towards a successful product development as stated in previous chapter is to link organizational strategic goals to the product or service that is planned for development. Important to mention here that there could be one or multiple projects that are aligned and directed into a consumer product development. Products as we discussed in chapter 4 are as a rule developed and delivered to consumers through projects. Therefore the example table below has link between project and product. On the other hand important to remember that development project can result into a consumer service, but that does not in any way lower the importance of strategic alignment for the project having the aim of developing such a service. Presented table below is as an example to introduce how the strategic objectives can be linked with the development products or services and integrated into product development projects.

Table 4. Strategic goal link towards products and projects

Corporate Strategy	Organizational Strategic Goal	Consumer Experience	Product / Service	Project / Project objectives
More happy and satisfied consumers!	Increase product-A consumer satisfaction	1. Durability of the handlers to increase.	1. Durability of the handlers to increase 15%.	New handlers, durability 15 months.
		2. Product-B to be used by consumers dur-	2. Product-B (A v2.0): longer battery life,	Product-B to include CSAT at 85%.

		ing nights and for a longer period of time.	brighter screen, etc.	

Organizational management and project manager responsibility is to define clearly the link between organizational strategic goals and product that is planned for development through:

- Clearly defined consumer experience that the produce is aiming to deliver.
- Product or service that is designed with the perspective of delivering needed experience.
- Clear project objectives that will enable a developed product to deliver required consumer and product experience.

Key projects' lifecycle can be quite long as products are growing in their complexity. Therefore it is important that all of the above mentioned assignments to go through the regular review or at least one thorough review when organizational strategy changes. Organizational resources are limited and it does not make sense to keep them contributing to something that is not important, projects that no longer contribute to strategic objectives therefore must be stopped and resources released. Scarce development resources should not be working in any product development projects that do not contribute or implement strategic objectives. This way review and alignment with strategy will give an organization a powerful mechanism to steer its development resources around what is of the most strategic importance. Once the organization strategy changes resulting into change of strategic objectives table 5.1 need to be revised to verify and validate that strategic objective exists and development initiatives are still needed to continue. Regular review allows aligning development activities around the current strategy as well as prioritizing certain development activities over the other in terms of strategic objectives and their priorities.

7.2 Consumer experience into products design decisions

The table below is an example of how an experience based product can be developed in practice in a cross functional organization via product development project. It is essential that not only standard project management policies are in place for a successful project execution, but additional policies to be integrated into project management practice when it comes to delivering a truly successful product as a result of a project. For example classical approach to managing project lifecycles (see chapter 5.4) is not enough to manage an organizational key project having the scope of delivering defined consumer experience. Lifecycle phases need to integrate a smooth process of validating product and its experience with consumers – voice of consumer.

To conclude what has been discussed in chapter 3.2 I would like to present key elements that will integrate voice of consumers as well as consumer experience at bit closer to the classical project management practices. Please see table 5 for a more details explanation.

Table 5. Project management with a consumer focused product delivery.

Element	Policy	Process
Voice of consumers	Consumers need to be an integral part of project planning and executions. Frequent and regular meetings with consumers to receive feedback about a product or a service.	Three month business delivery model. Every three month a new product or service version is delivered having more reach set of features than the previous version.
Consumer Experience	Project needs to have clearly defined KPIs that will be used and measured during the product usage by consumers. Product Experience KPIs measuring	Consumer feedback and measurements have to be reliable and measurable through defined set of KPIs. Project scope is aligned with other organizations that will be

	consumer experience rather than operational features of a product.	responsible for consumer experience in the pre-sales after sales cycles.
Project Steering	Product or Service Experience KPIs in place to validate that development is on track and act if steering and management decision is needed.	Every three month once a product or service is delivered to consumers there needs to be an adoption time, about a month to get enough data from the measured KPIs.

Presented in the table practices I have tested in the projects where I was assigned to be a project manager. From the project management perspective it is not enough to only execute project towards approved project objectives, but rather objectives need to be aligned and targeted at customer satisfaction. Consumer satisfaction and positive consumer experience should be the primary project objective which in certain cases can lead to some important and big management decisions, sometimes to dramatically changes like project cancelation if anticipated product delivery is not going to satisfy essential consumer needs or consumer experience is not good enough. Voice of consumers' and product experience should be the one of the key project metrics when it comes to decision making. Research conducted showed that a project objective can be a successful product launch, which as illustrated quite many times means a product that does not meet consumer demand. In this case project as such is a success because product is delivered to the market within agreed time frame, budget and with a set of features that were planned. However product itself does not meet current market expectations or comes to the market at a wrong time. Therefore linking together project and product lifecycles as described in 5.3 and integrating voice of consumers will enable organizations to increase their competitiveness when it comes to product development. On the other hand it will also educate project managers to strive far beyond the project success, but rather success that is a combination of right organizational strategy, resources and internal organizations alignment as well as consumer as a centre towards any product decisions. So, in table 5 I listed the most important aspects that should be used by project managers according to research and practical management practices. However the actual practice usage is up to project managers and their organizational management.

7.3 Product early market introduction.

Introducing the product early to the market is the way to test the market and consumers to experience product at the early product development phase. This gives a possibility for the project team to get valuable insights from the market in terms of product adoption and features applicability. According to theoretical research quite many products designed and delivered to the market undergo significant changes during the product lifecycle phases.

In chapter 3 we have discussed the latest management trend where in order for the product to be successful a company needs to meet two critical objectives:

- Maximizing the fit with consumer needs
- Minimizing time to market.

First objective has been discussed in my previous chapter 6.2 where I presented results of my investigation in terms of how to enable consumer focus and make it part of the project management practices.

In chapter 6.3 we discuss how time to market can be shortened through linking product and project lifecycles tightly. Early product market introduction also partially enables a tighter voice of consumer integration, because consumers get to use the actual product and there are multiple ways to collect qualitative feedback from consumers.

In chapter 4 we defined project as an endeavour which is wrapped around three key concepts: scope, time and resources. Therefore product development split into project deliveries which take place every three month for example. Project plan and product delivery needs to split into recurrent Split needs to take place at the product concept phase and all the project schedule plans needs to be done accordingly. Also there needs to be a solid market introduction plan which will take place every three month.

8 Thesis project implementation and closing

In chapter 2 of this thesis we have created a project plan which had approved objectives and scope. Project plan and schedule was presented at figure 1. Project was planned to be run for 6 months and start in January 2011. Now the project is completed and all the objectives are reached, however it is vital to review project progress and conclude my thesis with the project results.

First let's start with the project objectives and what has been done to reach those.

Objective number one was to research and overview the current new product failure rate. In the very beginning of my thesis in chapter 1 I have listed referenced data that confirms the number for product failure rates is substantial. Product failure rate for established big companies is more than 65 per cent, but for the start-up companies' failure rate is even higher at 90 per cent. There are many sources having different research conducted in that area and numbers can vary, but as a rule numbers are quite substantial and require companies to pay more attention towards improvements in the area to reduce product failure rate and increase company overall business success when it comes to developing successful consumer products.

Second objective was to review key reasons of new failing products. In chapter 3 we have conducted literature review to list some of the key product failures over the last decade to illustrate how great ideas can turn into failed products. Research concludes that there are three key elements which lead to product failures:

– Product design decisions missing consumer experience.
– Organizational strategy de-linked form product development projects.
– Consumer feedback and consumer testing during the product development

Important to mention that there off course may be more reasons for product failures, but the listed ones according to research are the most important ones. Also in the demarcation chapter we have taken quality related issues out of scope.

Third objective of the thesis project was to research and propose how to reduce product failure rate by addressing the above mentioned key failure reasons. This objective was reached by introducing a proposal for organizational management as well as project managers to include following important management steps into day to day operations:

- Clarify and tighten product development project objectives and organizational strategy – chapter 6.1 and practical application in chapter 7.1.
- Include "voice of consumers" into product decision and design consumer product experience – chapter 6.2 and practical application in chapter 7.2.
- Enable product early market introduction to better steer product development – Chapter 6.3 and practical application in chapter 7.3

8.1 Project implementation

According to project plan depicted at figure 1 to reach these objectives project must have completed E0 (research and planning) and E1 (framework formulation) milestones. I have to say that reaching E0 and E1 was not that straightforward as it turns out that areas of research are quite interdependent and both milestones are quite tightly linked. Therefore these milestones were developed concurrently. However the timeline was reached as expected. All together it took about three month to reach the approved objectives.

Next step in the project execution was to actually test the above mentioned management improvements wrapped around framework proposal. Reaching E-2 milestone was about going from the theoretical part into practical framework application. For that purpose one of the real business projects had to take framework into its planning and execution phases. Therefore organization management had to approve the framework and proposal of how it could be used in the real business environment. The approval was granted and the planning session took place to see how the framework can be applied.

Considering the circumstances of the environment and the project nature there were some key elements where framework could be used, but some parts of the framework were unfortunately not applicable. The project had the scope of delivering a new consumer service, which was supposed to be available to consumers at the physical retail shops. To avoid disclosure of the confidential information the real scope of the project and company will not be revealed here.

Now let's look at how the framework was used in the project environment.
First of all project contribution to the organizational strategy was clarified with the strategy management. The strategic objective that the project was aimed to deliver was the increase of consumer satisfaction when it comes to the overall service that consumers receive when visiting retail shops. Increase of consumer satisfaction was one of the strategic objectives which organization was approved to commit. Therefore all the consumers visiting the retail shop prior to the launch of a service were questioned in order to understand what the current precise level of consumer satisfaction is. Service was designed from the perspective that it will increase consumer satisfaction from the current level up to at least 5 per cent. This was contribution to the strategy was clear. Project overall success was not the service development and deployment as such, but rather the strategic objective which is consumer satisfaction increase. Therefore as a project manager project planning and service development was directed at reaching the organizational strategic objective and if the strategic objective had to change the project would have been cancelled or re-planned. Clearly the strategic focus allowed gathering resources around what is of the strategic importance rather than having a project to deliver a service which would do something, but not what is really needed.

Secondly as a project manager during the project planning phase we clearly defined a so called quarterly market delivery model. That meant that project will have to deliver a service to consumers within three following months as well as any consecutive service improvements or changes have to be planned in a manner when after three months consumers will experience the service and we will be able to measure how well the service implements its main purpose – satisfied consumers. Delivery model addresses one of the framework key areas which is early market introduction and collecting consumers feedback. Any changes to the service were to be based solely on consumers' perception and feedback, rather what organization has in mind for the service improvement. This way it was very clear what how the service improvements are going to be prioritized. Service was successfully delivered and planned consumer satisfaction was constantly monitored. We have successfully delivered the service, but most importantly that project success was not measured whether we managed to develop and deliver service within planned time and budget, but rather what is the actual consumer satisfaction level that the service delivered. I am very proud to say that we consumers satisfaction level went up 7 per cent which is 2 per cent more than the original project promise. All consecutive service improvements are planned to be delivered every quarter and improvements are measured by consumer satisfaction level impact.

Therefore it is possible to conclude that with a three month delivery model we were able to integrate voice of consumers into the service development process as well as enabled a fast way to the market. Project strategic objective that was linked in the project planning phase enabled organizational management to align resources around what is of the importance at the moment and therefore prioritize development projects by contribution to implementation to the organizational strategy. Three month delivery model also enabled organization to review quarterly its strategic objectives and prioritize development projects based on current strategy and what is of the most importance at the moment. This way we can conclude that the framework developed during the research part of this thesis proved to be applicable in the actual business environment, even though further framework development is needed, because framework is still at a very high generalization level and more real business projects needed to test it.

8.2 Project Lessons Learnt

During the thesis project implementation as well as during the framework testing project I have found out that certain things worked, but some did not. I believe it is important for this thesis to look at the areas which need further improvement and let things that worked well to be included into the project management practices in the future.

As a project manager who tried to integrate theoretical framework into the organizational project management practices I strongly believe that at least two key framework areas worked really well. First of all clear strategic link between project and organizational strategy proved to be working really well. During the project planning phase when the project was presented to different functional managers in order for them to prioritize their resources clear project contribution to strategy gave them a clear understanding why their function need to support this by allocating limited functional resources.

Strategic link also was used as a primary project KPI – consumer satisfaction increase once the service was made available at the stores. Project success was measured through the actual increase rather than by standard project measures like project budget, timeline and scope. This way all the project team had a clear understanding of why the service is developed and how it actually should be developed to be able to increase consumer satisfaction.

Off course in the real business environment some great consumer ideas which were received after the service was delivered turned out to be quite costly even though those ideas had chances to increase satisfaction even more. Part of the project management task is to estimate costs versus benefits when it comes to service improvement or features. Therefore certain service ideas were left as concept ideas for the future since the costs were too big at that moment of time.

During the project phase we also included the faster to market as an objective for the real case project which resulted into a quarterly delivery model. This is something that worked also really well as we have proven that it is possible to plan a product in such a way that there will be regular deliveries of the service improvement. Off course this part can be subjective when it comes to complex products and services where development time can be much longer than three months. But the regular delivery model be it three or more months proved to be useful and relevant because it allows constant dialog with target consumer. Regular delivery model puts a requirement on the product team to collect consumers' feedback and steer development towards what is important to consumer, not what has been planned inside of the office premises, which in many cases is based on the pure assumption and not real data. Regular deliveries demand thorough planning of what the next delivery to comprise.

Consumer focus and experience however was something that we did not quite manage to introduce into the service decisions. It turned out that in order to truly design consumer experience we needed to know much more about our target consumers. We completely lacked consumer experience measurements. The data we used to design the service could give us the need for such a service, but not gave us complete understanding of consumer experience as we were planning at the project initiation phase. The task of creating a holistic consumer experience demands the need of having clearly designed consumer journeys, which were not available at that time. On the other hand defining and validating consumer journeys and experience measurements would have taken us a long time to do. And as we were having a limited timeline and resources available service design took place with addressing key elements of a specific consumer need. However something that we could enable was to create a proposal towards the management what type of consumer measurements need to be enabled to be able to design consumer experience in the future.

8.3 Experts interview.

After proposed framework was tested in a real business environment and important part that was left is to interview project and product managers to see their perspective into applying framework in their projects.

I planned this interview as a qualitative research where I was presenting product failure rates, key reasons of such a high failure rates and my proposal how failure rate can be decreased by applying thesis proposal. Next I tried to find out what the general perception of the framework proposed is and how it could be used in day to day operations. Interview participants are Johanna Selin, Project Manager at Nokia; Hyun Park, Senior Portfolio Manager at Nokia; Riikka Hietalahti, Senior Service Manager; Suvi Peltola, Project Manager at Nokia; Mike Smyslov, Channel Development Manager at Nokia.

Questions:

1. What do you think about the framework?
2. What do you think will work when applying the framework in your projects?
3. What do you think will not work and why?
4. General comments and improvement ideas?

I have conducted a list of interviews and will list the key interview moments next.

Table 6 key notes from question 1.

Question 1	Good: Consumers' experience of a new product gives concrete information on how the product is perceived by the consumers. Consumers' opinions or assumptions on a new product concept can often be misleading. Generally, it is OK, but communication factor needs to be added. Framework is definitely a way forward, but there needs to be more detailed explanation about of how to actually apply it.

	Not all of the projects can use this framework and sometimes it will be very difficult to separate operational and strategic projects. Question whether the new product development is driven by assumptions and opinions (of the company or the consumer) or the actual consumer experience? The importance of basing the new product design to customer's need and wishes is so very true, and so often forgotten. Also, the ideas already should be tested with real customers as early as possible, and there are more common methods for doing that (co-creation, customer panels). In addition, those projects are usually very new product or services which consumer testing in the early stage is required to lower the risk and uncertainty of market reaction in launch period. So, this is well mentioned. 4P thinking is not so much needed for succeeding products in smaller project or product, but definitely needed for major project/product, so this is well pointed.

Table 7 key notes from question 2.

Question 2	Questionable. High risk of competitors catching on and taking over the innovation if product is introduced to the consumers too early. Planning and risk analysis needed. For big multinational companies leading ICT industry, major projects are well-sponsored by management with both financial and human resources. Usually, those projects are already well reflecting strategy. However, if it's not, that can be clear problem and lead the failure of the project. So, it is still needed to be check for strategic alignment. Generally, this is already existing in Nokia since 10 years ago when Nokia introduce Total Product Offering (4P thinking) with prioritization of product/project according to strategy. Later, TPO changed into Consumer Promise adding consumer early input and testing.

	Then, it is now GTM process for major product/project. So, those are already implemented. The missing part is communication improvement, which is still operational challenge for major product/project. Making strategic alignment is very important, but it is questionable in those cases when strategy changes alone the project development phase. Closing the project is not always an option, especially if significant investments have been committed. So how to steer projects once organization strategy changes needs to be looked at more.

Table 8 key notes from question 3.

Question 3	Generally it is difficult at this point to say what will not work as not many project has been assigned to use the framework. Therefore more clarification is needed in terms of framework application and proper management support is needed to make this practice as business as usual. According to Nokia experience, this can be working only if project/product manager coordinate the project very well through communication and coordination. As major product/project requires wider involvements in the organisation, it is more coordination and communication problem. Framework and process are OK, but operational challenges can still be raised, if it is not managed well.

Table 9 key notes from question 4.

Question 4	Point 2 (Linking closely project and strategy objectives) still remains a bit unclear and raised a lot of questions. There needs to be more practical examples to really understand how to link the product development to strategy more closely. Perhaps running a few projects with applying linkage between strategic objectives and project objectives

	could help. Generally it seems that framework points 1 and 3 could be somehow combined together. It's seems that the industry is just now learning to use these new methods of managing consumer products so framework perhaps could be used in many projects, but it needs to be further developed. However, one of the most important reasons for failure on the project is communication problem, and this becomes more important in major project for multinational companies, due to bigger size of project team and cultural issues. So, this might be needed to tackle in the framework. So, framework is OK, but operational aspect rising while using framework needs to be discussed further.

9 Conclusion

This thesis was originated form the idea of how to reduce product failure rate when it comes to new high tech products and services that come to market. New product failure rate is ever as high as at least 65%, however in the high-tech industry it goes way beyond that up to 90%. Reducing the product failure rate is an important and relevant question for companies to save a lot of wasted effort and money.

Therefore important question that was raised at the beginning is why the product failure numbers are so high. Why even big and established companies fail to deliver successful products to the market. As a result of research there came a lot of reasons which influence the product failure. However this thesis on purpose took some of the reasons away, for example quality related issues. The assumption is that we have highly qualified project managers and qualified professional functional staff. During the exploratory research the primary reason for product failures was lack consumer focus, poor link between organizational strategy and product development project as well as long time to market. Organizations however have different kinds of projects that, but in this thesis we talk only about projects which are having scope of delivering a consumer product or service.

Next step which was planned for the thesis project is to find out what are the solutions that can be implemented within organization to address the issues and this way decrease product failure rate. The solution that this thesis outlines is that organizations which core business to deliver new products have to select an appropriate organizational strategy to wrap scarce resources around essential projects, make sure that consumer needs are addressed properly and integrate voice of the consumers at every phase of product development. The solution was wrapped around three areas of organizational and project management process improvements and business practices which in the context of this thesis was called framework.

The core of the framework is a practice to narrow down a product feature set and deploy a product or service to targeted group of consumers faster. This would allow perceiving market validation quickly and after that organization can enhance offering with new or improved features that are important for consumers.

One of the key steps presented in this thesis was to actually test the framework in the real business environment –execute a project where framework can be properly tested. During the year 2011 I successfully implemented a project as a project manager and have proven that the framework developed during this thesis writing is working and proposed the organizational management to deployed framework as a practice to project management approach for the future projects to be executed.

A key benefit of the presented framework and approach is that it enables developing the right features of a product or service for the target audience. The approach has the focus of getting a product or service faster to the market and consumers with first limited but targeted set of features to get the consumers to touch it and respond. The framework provides a way to lower the investment risks by establishing a systematic way to evaluate the product opportunity before the significant investments are made in design, building and launching a product or a service. The bottom line for this is that a company ships the product that is validated and accepted by the consumers which increases the chances of a product or service to be successful and revenue generating.

I have conducted interviews with two regional directors who were business owners of the project where framework was originally tested. The feedback is very positive as we have successfully delivered new service into the market within allocated budget and with a strong consumer focus which was the original requirement. The framework was proved to be working and backed up by good theoretical and practical application.

To enable framework application in a business environment I have conducted qualitative interview with a few of my colleagues working in the same organization and who are responsible for either managing projects or coordinating and implementing organizational strategy. I have collected feedback and it is presented in my thesis. The outcome of the interview was positive and interviewees agreed that framework is an important step forward in terms of managerial improvements; however they raised many important aspects which framework has not yet addressed. Therefore framework application as such into the standard organizational project management practice is not yet possible. However the interview results indicated that framework truly addresses key elements of the successful product development practices, but further development and investigation needs to take place before requesting organizational management to integrate framework into their day to day working environment.

References

Adams R 2010. If You Build It Will They Come?: Three Steps to Test and Validate Any Market. John Wiley & Sons Inc. New Jersey

Adams R. 2007. Reducing product failure rates: A new perspective. URL: http://books.google.fi/books?id=r0IzBAOMbTsC&printsec=frontcover&hl=fi&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false . Accessed 10 Dec 2011.

American Marketing Association 2011. Resource Library. URL: http http://www.marketingpower.com/_layouts/Dictionary.aspx . Accessed 15 Nov 2011.

Brown M., Leavitt P. & Wright S. 2004. New product development: a guide for your journey to best-practice processes. American Productivity & Quality Center, Texas.

Burkitt L. & Bruno K. 2010. New, improved and failed. URL: http://www.forbes.com/2010/03/21/microsoft-sony-exxon-apple-coke-ford-xerox-conde-nast-cmo-network-brand-flops.html . Accessed: 27 Nov 2011

Campbell, D., Stonehouse, G. & Houston, B. 2004. Business Strategy: an introduction. Elsevier Butterworth-Heinemann. Oxford.

Charter Institute of Marketing 2011. Marketing Resource Library. URL: http://www.cim.co.uk/resources/home.aspx . Accessed 1 Dec 2011.

Cole G. A. 2004. Management Theory and Practice, Sixth Edition. YHT Ltd. London.

Coulter M. 2008. Strategic Management in Action, Fourth Edition. Prentice Hall Inc. New Jersey.

Doole I. & Lowe R. 2008. International Marketing Strategy. Cengage Learning Inc.

Douglas A. McIntyre, 2009. The 10 Biggest Tech Failures if the Last Decade. Time Magazine URL: http://web.nchu.edu.tw/~arborfish/Science,Technology,and%20Society/2009-06-01/file/2009-06-01%20T5%20The%2010%20Biggest%20Tech%20Failures%20of%20the%20Last%20Decade.pdf . Accessed: 17 Apr 2012.

Dransfield R. 2000. Human Resource Management. Heinemann Educational Books Inc. London.

Hooley G., Saunders J., Piercy N. & Nicoulaud B. 2004. Marketing Strategy and Competitive Positioning. Financial Times/Prentice Hall New Jersey.

Kerzner H., 2009. Project Management. John Wiley & Sons, Inc. New Jersey.

Koontz H. & Weihrich H. 2006. Essentials Of Management. Tata McGraw-Hill Ltd. New Delhi.

Lamb C., Hair J. & McDaniel C. 2011. Essentials of Marketing. South-Western Cengage Learning. Mason.

Mac Hulbert J., Capon N.& Piercy N. 2004. Total Integrated Marketing. The Free Press Inc. Washington D.C.

Porter M. 1998. Competitive Strategy. The Free Press Inc. Washington D.C.

Project Management Training and Resources 2011. Matrix organization and project management. URL: http://www.visitask.com/matrix-organization.asp . Accessed 10 Nov 2011.

Schimmoeller L. 2010. Advances in Production Engineering and Management Journal, Volume 5. URL: http://maja.uni-mb.si/files/apem/APEM5-1-view.pdf . Accessed 10 Jan 2012.

Schmitt B. 2010. Experience Marketing: Concepts, Frameworks and Consumer Insights. URL:
http://www4.gsb.columbia.edu/rt/null?&exclusive=filemgr.download&file_id=738894&rtcontentdisposition=filename%3DExperience%20Marketing%20-%20Schmitt%20-%20Foundations%20and%20Trends%202011.pdf . Accessed 15 Jan 2011.

Schneider J.& Hall J. 2011. Why Most Product Launches Fail. URL:
http://hbr.org/2011/04/why-most-product-launches-fail/sb3 . Accessed: 8 Dec 2011.
Shaw C. 2005, Revolutionize Your Customer Experience. Palgrave Macmillan Inc. New York.

Shenar A, Poli M. & Lechler T. 2011. A New Framework for Strategic Project Management, URL: http://www.iamot.org/paperarchive/101B.PDF Accessed: 15 Dec 2011.

Simister P. 2007. Why strategy is important. URL:
http://businesscoaching.typepad.com/the_business_coaching_blo/2007/10/why-strategy-is.html . Accessed: 01 Dec 2011

Soldatos J., Hardy J. 2007. New Product Development Process. Vadyba Management Magazine. URL:

http://www.leidykla.vu.lt/fileadmin/Vadyba/14/61-67.pdf . Accessed 15 Nov 2011.

The Product Development and Management Association 2012. URL: www.pdma.org . Accessed: 10 Dec 2011.

Tudor I. & Alin S. 2007. Key Success Factors in New Product Development Process, URL: http://steconomice.uoradea.ro/anale/volume/2007/v1-management-and-marketing/63.pdf . Accessed: 15 Jan 2012.