IDEO new product development and human-centered business solutions

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New product development is changing dramatically due to the mainly a more globalized market and the new technologies have a tremendous impact in the making of new products and having innovation in almost every aspect of the process.

This thesis is a dedicated to shade some light into new approach towards a system/s that has been used in the past decades and whether or not is still reliable and effective.

Hence we will take as example IDEO a pioneer in new product development as a global leading consulting firm that implements in the process of such products company that uses innovation and design thinking in the traditional framework of development.

Also we will analyse closely the impact of the theory of the stage gate system and its phases of development that most of traditional products need and companies still use in their core activities.

In addition, we will see IDEO’s way of work: how the human factor is decisive and detours traditional adherence from the basic conceptions. We can also see how IDEO’s work is influenced by a complex human design approach, which accounts and separates from conventional frameworks having value and innovation as flagship practises.

Keywords
new product development, stage-gate, human approach, design thinking
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1 Introduction

New product development requires a great deal of innovation and creativity, not only technical abilities are required but many other fields come to play. Therefore invoking the company case I have chosen, the dilemma is the fact that the company bases its core course of action on a human centred factor that produces an avant-garde solution for each problem and this is what it makes them a unique formidable consulting global recognized entity.

Hence evaluating the impact and degree of repercussions in the new product development is not only a matter worth analysing but also trying to identity its methodology to be able to measure its level of achievement.

IDEO is a global consulting firm that operates at a global scale having widely success when it comes to innovation and creativity design. The human centred approach applied by IDEO is not a conventional system but rather a more human based solution approach which implements techniques and innovation to achieve target. It aims to implement changes in the structure of a company’s government body and also to process of working.

This thesis analyses a more complex set of axis that can further help companies to satisfy not only current need but also the future ones, having in mind the improvement of services and products as well as sustainable product, which ultimately will better serve the society. Thus is not only a topic in regards to business but an approach that can help people to live in a better environment.

The human aspect determines and it’s the tool that IDEO's bases its core skills and competitive advantages and this factor will be analysed to have a better understanding of the human capital its characteristics and possible flaws and drawbacks. The thesis determine IDEO’s success and the scale of achievement compare it to conventional work methodology and its links when it comes to new product development.

1.1 Research questions and thesis objectives

The thesis aims to gather more knowledge in regards of the new product development process and its critical stages, where by implementing a design human approach into the process. The result is a much more tailored product that satisfies the need of the clients.
The main research question (RQ) is: What is the process involved in the development of a new product implementing human design thinking?

Investigative questions (IQ) are:

IQ 1. What are the stages of the new product development?
IQ 2. What sort of skills are required?
IQ 3. Why does IDEO hire multicultural human capital?
IQ 4. How is the dynamics of the group in charge of a project?

1.2 Demarcation

The research I will work on will define the trail of the platform used by IDEO to create, invent and seek out solution that multinationals cannot manage. Needless to say the research will include studies of the human mind from a scientific point of view the cognitive relation with new products and business solution improvements in the effectiveness as well as its triggers. Theoretical framework is based on new product development model such as Stage-Gate process.

1.3 The case company

IDEO has been ranked as one of the most innovative companies in the world by business leaders in a global survey by Boston Consulting Group. IDEO is a private global design firm that takes a human-centered, design-based approach to helping organizations in the public and private sectors innovate and grow. The company was founded in 1991 by David Kelley professor of Stanford University. The firm employs over 600 people in a number of fields: branding, business design, behavioral science, education, electrical engineering, environments design, and healthcare. (Ideo, 2016)

IDEO believes that innovation happens through networks of inspired people, and they consider that community is one of the strongest assets, with a network that includes NGO’s, foundations, nonprofits, government entities, and public health groups as well as people affiliated with academic institutions. IDEO focus on consumer experiences. IDEO’s organizational culture consists of project teams, flat hierarchy, individual autonomy, creativity, socialization of recruits and engineer buy-in. (Ideo, 2016)

They identify new ways to serve and support people by uncovering latent needs, behaviors, and desires. The company uses the design thinking methodology to design
products, spaces, environments and they also help organizations build creative culture and the internal system by offering management consulting services. According current CEO Tim Brown: “Design thinking is a human-centered approach to innovation, draws from the designer’s toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.” (Ideo, 2016)

2 New product development and Stage Gate model

The primary purpose of a product launch is business growth, companies must master the concept and process of a product launch to enable growth through successfully introducing new products into the market. Product launches build sales and revenue through expansion of customer base. (Gluck, 2016.)

The challenge is to identify the product ideas that actually have the most opportunity and to coordinate the development of the product all the way from research and development to market launch. Companies need to find ways to improve the making of the new product process while they remain profitable and competitive. The best internal transfer process integrates all departments at the same time into the process, yielding a gap-free process building on solid tools and techniques. Streamline execution and productive effective results are the aim, this is developed and implemented in such way that the whole company embraces the transfer process. (Brethauer 2002, 3.)

A successful new product launch is nurtured by research, planning and a skilled and knowledgeable marketing team. The product must fulfill consumer needs and provide an emotional connection through its promise and brand. Businesses often make the mistake of presenting new products to consumers without adequate research or strategic planning. Today’s consumers demand products that satisfy them on many levels including quality, price, status and function. A product launch strategy defines several stages of the launch including development, internal testing, external testing, objective and goal setting, positioning, excitement building and event timing. The design team must develop a product that fits a customer need and works to fulfill this need reliably. Adding a new product to the current line-up will augment brand equity or detract from it. Brand equity is an intangible asset governed by consumer perception of the overall company brand. Introducing products that do not align with business objectives and vision may detract from brand equity. (Gluck, 2016.)
Companies that learn to accelerate their new product launches by using a successful new product transfer will enjoy benefits like a competitive advantage, the ability to be responsive to customer needs, an increase in profitability and in total quality, decreased cycle time to bring a new product to market, a companywide feeling of accomplishment and a continuously improving company. (Brethauer 2002, 3-4.)

The chapter two is an introduction of new product development. Furthermore, in this chapter will be presented the new product development and product launch process by following the Stage-Gate model.

2.1 Reducing the risks of new product development

Newly launched products suffer high failure rates, often reaching 50 percent or greater. The main culprit has been faulty understanding of customer needs. Studies have found that timely and reliable knowledge about customer preferences and requirements are the most important areas of information necessary for product development. To obtain the data, many companies spend in traditional market research. However some companies had begun integrating customers into the innovation process. (Ogama & Piller 2006, 65-71.)

There has been much written in the New Product Development (NPD) literature about the need to involve customers at the early stage in the process and to integrate them into the process in order to fully capture ideas. Nowadays technology enables innovative ways of involving and integrating customers to the product development. (Trott 2012, 506)

Collective customer commitment (CCC), it is one of the possible solution to pass the idea by the stage process with not only a stronger impact but also a more responsive flexible answer to a certain demand or new trend.

Part of the failing in the new product development process is the fact that in many cases the companies don't understand the new need of the ever changing customer and this can lead to a poor or powerless insertion or penetration of the product in the market. The acquisition of the data need from the consumer often allocates the resources in the wrong channel and investment in research and marketing test could become a troublesome and heavy to bear from the time and effectiveness point of view. (Ogama & Piller 2006, 65-71.)

The alternative to such issue rest on the frame of integrating the consumer in the process of a NPD, thus company can suggest to the consumer ideas to a new product and detect
the needs and preferences aligning the NPD with the most popular choices. The company can also expect commitment from customers before development. (Ogama & Piller 2006, 65-71.)

Consider a new trend example that can enlighten up more into the subject. The world famous DJ Armin van Buuren among other musicians had united strengths with Philips, a world known brand in electronics and embarked a venture in the DJ sound system business and electronics devices. Philips had asked van Buuren to design a line of sound system devices including headphones, speakers and other devices knowingly of the DJ preferences for the brand. It shows not only that the brand had acknowledge the trend but also the preference of the consumer which is global and trust and likes the DJ's hands-on the product. From our point of view and having done or work with this products for a long time is only logical that his advice and design has great impact in the eyes of the consumer or targeted market, offering a wide range of accessible prices which is a positive aspect recognized by the consumer. (Philips, 2016.)

From an analytical stand this also proves that consumers are relying more and more to public figures and some products may have not the best specs but can become huge when applying CCC as in the case of DR DRE and the overprice but star sells headphones or over the ears Beats.

Yamaha another world brand has also used the CCC by developing a very easy lit-up keyword for electronic piano and also a guitar that after being fed a song it will display a light on the string to play, making more fun and responding to expectations of a customer that is global; the ability to play instrument without spending many years learning the complicated notes. (Yamaha, 2016.)

Thus we can safely say that CCC is becoming crucial and by applying this method, innovative ideas can be examined at a low cost. Therefore, if customer’s dislikes ideas this can be scrapped off the stage gate and not going ahead with a product no one likes. Otherwise it can result in financial lose and brand equity can be harmed badly if one fails to acknowledge the current reality too late.

2.2 The Stage Gate model

Stage-gate process is widely employed product development process that divides the effort into distinct time-sequenced stages separated by management decision gates. Multi-functional teams must complete a prescribed set of related cross-functional tasks in each stage to proceed to the next stage of product development. (Trott 2012, 441.)
The Stage gate model describes a funnel process of a new product in development and aims to filter unnecessary elements or flaws. There are five stages involve and these are in brief: scoping, building business case, development, testing and validation and launch.

![Stage-Gate model diagram](Image)

Figure 1. The typical Stage-Gate model – from discovery to launch (Cooper 2001, 130)

Besides different stages of the product development process, the model also includes gates where decision are given on the basis of the information generated in the previous groups activities. Hence gates represent the review points for preceding stages. (Trott, 2012, 502.) Stage-gate consist of series stages and followed by gates where Go/kill decisions are made to continues to invest in the projects. The structure of each gate is similar. Gates consist of deliverables that a team leaded bring to the decision point. Criteria describes against which the project is judged. These include must meet criteria questions. Outputs are decision along with an approved action plan for the next stage – Go/Kill. (Cooper 2008, 3-4.)

Today's Stage-Gate system is built for speed. The stages are cross-functional, and not dominated by single functional area. It is business process, not and R&D or Marketing process. The activities occur in parallel rather that in series (Cooper 2008, 4)

The creator of the Stage gate system, Dr. Robert G. Cooper argues that nowadays the stage gate needs to implement innovation in the process to avoid bureaucratic barriers that can hinder and slowdown the purpose of the system. He mentioned in one of his talks that companies are right now struggling with the stage gate because they have become slow due to the amount of bureaucratic elements, cumbersome, rigid and too linear. Thus
leading companies have recognized that what worked in the 90’s will not work in the current times without new techniques and innovative thinking, that once implemented in the stage gate will reduce and will once again be effective system. (Cooper 2008, 5.)

Dr. Cooper (2008,6) also stretches out the importance of the tough decision need it to fulfill the process when one idea needs to be killed, pointing out that many companies only bound an idea but don’t act though enough in order to have a more effective gates. Gates with teeth are needed. The challenges strive in finding a flat interaction with it due to the amount of paperwork many times involved in this process, therefore a lighter layout of process needs to be put in place to accomplished such enterprise.

Rightsizing, this term is associated with large companies and is a semantics for down-sizing. Many large companies use such a term in order to appear less drastic in the public eye and at the same time focus on maximizing the profit by cost-cutting various areas of the company which pursuits mainly the most effective way to re-structure processes and reducing work force as well as avoid loose. This is another parameter Dr. Cooper believes is important to take into account in order to leave out non value concept for the business idea or product and in order to speed up the process in a more efficient and faster manner. (Cooper 2008, 11-12.)

Another issue according to Dr. Cooper is the dilemma of companies not being able to design a suitable Stage gate tailored to the product. He argues that there are many different products or ideas that need tailoring when thinking about a framework which would be suitable for it for instance: stage gate light suitable for smaller products, stage gate express in the FMCG or even stage gate for technology when the deliverable is not a tangible asset but a new knowledge and the process must be differently approached. (Cooper 2008 11-12.)

Stage gate process nowadays needs a simpler and molded angle to achieve success. Dr. Cooper says that: “the triple AAA technique is the best way to approach a new project and this is because it has to be; Agile, Adaptive and Accelerated.” (Cooper 2008, 14.)

Robert G. Cooper (2001, 56) deducts an example of this process in part due to the imperative innovations and updates a system which need to be able to keep up with new challenges. There are times where tailoring a system to the product development are more assertive to have a winning product. For instance Hewlett-Packard had an internal study undertaken before executing and used the NewProd method to identify new factor and have a successful new project. In this process prior and having the stage gate system in mind
the aim is to fully understand the new product and its branches of motion and try to foresee elements that could be costly and time consuming that may erupt during the process. These are in brief: **Understanding user needs**, the product potential users and the product contribution are totally understood by the project team.

There is a consistent **strategic alignment** with the business strategy, the target segments are clear and familiar to the company. **Competitive analysis and product superiority** is based in abstract results about also tangible one, which help not only to see competitors evaluation of solution to a problem but also to understand that the company in question has done well to develop a higher and more satisfactory solution than the competition at the time the products launches. (Cooper 2001, 56-57.)

**Regulation compliances** on the product regulatory issues need to be addressed in order to move along in the process. The issues such as patent infringement, industry standards, environmental, health, globalization etc. are taken into consideration at this point. **Priority decision criteria list**, is crucial as this prevent the product from delays such as manufacturing, technological platforms, key product features, goal to reach a deadline in the target market. (Cooper 2001, 56-57.)

**Risk assessment**, deal with matters that involve logistic and marketing such a parts of the products having more than one supplier in mind to cover eventualities and marketing plans so they can be dealt in the early process of development of the product. **Product positioning**, here the in depth understanding of the customers need is an important asset to position the product ahead of competition. In short we can say is the colliding point among purchase motivator and value vs competitive products. This is why it’s very important to find out consumer needs even if they are not visible in order to design a product that will provide higher value. The competitive advantage will be acquired and maintain among the same linear competitors by doing so. (Cooper 2001, 56-57.)

**Product channel and support**, deals with the channel of distribution and account for the success of the product thus a successful product have the right channels of distribution and support plan for the products. **Project endorsement by upper**, management this department is well aware of the development of the product and provides support. **Total organizational support**, management provides adequate financial support and human resources from all functions to complete the project according to plan. (Cooper 2001, 56-57.)
Finding in Hewlett-Packard with very few exceptions among successful products is that most of these practices did not suffer from inadequacies which means that this innovation and applied areas in combination with the stage gate system are proof that a well-planned process has advantages and very few chances to fail when all of the structure and resources in a company are on board. (Cooper 2001, 57.)

According to Thomas H. Berry a process is a methodology that is developed to replace the old ways and to guide corporate activity year after year. It is not a special guest. It is not temporary. It is not to be tolerated for a while and then abandoned. (Cooper 2001, 113.)

In attempt to have a brief reasoning at this point and given above guidelines we can deduct that the stage gate system is a process that allows the product to be developed in the most efficient and low cost way. As well as stage gate process reduces the time and prides its success on the ability to make radical decision. Competitive product is the result and not a burden product for the company. Along the process this is one that needs to be updated every year and perhaps in the technological arena even more often to be an efficient process.

We can also add that not all the products can go through this system and they are other variables to take into account. Moreover the products needs to have a more tailored process which will have a more suitable measure, that will result and depend of the wholly ownership taken by the corporate structure as we saw in this last areas of analysis. Therefore, the key not only strives in the needs of the customers but the ability to foreseen viable new needs or problems that will need to meet a solution in advance, having a solution is a competitive advantage and a leads in the market having the segments always aligned with the company philosophy and in the case of companies such as SME’s. The ability to perform before such processes is acquiring a deeper understanding and capabilities. There might be a time when the product need extension and support beyond, perhaps the local demand and it's demanded abroad or globally. Then is recommended to first apply an inner study which could be the framework used by many named C.O.R.E to further assess the viability and inclination of all resources including the human capital involved.

There are several reason as for why a new product development is created, we will analyze in detail later on what these reasons could be, but the most attractive and successful ones are based on their core on the demand of the customers. However regardless of the product most cases follow a pattern or structure called the Stage gate system. The process
of the idea to launch are described and argued from the discovery to post launch review in following chapters.

2.1.1 The discovery stage: idea generation

There has been a long period of time perhaps a decade or so where new hits or quick hits and extension products had been the core of many businesses to stay afloat. Nevertheless nowadays breakthrough ideas and innovations are becoming in some cases the key management issue specially when it comes to technology and never-ending apps. (Cooper 2001, 154.) In the product development process, the concept generation brings to the company many concepts for review and then determinate the best options to be considered for further product development. (Kahn 2011, 68.)

Before the ideas were a given or simply kept in a pool sitting waiting to be developed however scarcer resources and financial crisis globally had led to companies to qualify better those ideas and for that now a whole new stage is treat it solely as the discovery stage.

Strategies that include Top-down or bottom-up can result in a new product idea. Bottom-up can be a for instance a sales person who uncovers a flaw in the service or product and scales this to the management and later this result on a new service or a solution in the customer care area. Top-down is usually more direct and occurs when and strategic plan is put into place and through the exercise of it defines a particular segment or key area of focus. Hence market research results in an amount of element that need attention or needs to be given solution and therefore a map of action is design for a new product to be developed in later times. (Cooper 2001, 155.)

Serendipitous, it is an event perhaps more exciting and one that withholds the X factor for a product to be successful and the market has leading examples nowadays that endorse such statement. This is due to the fact that at any given time an idea can happen by accident as Cooper argues. When a scientist in his free time and happens to discover a solution to a problem in society unknown yet and conscious of the general masses, which can be a breakthrough idea that can change considerably the way people approach in current times problems as technology has proven this in recent years. (Cooper 2001, 156.)

One of the suggestions discussed by Cooper (2001, 155-156) helps to realize where is the problem located even if there is not a visible problem. Many companies don’t take risk and simply keep adding similar product to their lines or complementary ones instead of
thinking of a whole new breakthrough products as the chances of failure are high however some had succeeded at it by taking the jump without thinking twice but not before thinking thoroughly and soundly about it. The suggestion is a set of questions such as: Have you review the new product pipeline? Is there a shortage of real potential great project? Where do new ideas are coming from? Where should they be coming from? Are these ideas good ones? How is the company solicitation these ideas? Do we have enough of them? Do we have a new product idea generation system in the company? Wwhen great product was developed and how is these human capital assets looked after?

The exercise cited by Dr Cooper (2001, 158) talks about a scenario where in the travel industry intermediaries are less and less need it and still these are travel agents, however they are a market for the giant’s carriers for instance in the flight booking arena. This case is thought out on how a new idea can disrupt the market and instead of losing a margin of income or dis-intermediate the travel agent first need to account for a deeper analysis of what is the real problem and come with a solution that that can result in a higher profiting one and cover this gap in the system before it becomes a loose.

The key issue rest on how good or well are the IT solutions working in the company as many take for granted that consumers rather book a flight nowadays online. It is not totally true because the argument strives that many consumers rather still book it through a travel agent simply because they don’t have the time to search for hours’ online dozens of companies and don’t rely in the times given and many times end up booking something expensive than with a travel agent. The end-users then become unstable as for the preference and the company they book their flight with, therefore a measure tailored to tackle such issue should be address rapidly and assessment of the company’s IT capabilities need to be reviewed. Many programmer designers or IT ignored greatly the end-user and designed a very complicated programs to reserve online and even though the company might have an edge of advantage on the industry which can be lost easily to the competition merely due to the lack of simplicity and reliability to designed a friendly user program aiming to satisfy both end-user and travel agents. Travelocity is used as example to point out this as a possible solution powered by Saber one on the largest airlines reservations system aimed to the travel agents. (Cooper 2001, 158.)

In the pursuit for a defining a new product innovation and strategy one is the suggestion is to consider a road map that can help you crystalized your vision and find a more efficient and competitive product and for that the Porters asses or aids to find and asses such issue. (Cooper 2001, 159.)
Cooper & Edgett (2008) conducted detailed ideation study where eighteen sources of new product ideas were listed and then divided in three approach groups: Voice of customer methods (VOC), open innovation methods and other approaches.

This part of the article proposes that VOC as well as customer brainstorming is effective and some key functions in this aspect are; ethnography research which among the suggested one highlights a more customized approach due to the changes in the social sphere, having in mind that increasingly nowadays we have groups that need to be acknowledge as separate for markets such as the EU or USA where minorities are account in great percentage in the market. (Cooper & Edgett 2008, 3-4.)

Use voice-of-customer research to uncover new opportunities takes place with direct scenarios and is a must nowadays to find our next product idea. How is this accomplished? Simply put create and encourage customer interaction to find out more opportunities, we see nowadays more and more customization and in some cases is the core of a business due to the demand and voice of the consumers. (Cooper 2001, 162.)

Lead user analysis is one VOC methods and can take place in the services sector. However in today’s real frame this needs vary and it is important to acknowledge such effect
but also point out the need to work with **innovative customers**, why? Because from average customers comes averages ideas whereas with thinker customers or savvy tech for instance comes improve and breaking ideas. The variation strives nowadays in the focus groups named or called crowed sourcing that is a direct interaction with this particular type of clients or consumers that have incentives and know well enough the product and can point out to the flaws or need of a new product that will help the company to maintain its competitive edge. At the same time the loyalty of customers is increasing and improving a great deal customer retention as the customer feels listened and not ignore, which at the same time helps to grow the flow of ideas and motivates both company and customer to come up with better ideas and satisfies both of them needs. (Cooper 2001, 162-165; Cooper & Edgett, 2008, 4-5.)

Open innovation approaches are also a strong driver to follow and it’s still very strongly influenced by scientists, start-ups, vendors, partners because they thrive on this field. It means that companies need to look outside their domain for new product ideas, IP designs and even fully developed products. (Cooper & Edgett 2008, 3-4.)

Although many argue that not always looking outside is a fruitful search due to some industries complexity such as engineering jet parts or highly advance technology still the concern in the B2C, such as P&G products sector. The innovative approach formulates a very good yield results when using partners and vendors due to the capabilities that they can bring to the table. These industries are called intensive capital industries where the product takes a long time to manufacture but such remains in sales for years as well. (Cooper & Edgett 2008, 3-4.)

The article Best Practices in the Idea-to-Launch Process and Its Governance argues the feasibility and effectiveness in different systems for new product development, including the stage gate system. The main objective is to determine what systems is more effective and it was conducted among 211 business in the USA by the American productivity qualitative center (AQPC) and the product development institute (PDI). The study was focus on methodology, metrics and practices, however inconclusive results emerged to identify a clear driver of effectiveness among the different systems but myriads of elements where highlighted such as developing a differentiated product, early product definition, resources among others. Nonetheless many factor in other studies have identify why a product is or becomes successful and explains that some of that is due to an innovative program implemented in the process and the technological strategy put into place, also points out at the right management of allocation resources, aiming to cost-efficiency improvements. (Cooper & Edgett 2012, 43.)
2.1.2 Scoping

After idea generation and assuming one has great ideas and innovative ideas many companies regardless their size should spend no more than 10,000 dollars on it and no more than 10 people going and working with it which means that after a month this idea needs to be submitted to gate two for the development and process. (Cooper 2001, 179.) Screenings through the ideas would depend of the company alignment and the resources available to have the capabilities to go ahead with the project.

Thereafter a preliminary market assessment will need to come into play which mean that steps and market study needs to prove that there are commercial prospects for the proposed product. This will include: evaluate market attractiveness and potential, gauges possible product acceptance, sizes up the competitive situation and shaping the idea into a tentative product design. The task is to find out with minimum cost quickly in usually a month, the market size, growth, segment, customer needs, interest level and competition. (Cooper 2001, 180.)

Some of the elements that can be used at low cost as scoping tool will be the following ones: internet search, this needs to be aiming at finding quality leads and checking the sources are trustworthy thus this task may require a well-informed person or preferably an e-marketer to have better results. Internal reports, the company surely has a data base that can help to back up the studies be are getting into needless to say is important to have access and have an organized data base. Key customers, direct face to face with key customers although it may be too premature to have this done is good and if possible conduct telephone interviews to have a better idea what is in the mind of the customer when pitch these ideas. Among other trade association, consulting and research firms, your own personnel, government agencies, industry experts, etc. (Cooper 2001, 180-181.)

It’s imperative to scope well because if its only out of hunch or spark idea that might be golden to the company, it might have not effect and various barriers might not allow the product to be developed. This can result in grotesque looses and even though the company might realize it won’t work the scoping stage will result in a loose of thousands dollars instead of millions if the wrong product is sent to production without having done a preliminary test studies about the right scope for the product.
2.1.3 Building the business case

This is the last up-front stage before going into full development and fully production therefore this stage is one of the most critical and expensive ones, this is the part where the product or project makes or breaks and usually handle poorly. (Cooper 2001, 184.)

Hence a series of actions need to take place to build a business case: user-needs and wants study is critical to determine whether the product in question has real potential. Therefore camping out, interviews, face to face interaction and in depth research market will help to assess customer benefits, probes customer's needs wants and preferences. From this we can also evaluate the design and trade-offs of the new product. (Cooper 2001, 185.)

Competitive analysis is important part of the stage. In order to succeed the company should provide greater customer value and satisfaction than its competitors (Kotler 2013, 76.) Competitive analysis is a deep look into the competition both direct and indirect determines who they are, strength and weaknesses, anticipate pricing in the future, performance and commitment to their product. (Cooper 2001, 185.)

Market analysis gathers all the information obtained from primary and secondary research and sources, asses market size, trends, segment and buyer behavior in competitive behavior. Detailed technical assessment pulls together all inputs mentioned before and turns it into feasible product concept on paper some of this products or concepts may be physical where prototypes are developed in a lab and also Quality Function Deployment are used (QFP) which is a method that translates customer needs into engineering characteristics for a product to be manufactured. Other issues involve such as intellectual properties, technical partners, suppliers and manufacturability as well as capital or cost. (Cooper 2001, 185.)

Concept testing it's a final market test prior to full development and this helps to find out the level of interest by conducting interviews face to face to determine liking, preference over other products, price sensitivity and purchase intentions. Financial business analysis looks a business rationale for the project, which includes strategic assessment, impact as well as core competences and capabilities or outsourcing methods. After mapping it both domestic and foreign units a detailed financial analysis is developed such as Net Present Value, Internal Rate of Return and sensitivity analysis. (Cooper 2001, 185.)
Plans of action formulates recommendation for the project (Go/Kill) and detailed plan for stage 3 also includes tentative plans for stage 4, testing and stage 5 for both preliminary for marketing and operation plans. At this point a launch date is specified. (Cooper 2001, 185.) This in time will help to answer the main questions the company should assess before undertaking such enterprise questions simply put: “for whom and what”. This is how we will know for whom and considering all elements the product will be with its benefits, design, requirements and also to know exactly what the product will be. (Cooper 2001, 186.)

2.1.4 Development

After the market has been research, product is defined, technical map has been developed and the business justification has been prepared we find ourselves in the development phase where the business case is now ready to start without forgetting the impact of the deliverables to the pivotal gate three or Go-to-Development decisions. This critical gate opens the door to a significant commitment to resources and to a full developing program which is the full establish status required before this gate. If well proficient assessment has been done in gate one and two then this phase the development should be smooth ride as we expect to have a clear vision and well defined target to proceed towards. This alignment of action will have to be review and coordinate with the externals units of work such as outsourcing and international units to have a stream of action that will merge together to have a well design actions taken in this process. (Cooper 2001, 212.)

In the stage three where the business case is translated into deliverables, we need to bear in mind that the deliverable at the end of this stage is at least a prototype that has partially been tested and validated it with customers through lab test and in house test. The problems that might arise through this stage are very common, as we are dealing with instability of all kinds in all aspects of society and the major one can be the following two: first, the product definition isn’t quite right, this could happen because sometimes there are inconsistencies in the development and some details of the design or features are omitted by the project team, neglecting that such are maybe crucial for the end-user to have or the customer has conceived and utopic product in mind and the product once developed falls short to the requirements of the customer. (Cooper 2001, 252-253.)

The second problem: things change, this is a constant, especially in the consumer services and technology sector. Therefore the project must have been mapped out on the basis of how thing were but the situation now has changes and elements such as economics
might not be the same or the project hast taken too many months or years and now other competitors have realized similar product thus the attention once the product is developed is not as greater than before. A minimum requirement to tackle these problems is to seek customer input throughout the whole process and make the necessary changes along the process to successfully launch a desired product. (Cooper 2001, 252-253.)

2.1.5 Testing and validation

Stage number four deals with the validation of the product or project, after a sample or prototype has been produce then the product enters this phase to provide final validation for the entire project. Customers field trials, test markets, and trial pilot production begin.

Testing with customers means that not only the product needs to work right but also needs to comply with additional requirements for the customer and needs to excite to assure purchase intent. Therefore the customer reaction needs to be more than positive to avoid competitors to gain that customer and have an edge when it comes to preferability in the market. Is paramount if conditions allow, to display along the process the product in the making to the customers to avoid surprises when the product is due to be launched. This means to work with the customer and allow tem access to evaluate features and benefits. Some cases like in technology the components aren’t visible to show to the customer along the process such as software, however by still showing them tangibles an educating them will be worth it in order to gain consumer adherence. (Cooper 2001, 265.)

Preference test, this is used to evaluate and are proved to be invaluable because the little details that the customer seizes in the making can make the difference. In this aspect, the tape recording not only help to contribute in the better making and improved features of the product but the wording referring to the product can be of huge impact when designing marketing campaign and design of the brochures, thus we gather that this is very beneficial to both the making of the product and also to the selling aspect. Other recommendation is not to oversell which means not to sell by force and convinced the consumer without seeking the real feedback. We talked about the consumer being well informed which means that when it comes to innovative products for instance the consumer need to know sufficiently the product to be able to judge it. (Cooper 2001, 267-268.)

Price sensitivity, this in nowadays market is a very complicated matter this is why a test with two groups needs to be taken where one group is offered a lower price and the other group a higher one, having the company aiming in between to leverage the profit. Also
any data should not be taking literally as this can be a mistake, while this might be helpful is not final in order to get the real percentage of people liking or with purchase intention that to buy the product. Companies say that if more than 50% like your product then is a go but if less than 50% don’t like it then is not a go. (Cooper 2001, 268.)

Extended trial and field trial are useful and can really not only build up reputation but also avoid major expending and complain, reimbursement due to malfunction or deficient characteristics can lead to lost. For example a ship company had to deal with a lot of complains after selling slippery paint to avoid plants adherence to the vessel and after a year all paint had to be redone as this peel off real fast and boat had to go through it after a year of good business but the outcome result were loses not only financial but also the reputation of the company. (Cooper 2001, 269.)

2.3 Launching product into the market

This is where the final evaluation gate opens up to a largely financial one, here more technicalities are addressed, owning already results of preferences or end-user test, test markets or sells trials. It is possible at this point to make predictions of estimated cost of production and marketing cost, sales volume, sales price and profitability with a higher level of confidence than the previous stage gate. Is key to conduct through financial assessment before moving forward the reassure that all factors of the equation are in place. In this current phase scenario, the result had yielded positive and the production is optimal therefore is time to run the final NVP, IRR and sensitive analyses, the returns need to be excellent and exceed expectations at least the minimum expected. (Cooper 2001, 278.)

2.3.1 The marketing plan

Marketing launch is one of the final stages in the new product development however marketing planning should not be the final step prior the launch. Timing is everything that’s the reality and working on this shouldn’t be left at last due to the paramount importance involved in it. Is very often and dismal that one can find that some companies like the one given in the book where the projects start upside-down leaving the marketing for last when there is no margin for maneuvering in case that the product doesn’t satisfied customers expectations. (Cooper 2001, 279.)
The marketing plan for this particular phase needs to be a sharp weapon that will battle in
the marketplace this needs to addressed three elements:marketing objectives, marketing
strategies and marketing programs. Developing the plan means to elaborate action to for-
mulate a marketing program for the launch. (Cooper 2001, 279-280.)

Starting marketing planning early could boast results as there has to be informal market-
ing which are implicit formulated in the beginning of the development and the planning
should be explicit already by stage gate two to oversee the making and performance in
the later release date. Thus the marketing should be incorporated from the beginning and
run alongside of the project. (Cooper 2001, 280-281.)

Setting goals are critical steps due to the importance of making the project a whole one
and interactive one where everyone involved should be briefed about the progress and
regular meeting with the managers are recommended to reach such goals. In fact this
should be done in a way that is a common measurement for the new product or projects in
order to assess the progress and the people involved should have a clear route of action.
The foundation of milestones and benchmark for future product are required as mandatory
in order to have a time-measure ruler to see what action need to be taking in case the pro-
ject isn’t progressing as expected. The information and development should flow like one
giant wave in order to be visible and clear to everyone. Course correcting would not be
possible without these elements. These objectives in time need to be measurable and
quantifiable to evaluate against other marketing plans for other products to see what can
be improved or changed in future projects. (Cooper 2001, 281-283.)

Macro environmental analysis is inevitable as this is where key factors are directly linked
with our product and our market. It is not a secret that if we are working with a new prod-
uct that is not a perishable one such as a laptop or smart phone. The economic situation
will play an enormous effect in the success of the launch and profitability margins. Hence
a close look into this factor is necessary in the beginning of the process. Political and legal
play also a high risk role in the planning and execution of the process. There might be
laws that constraints directly with the design for safety reason or the material used for
healthy technicalities among many other factor, including the political side where the con-
trols and legislation become too strict and could slow down the production in the case that
certain raw materials are outsourced and suppliers and new laws come into dissension.
(Cooper 2001, 285-286.)

Internal assessment pertains to the capabilities of the company when it comes to bring up
to speed everyone onboard, which means literally to evaluate how well prepared is the
employees and the channels of distribution as these may vary for different products and service sector will also need to looked at. The wellbeing of the projects and success rest in great deal in the shoulders of this factor. Sales people will need to be tested and trained to better serve the client and promote new ways of assistance. Failing to address properly this issue can cost the company looses simply due the lack of implementation of new sets of action in advance. (Cooper 2001, 286-287.)

2.3.2 Marketing strategy and marketing mix

Two pillars for marketing strategy and marketing mix are addressed in this section but first we need to put the customer in the center of the visual plan, once this is clear we want to focus on the goals or pillars mentioned above and first create value for the customers and then build profitable customer relationship. Afterwards comes the marketing strategy based on this foundation, then the company will decide which customers will serve and prioritizes different segments and works in the differentiations and positioning. Guided by the marketing strategy then the company engages in marketing activities such analysis, environmental needs for adaptation prior to introduce in the process the of the 4 Ps to be effective and systematic avoiding external factor from disrupting the workflow. (Kotler 2013, et al. 2013, 51-53.)

Everything has to revolve around the axis of the project which we mentioned; the customer value and the relationship. Thus the planning, position, targeting, differentiation needs to help and define the 4 Ps to be able to monitor: the marketing implementation, marketing control, marketing analysis and marketing planning. After determining the overall marketing strategy, a more defined but not final start to take place and is put into motion, hence we start developing an integrated marketing mix. Definition of such can be seen in simple wording that the company will use as tactical set of action or tool to influenced and maximize the demand of its product. (Kotler 2013, et al. 2013, 51-53.)

Blending these activities together requires various synchronized moves among the 4 Ps and it’s remarkable that a very skill force needs to assess the current situation of socio-economical moment when the product is to be developed and launched. This will affect greatly the outcome for the customer needs and the company profitability. In short we could think of four groups of elements keeping in mind the target customers and the intended positioning: product; variety, quality, design, features, brand name, packaging and services. Price; list price, discounts allowances, credit terms among others. Promotion;
Advertising, P.R, sales promotion. Place; channels, coverage, locations, inventory, transportation, logistics. All of the above need to go hand by hand to produce the intended effect and results to be a successful process. (Kotler 2013, et al. 2013, 51-53.)

2.3.3 Marketing planning and the stage-gate new product process

To be successful, marketing requires from companies to have the capabilities and master core issues such as understanding customer needs, creating and designing the right product and performing customer retention. This is all this through the customer perceived-value which in reality is only achieved by a handful of companies among the ones we can mention Ikea, Club med, Danone, Electrolux and in the American industry we easily can see McDonald’s, Ritz-Carlton, Nike, Walmart, Starbucks and in Asia Nissan, Toyota, Samsung per se.

One can reason this is due to the core activities to maintain such of status without avoiding look into the processes. Most of them have a standard denominator which has three sections: Planning, this is a process where corporate planning, division, business, and product planning are involved. Implementing: organization is key here and then the implementation to the different action takes place. Controlling: measuring results are important. Diagnosing results and taking corrective action are very important. This in time helps the companies to respond effectively to the changing customer needs. (Kotler & Kotler, 2009, 95-96.)

It means that all companies can do this even small ones but they need to direct their attention to three planning strategic areas: first, managing company business an investment portfolio, second assessing each business strengths by considering the markets growth rate and the companies position and fit and that market, and third establishing a strategy. The marketing needs to operate in two levels the strategic one and the tactical, the first deals with the customer’s perceived-value and the following with the 4 Ps in part of it. (Kotler & Kotler 2009, 95-96.)

2.3.4 Post launch review

Dr Cooper (2001, 141) stretches out the importance of post launch review which means that at some point the product becomes another product of the same line and the team-
project has to be dismantle. This could be anytime between the 6-19 first months from the launch. This is where is ideally a point to analyses the product performance and the project itself.

A post audit is carry out and the project is evaluated to seize the strength and weakness of the project and make notes about how to improve the future projects at this stage the leader and team are still held accountable for the outcome including the post launch review. (Cooper 2001, 141.)

The phased review system is not to be mixed up with the one endorsed by NASA designed in the 1960’s through the 1990’s which is a system that broke the innovation process into stages where many team were involved and hands off the project from one department to another were set actions not allowing any speedy decision nor an integral process. (Cooper 2001, 143.)

The stage gate system by contrast is one built for speed where these stages are multi-functional they are not denominated by areas in the case for example of manufacturing, R&D stage and the process is held by empower decision making team players and multi-functional areas headed by a leader. (Cooper 2001, 143.)

Organizations can take specific actions to increase their efficiency in reviewing, learning and knowledge-sharing from product development projects. Post-launch review should be held while the information is still fresh for the project team members. Post-launch reviews should be conducted a safe and non-threatening environment. The projects should be analyzed periodically to identify patterns or lessons which can incorporated into new product process. (Edgett, 2013.)

3 Research design and methods

To determine the right research framework whether this will be a quantitative or qualitative, first need to assimilate the root of the problem and take a step back and analyze the main issue to solve or find out through the two following questions; what is the issue? What is the best way to solve such issue? This unfortunately is many times overlooked and afterwards the dilemma comes when collecting the data among other practical actions. Answering the first question help to clarify what the researcher knows or wants to know. (Ghauri, & Gronnhaug, 2009, 44, 47.)
Impartial minded human capital needs to address this issue in order to have a better understanding and avoid bias when a researcher may have a leading position towards a preferred method of research therefore is better to have a technical approach and involve other sources such as technical literature which can enhance the appetite of a researcher and lead to a more defined way to proceed when choosing the right method of study whether is qualitative or quantitative. (Ghauri, & Gronnhaug, 2009, 44, 47.)

Mostly secondary research and possibly primary research, qualitative and desktop studies will take place. Qualitative data is based on meanings expressed through words and analysis is conducted through the use of conceptualisation. (Ghauri & Gronhaug 2005, 482.) Secondary data include written materials such as notices, administrative and public records, books, journal and magazines articles and newspapers. Documentary secondary data also include non-written materials, such as video recordings and television programmes. (Ghauri & Gronhaug 2005, 252.)

The literality review focus on product launch with a stage-gate model. The theoretical review is the most important data source. Secondly all the available material regarding IDEO’s new product development is analyzed.

After reviewing the theoretical literature regarding new product development and stage-gate model, the secondary data material such as books, journals, video material is analyzed. The qualitative research is conducted to better understand how the company is managing new product development and how the human-centered process is applied.

4 Findings and discussions

The new product development is not only a process nowadays but also a creative design stage of comparison to traditional approaches. This has changed in order to meet a more tailored fashion and had brought broad success to those whom had implement the changes or processes recommend it by IDEO. Therefore the human-centered approach brings a fresh breath of innovation that needs to be address and implemented based on IDEO’s widely success.

Hence in this part we will focus how IDEO manages the concept of New Product Development and its variations from the system gate stages. Having the introduction in mind regarding the company IDEO we cannot help but wonder how is it possible that an impact-
innovative company in design thinking doesn't have the recognition it deserves especially when their product improvements and creation can be found in almost everywhere and everyday life from a standing toothpaste tube, light devices to airbuses all over the world.

However, the ingredients for the way of work could lay answers for these aspects and enlighten the path for what makes their system of NPD successful and the main aspect relate to their approach as David Kelley (2013) says: “unleashing creativity is key to make things work and observations are paramount to reach goals”.

4.1 Idea generation - innovation begins with an eye

Little things such as a standing toothpaste, sport bottles, all in one products and high-tech devices need to be observe in use to be able to assess and improvement or create a new product. IDEO does not follow conventional patterns fully as they say they do not care much about focus groups or traditional market research as they focus their energy in observing the source of the issues that is the customer or final user itself which in time is the source of the problem. For instance, a company based in Silicon Valley which provides high-tech device used in surgical procedures ask IDEO to have a look into the impractical balloon angioplasty used in heart patient surgeries, as delicate as it may sound they were told the solutions they need it but IDEO wanted to see first hands the problem to be able to confirm what they said they need. In short they observe in the operating room a different problem and design a different set of solutions were they provide with more technical and user friendly approach while using the device. (Kelley 2004, 25-29.)

What does this prove? To start is that manufacturers have a different perception of the need of the end user and often come up with impractical products and solutions which exasperate and create frustration for the consumers or users. The difference for why IDEO is a global recognized company is because unlike many companies they go to the source and observe first and design afterwards, after all in their words what is the point to fight human instinct?

Far from conventional methods the observation or the equivalent to marketing in any project is the qualitative research. Combining both and assimilating the difference can grant a wider understanding and an innovative creation thought out to be out of the box product and sometimes could be a pioneer product as it was in IDEO’s case with the first mouse for a pc among others inventions.
The human factor can hinder the way we see opportunities and blind us from solutions this is argued here and reasoned why this occurs. A simple example mentioned show part of the reason, why? Imagine you host a dinner and offer the best of what you can do hoping to please your guest, despite your efforts when asked your guest about whether they were pleased with the servings you might not really get the truth about it, why? Simply because they are too polite to say that was ok, or lack salt or portions were small and the steak was too raw. (Kelley 2004, 25-29.)

If they care about you they will even say that it was delicious and if not, they unconsciously will say it was very good whereas if they don’t really know you or care much they will be more honest but the truth is that almost no one will tell you the problem or what was wrong. This is the human factor as by nature is said that we make a dismal situation look or described in a sugar-coated fashion. (Kelley 2004, 25-29.)

Thus instead to ask users that well intentioned try to give you answers about what is wrong with your product is need it to be a visionary and observe carefully what is really wrong as many like in the dinner example do not know well enough what is missing to be a great meal as a cook or a professional chef, the same applies to a regular consumer they lack the vision and skills and knowledge to describe what is really missing in the product you have created to make it a start product. (Kelley 2004, 25-29.)

Observing and hearing on your own every details is essential to uncover problems. We encountered every day in our life to find solutions in all areas of our life including services. Therefore it suggested to simply approach our beaten path as it was the first time walking through, to understand and come up with solution that people know are there, but do not act on it because of the lack of motivation or simple because they don’t know how to described the problem to hand out solutions. (Kelley 2004, 25-29.)

Another example that highlights the observation remarkably well. Larrry Miller a human-factor savvy working at General Motors was videotaping his daughter, while he discover the elliptical way her legs were moving in every step when she was running and thought out a cross trainer. Following that path which led to a worldwide invention of the cross trainer in every gym we go today. He sold his idea to a Seattle based company named Precor Inc. Now this product is one of the fastest growing selling start products in the world of the fitness industry and health. (Kelley 2004, 25-29.)

This proves to IDEO’s core creed that innovation starts with an eye. Another interesting way of uncover needs is the one mention when we travel abroad and experience new
things and see differences among products or services which can led us the wonder why this? Or think why not? Reason for this is because when we are in a foreign setting our senses heightens to the level that we see for the first time things that we haven’t seen and assimilate or observe closer than at home where everything is familiar and this gives us the ability to questioned and approach things differently. These are refereed as bug list. (Kelley 2004, 25-29).

4.2 The future of design is human-centered

Product development is not a stiff process but a flexible one in the words David Kelley (2007) mentions that in the last 20 years they realized that the future for NPD has to be tailored with products design with behaviors and personality. This means that an abstract element of a human sensorial preferences can be manifested and embraced if the innovation process has accounted for this element to be tangible for the end user thus gaining edge over the competition and aiming to fulfill a human need whether is the field or services or environmental one.

A prestigious brand Prada in New York City asked IDEO to design a more cultural hip and technological retail layout were through scanner a client could see on a screen display all related info with the clothes that the client is choosing. Also a dressing room of liquid crystal was designed which created a buzz among people as most of them were thinking: you will be able to see through the glass, but as the clients steps in in the dressing cabin by simply stepping on a button in the floor the liquid glass goes from crystal to complete grey dark, allowing full privacy to the client without touching any door knobs that many don’t like in any public space. There was also a “magic mirror” which display the front but had a delay of three seconds so that a client can see what he or she looked like from the back. (Kelley 2007.)

This demonstrates that Prada wanted to tailored products which was the difference with other stores: the layout of the retail store and the level of sophistication for selected clientele. This was all possible because IDEO created a human-centered tailored serviscape by listening to the client demands and observing the behavior of a client in the store and level of independence when trying clothes on.

Another project that IDEO participated was for the London science museum and just to hear the word museum for an intended very young crowd is not an easy task to fulfill, specially if the intention is to draw attention and captive their interest However IDEO design
sensorial high-tech subway or tube system with a round table that interacts with the audience and a very real virtual phase this experience helps the participants to understand, question and compete against each other by exchanging information and answer questions right and this has triggered a more fun way for the teenagers to learn and eagerness to visit the museum. Again human-centered design thinking and designing a more customized effective product having in mind the drivers of motivations in this case very young visitors or users. Also IDEO was creating water pumps design for a nonprofit organization in Kenya which help to create 30,000 new jobs so people can growth in all seasons crops and food all year round. (Kelley 2007.)

This proves that the future is a human-centered approach to fulfill and create tailored product which will result for companies in loyalty and trust if the user feels heard.

4.3 Five traits of successful directors

More and more companies have come to realized that structure tedious and mechanical product development are far from nowadays people or customers wants and needs. There is only so many black cars Ford was able to sell. Having this in mind we can refer to a brief example from a multinational toy manufacturer in the world: Mattel.

Ivy Ross a talented director vision the role of director as a new type of guiding tool with IDEO working hand by hand and becoming a director of innovation, this meant radical changes in production and design which with the collaboration of IDEO planned a twelve weeks of re-thinking and retreated some of her key executives form their positions to participate in many group exercises and activities including prototyping, improvisation exercises, observation and free thinking. (Kelley 2008, 141-146.)

After those twelve weeks the patient paid off when the group came up with a new project with a new platform of toys for girls named Ello, which boasted sells in the first year of launch of more than a 100 million dollars. During the workshop they also learned that at IDEO there is room for more than one style and every manager has the power to steer and develop new work criterias and methods but always applying flexibility and confidence in the employees’ ideas. Stanford institute of new design thinking applies design thinking to the world of business, from IDEO’s perspective flexibility is not an erratic path if follow through abstract effective successful director traits such as the following (Kelley 2008, 141-146);
1. They give center stage to others. These managers are happy to let other take the spotlight and encourage their work behind scene to make the job or project benefit fully from the creativity of the employees.

2. They love finding new projects. They gladly step up and lead when need arises and rely heavily in team chemistry to get the best results, they accommodate new players and see through the projects not being afraid to delay project is a right piece of human capital is not found and proceed ahead when found.

3. They rise to through challenges. This means that like in other sector such as the movie making industry there are delays, ebbing budgets, long hours of work setbacks and they still need to be up to the task.

4. They shoot from the moon, meaning they design impossible sometimes and lay out bold strokes that could be difficult to follow but then they work to make their dream a reality like in the case of Mattel mentioned before where high up management hesitated on the twelve weeks of group retreat but lastly were resilience on its task.

5. They wield a large toolbox, problem solving in real time isn't an easy task nor coming up with solutions and ideas that provide the answer to big issues.

These directors have capabilities and methods as well as techniques that aren't written in books and this is necessary for the position and they not only exceed at this but they embrace the unexpected and are prepare to lead the way out of it. Director of innovation take a role that might be unconventional but the history shows that the greatest inventions or product have the inner intangible element of being though out from out of the box traditional thinking and structure long processes involved in new product development.

Acquiring a team that lead to success is most of the ingredient to reach these goals. In this we can see that the human factor not only plays a role when getting the right worker or player but is important that they fuse correctly and seamlessly to the other team players to create and develop something greater. Needless to say the equation is not possible without the right team of players regardless their background or cv's as this is of no use when they fail to adopt and merge with the team and director of innovations visions. (Kelley 2008, 141-146.)
4.4 Design thinking and future scope

IDEO has a vast and very rich curriculum and well respected scholars had written rivers of articles about IDEO however it remains under the shadow and doesn’t claim or pursuit publicity this may be part of why they are so successful as the spotlight always can play or backfire in any company. It is particularly important to understand the cycle or work methodology IDEO uses when working in new projects.

Design thinking was adapted for business purposes by Kelley. In his (Kelley 2014) words design thinking is;”In it’s simplest form, I would say design thinking combines technology, humanity and business elements. As far as the methodology goes, it always starts with empathy. It essentially blends technology with humanity.”

From this it is not hard to gather that the old times where a manager or manufacturer simple told the employees what to do and how to design the new project are over. Let’s think what entails these elements and as a figure of speech a great shake needs a powerful and spacious blender hence a manager or a leader needs to act as the blender to combine these elements which in today’s world of business are; technology, human capital and business elements, these are almost inseparable and a must for success.

Therefore, a manager of a CEO needs to be a powerful blender with enough space for thinking and idea sharing always seeking new ideas from the team. Moreover, he needs to be able to attract the right people and like-minded team players to make possible blending successfully the elements mentioned before.

In the current times most employees in the world of business and NPD do not go to work just for the paycheck or are satisfied with a punch-in card and don’t remain still for years in only one company. The times have changed and the work values and goals that our grandparents had are not the same as they were in the past, thus Tom Kelley refers that a key team player will not work and contribute nor last in the company if the company or management message is “stay with us and make a lot of money”. Talented people are scarce and losing a key employee/s can leave the company handicap.

The management needs to be creative and involve the employees in the project, encourage creativity and embrace any idea with soft skills so that the flow of new ideas won’t stop, this in time will show a team player that the company listen to them and trust them and value them, which will lead to an intangible but strong sense of belonging and value
sharing is as equally important to account when it comes to have a productive successful team to work and challenge new quests of meaningful products.

Another aspect mentioned was prototyping and iterate on it has its core development to a real concrete product. This means that management needs to unleash inspiration by paving the way with new ideas exposed to the team where everyone can build-up on from scratch without the fear of criticism as told before and this could lead to levels of creativity with real potential. The certainty that once this idea is developed fully with the right and real materials will go through production with the least of red tape and delays. At this stage is crucial that the manager evaluates and has foreseen any problems that might arise such as financial or logistical. (Kelley, 2014.)

Another crucial factor is creative confidence. The creative confidence is based in two elements equally important. The first it has to do with the natural human ability to come up with an idea. We all have this inner ability, in some buried deeper than others but is there. It is not a believe but an universal truth that many take for granted, after all most of the greatest products come from people’s ideas needless to say the problems strives in our capacity of developing such ideas due to our environment, whether we lack of resources to make them come true or the fear of being mocked by our superiors or society. (Kelley, 2014.)

The second aspect which is confidence which needs to be nurtured and incentivize by the leaders because we as explained before might have a raw idea but are afraid to share it because of the fear of criticism partly pointed out before, and because of it this idea stays in the shadow till one day is gone or worse appreciated and developed in another company. As humans we tend naturally to judge and have pre-conceived unconscious action-rejection decisions which can hinder the flow of ideas and shut-down an idea just because who we have in front.

Kelley (2014) recommends that although this is hard to deal with, leaders or manager need to before this automatic rejections-decisions occurs or take place close their eyes and see the bigger picture to overpass this human faulty but natural rejection or miss pre-conceptions we have from the source of that idea.

Fostering innovation from what is said by Tom Kelley is to have a vision for the company a creed if you will that is crystal clear and highlights and is visible to all in the company and funneling all in one: a purpose. A company with a purpose its paramount to find and at-
tract talented people because people in general have distinct identity and naturally always try to find other people or companies that think and act like them thus fulfilling a purpose together, talented people and company is not an easy task but it can be reach if the message is clear from top to bottom whether this is explicit or implicit among the company structure. (Kelley, 2014.)

As mentioned by Kelley human capital no longer take orders from a CEO and those who do and the ones expect to be heard don’t last in nowadays business world. Therefore management needs to address and layout clear and design one path for all where communication and relations are close, despite of the size of the company, whether there is a visible flat line of works and not a pyramid of hierarchy, where the ideas are at the bottom and climbing that ladder takes too long and too much time and most of them are distorted by the time they get to the top of the pyramid and is no longer valuable nor profitable.

Speed in development of business is common currency. Thus there is not time for red tape and intrinsic road to develop new products and rethinking or redesigning concepts are very important even when it comes to refer to the employees in a company, because innovation will go or will happen where the voice of the employees is heard and pampered properly nurturing and fostering. The innovation depends greatly in the ability of skilled manager or company that believes or set its core function relaying in their team and empowered properly as many examples shows in today’s successful enterprises such as multinationals regardless their sector, e.g. Apple, Starbucks, IDEO, Ikea.

### 4.5 The culture of helping

In order to try to learn what is the different methods and work frame IDEO apply compare to conventional system of project work or product development and analyze why they stand out at what they do, we will gather some appreciations and studies done by third parties in order to avoid bias and have impartial expert the chance to elaborate a better understanding of the processes involved when working in group work and projects.

There is more than meet the eyes in a successful group work and managing a multicultural staff and some of this abstract elements had been study by The Harvard Business review (2014). They spent two years interviewing, running surveys and observing the methodology apply by IDEO in developing new products or designing new services and projects. One of the key findings according to the HBR show that IDEO has a culture of helping. It means that everything that they do in a collaborative manner and because the
reality in current times and business is that nearly no product service or project can be execute by a solo individual and almost every sector there has to be close collaboration if the company wants to get the job done.

It is easier said than done as humans tend to fail most of the time in collaborative work, simply because is not a virtue we possess and only comes with practice and hard training, in order to subdue one of our faulty inner elements as humans - pride. In western countries you prize pride, admire achievements of individuals and because western culture encourages this emotion is not wonder that IDEO has accomplished something remarkable in the USA headquarter and it’s to have a culture of helping each other and prized the group over the individual which is a hard task. As we all know that once an individual has perhaps an idea or excel others he or she will naturally try to stand out among the other by going at it all alone. Therefore the fact that through the observation done by HBR in this aspect shows that is not visible in their opinion nothing but collaborative work by the employees of IDEO.

In an era where knowledge sharing is doubtless a basic tool to build new products and tackle any problem the company must face, IDEO has areas or concepts on which they depend to succeed thus HBR grant us here through their finding the following concepts or criteria applied in their company to unravel part of their core methodology or way of work.

4.6 Leadership conviction

This is a topic where are many behaviour that hinder employee performance. It is not that many managers will encourage collaborative work among the ranks due to the fact that for some wrongly view this as a sign of weakness and its common currency in many big companies even still today. Is imperative to notice that IDEO has left this way of thinking behind and many bright minds can work impossible things whereas one alone can only contribute so much.

There is an example elaborate by IDEO of the levels and helpers named by the organization: Mapping Help at IDEO. Is IDEO really an exemplar when it comes to colleagues helping one another? The figure 3, which shows the helping network in one of its offices, a 47-person workplace. Individuals are represented by circles; the larger the circle, the more times that person was named by someone else as a helper. The lines signify the helping connections: A one-way (black) arrow points toward a person named as a helper, and a two-way (red) arrow indicates that the people named each other as helpers. (HBR, 2014.)
The most striking thing about this whole-office helping network is the complete number of connections it reveals. Most network diagrams of relationships in organizations show cliques (people are interconnected in small, tight groups, with only a few ties between groups) or hub-and-spoke patterns (nearly everyone interacts with a central character or two but not much with one another). At IDEO, in contrast, most people have a large and diverse array of helping interactions. (HBR, 2014.)

Figure 3. The mapping help at IDEO (HBR, 2014)

IT is interesting to highlight the fact that a higher level manager will be named and won’t be afraid to be assigned as helper in projects which means he will have to ask help from a key entry level employee and vice-versa, which for many companies is unthinkable. However we can see to explanation in simple words that often everyone despite their rank are named helpers and attend brainstorming session whether is a high level executive and not only will he or she be involved in low level processes but also will do so across different departments and different projects.

Another key findings were; Accessibility, through a survey done as well on this aspect HBR (2014) fond out another surprise when they asked to rate their top helper and contrary of what they though their answer will be everyone answer that their top helper was not really the one with most expertise or competence in the issue at hand but their accessibility and trust towards others. This highlight the idea or misconception for some, where always when facing a problems and in need of help most companies have clear employees and managers or expertise to seek the help and it is based in their experience. In contrary IDEO puts a lot of effort to search for the right person despite the rank or age and not
always that person is the same as the idea is to benefit from the most open and accessible person and at the same time with the experience need it to tackle the problem. One of IDEO’s strategy is to teach the engineers, managers, and project leaders is that they will need a lot of collaboration from many different people. Hence from square one the product will have the right criticism and will be better design, having in mind many factors of design or usability that perhaps many realized after the product has gone to mass production. Many of nowadays products, some are so badly thought out that need to take back from the clients to improve them and we see it nowadays in the technology gaming industry, car making etc.

Thus accessibility and trust are very important for IDEO more than the competences, although this is key for the problem solving. The general idea of the approach is to encourage all employees regardless their status in the company to be accessible and trustworthy because is in our nature to appeal a coworker that is accessible and responsible than a coworker who can have the most experience and competence but fails interacting with others and displays segregation among the team, making the seek for help an easy choice for the employee in question.

In the research of HBR (2014) conduct in one of the offices result show that almost a 90% of the people working were classified as helpers. This means that almost everyone has the skills to help other among the company whether is projects ideas or new product development.

The answer leads us to the common example of multinationals at least in western countries or to be more specific let’s say in the USA, any medium size company or multinational when in the process of hiring, one of the first things they do is hand the new employee a tick guidebook or handout and ask to read it before or after signing the contract. In such there can be found the desire culture the company expects from the new employee as well as the code of conduct expected from the new employee. If we go by the standard of IDEO’s culture of communication the process is incorporated to the new employee seamlessly because IDEO unlike most of the companies does this in a more practical manner. IDEO organize events, participate in regular activities, encourage social networking among the firm building this way the value desire and the culture of helping each other and translating later on into explicit roles. (HBR, 2014.)

Other factor of the processes involved what in IDEO they call DCL’s which stands for Design community leaders that are 1-2 individual to oversee projects and help as well with and many times they are expected to check in with the project processes to size the work.
These are workers who are very experienced in an area whether is customer interaction or engineer field but could also be someone with high human factor qualities and soft skills. (HBR, 2014.)

Roles although are explicit they might not be legislative as the culture of help is always present as a milestone, that reminds daily the companies values. Another visible aspect of the processes are IDEO’s famous brainstorming that is more a constructive process from different people with different backgrounds who focus in the building up process and not to tear each other down nor encourages competition among the members.

Aside from this the IDEO works consciously in encouraging through a friendly work environment the need of relationship and networking having open lunch and other activities mentioned before. However the help is not imposed to anyone as no one wants to overload a coworker and although IDEO has very talented helpers they don’t seem eager to encourage this behavior through financial bonuses or incentives which helps greatly the employees to be sincere and develop real relationships among each other. Here we have to think back about the words of one of the founders where nowadays talent isn’t attracted by money in most case but by their work values and the firm purpose.

At IDEO when asked about how they find such talented people or hire them they during job interviews listen for a couple things. When people repeatedly say ‘I,’ not ‘we,’ when recounting their accomplishments, we get suspicious. But if they’re generous with giving credit and talk about how someone else was instrumental in their progress, I know that they give help as well as receive it. It would be oxymoron to encourage help through incentives and the system would not be the same after such change. (HBR, 2014.)

In another survey of employee morale and satisfaction, recognition was a very highly aspect value by the employees and they prefer such before incentives and produce satisfaction when employees help and got help. In the fact they satisfaction was lower where they were not asked for help as often as others, through this survey one can easily deduct how embedded is collaborative work in their company culture. (HBR, 2014.)

Tango is a world known dance that requires two equally skilled partners with different roles therefore synchronizing the steps must be harmonious. This means that IDEO does acknowledge that sometimes the help receiver when asked help from the other party he or she might not get the same trait or may not even get help from the previous giver. How to tackle this issue? Well the helping tango is something the employees are aware of which is the sense of awareness involved and being conscious that this particular helper may
not be available or be the right person with the right expertise. This means that all employees need to exercise the discernment need it before approaching for help, after all the people working for IDEO are indeed people with a higher tolerance and the need it perceptive intelligence and gifted humans.

IDEO has fostered trust and design a work environment of team way before many companies had realized. Still some believe the promoting competition is the way of success, when this is not what the dynamic market of talent is interested in. Also some pointers from the review aim at IDEO’s core successful human capital management and in the guidebook at IDEO one of their most important phrases and expectation from the new employees is: “make others successful”. (HBR, 2014.)

4.7 Launching product

IDEO has its own course of action and this is being used and replicate in any other system and companies both public and private due to its recognitions as an innovation itself. Analyzing the framework utilize by IDEO in this aspect we can see a variable in relation with another launch conventional processes therefore It’s in my opinion worth to have a close look at such process in order to understand better their core activities in this regard. Some of the function include in the cycle are shown in the following (Launch 2016):

- A networked-sourced understanding of the challenge
- A multi-disciplinary network deeply engaged in the challenge space and committed to finding and supporting solutions
- A set of clear financial, technical and end-user requirements for success
- An investor community primed and eager to support high-potential innovators
- High-potential innovators coached, supported and moved forward by the network

From the launch process in short we can really see the effect in the network phase in almost all of the stages. It is paramount for IDEO to have engagement from all of the fronts, including the potential client and this is a very dynamic process seeking out to accelerate and create solutions based in knowledge collected in the processes through surveys and cycle leadership teams, who from the beginning work hard on building networks across all the factors involved and with a global approach explained in the big think phase. (Launch 2016.)
In short building network and working simultaneously with all the parties involved from the beginning pays off at the end. Thus one can fairly say; knowledge is power. However, if we look at the differences among the conventional stage gate system and IDEO`s we can see that they have a set of parameters and lead partner in the beginning such that lacks on idea discovery in the other framework. (Launch 2016.)

Another important point is that IDEO system has priority on building network or identifying who need to be involved in the process from the beginning rather than just do desk research. Mainly on the other framework, perhaps this is a closer approach as they also look already for solutions in this phase. Also before going into development in stage three in the stage gate model they first use a big think phase, then survey in order to develop a more customize solutions or a product. Lastly innovation is present in many phases in the IDEO`s framework phases looking out for the value rather than a red tape phase present almost in every step in the stage gate system.

Perhaps this is a more flexible out of the box thinking and more into the future in products, services or solution that already see in many industries nowadays. Thus is hard to conclude which is a better model or methodology to follow ultimately it will depend on the type of project the companies are involved whether this is a tangible product or not. Nevertheless, we can see that a more flexible framework like the one design by IDEO is a more current and informed one which in an ever changing world of business shows a more innovative-adaptive one to the needs of society. This is a process where the human factor is take into consideration in almost every aspect of the process and as we evolved products and services should do too in order to keep up with our needs as people and then consumers, failing to harness this universal truth by companies or governments could lead to the loss of loyalty.

Attracting human talent is a hard task but failing to identifying it before losing is unforgivable. Hence given the fact that the leading companies in the world are now nurturing better their employees by trying to understand their need and hopes and expectations, working together to find their real skills and use them for a mutual porpoise is the challenge to fulfill. Those companies or organization who focus on the human aspect now have the advantage among different industries as we move forward into the future where employee-paycheck is a past concept. More companies are changing this concept using a more embracing one by calling their employees associates, assets and some even share their success among their associates with incentives custom made plus a stake holder approach assuring their talents loyalty and decreasing the customer retention rate we all parts are involved in a sole purpose; clear identifiable value for everyone.
5 Conclusion

Product development and stage gates systems are in sum a conceptual mapping of a large project with different phases where evaluation is needed in order to continue with the development, with more sense of awareness due to the information collected before each stage takes place. Any project where stage gates systems are applied need to have the following ingredients: work, gather information, assess and go into decision. However, in the examples throughout the thesis one can deduct that although the stage systems helps we cannot avoid the fact that Innovation is the salt of a very elaborate or simple meal or in this case a project. In this line of reasoning now the original model of stage gate is being re-formatted.

When developing the product, we need to think ahead and use what is called the three AAA: Adaptive, Agile and Acceleration. Built, test, feedback, revise which are today’s global leading companies creed throughout the process approach in order to cut cost minimize risk and developed a more customized product were management and stake holder alike feel identified with. The old days the mentality was to create a product definition and go into development like a racing horse without stopping to think or look anywhere else that the launch and commercialization where things will most likely go south due to the inflexibility and red tape involved as well as lack of vision of innovation and value for the customer. Today these three AAA incorporated to the systems makes the process a more flexible one as well as successful.

Adaptive
This needs to be a process where the product evolves due to the business environment and social impact rather than a fast lane run. But how can we affirm such thing when these days the approach is full of examples of plain fast production and competitions? It seems rather ironic however the difference strives in the value and innovation as well as cost into the equation. We don’t need to cite to many examples to prove this as we seen it happening with worldwide known examples in various fields when rushing the process due to competition had very ugly consequences for those trying to step ahead in advantage.

Bureaucratic red tape should be minimum as this does not let room for innovation. To ensure this is a feasible project is better to have very early tangible proof or virtual for the
customers and stake holders and customer where the prototype is good cheap and various as the customer never knows what they want till they see it.

Agile
The process needs to be fast base in result not documentation some suggest even six weeks should be enough to have a software product ready to roll into production. Software development can’t have all of the elements from the gates as they are intangible assets but most of the basics could be included such as breaking the development spreads, analyses results, move along from point A-Z.

Acceleration
Many overlap the stages or combine them, make the process much more contest based which means depending what the product requirements thus in an innovation project will need to cut stages or elements of the value stream in order to make it more effective and lighter. Sales project use only two stages and this is called express gate system. Also introducing animation helps to speed up the process as this has been proven in the IT sector education both customer and stakeholders the value involve in the making of the product.

Regarding Human design thinking approach in the product development, What IDEO has implemented in a similar stage gate system, which gives them the edge and has more impact and success over other consulting global firm is personalization of the projects. Design thinking involves sciences applied into projects and inner creative problem solving enhancing by focusing on the individuals needs rather than commercial competition projects. In fact, design thinking is sort of new but it’s been emphasizing more in other countries rather than just the USA.

Competition encourages design thinking because when there is need for customer retention there is competition whereas when a monopoly has the share not much can be done and Nokia and the US postal services are some of the examples. Design thinking focuses in people’s needs and creatively comes up with solution based on those needs which are critical in our times as the client is more aware and educated in different sectors.
At a social level is more about understanding the context and culture than the product itself. By exploring new needs and developing with knowledge a new product that better fit the needs of the people in that social sphere. Sometimes can be a global need, for example social media apps that respond to particular needs we all have however in other sector such as housing or construction the needs vary according to the country.
Thus scholars, government institution, companies need to realize that the future lays on
design thinking and educators need to assess and encourage this practices in order to
better serve the needs of the society and improve employability of their students in the fu-
ture. IDEO does not hire people base on their cv’s, degrees, because simply they evalu-
ate and value how an individual fit in a more multicultural environment and their social and
creative skills rather than focusing in IT skills only. It means that multidisciplinary skills are
need it in order to be able to work and develop projects successfully.

Some years ago few had a marketing department and allocation for those activities were
scarce, however nowadays simply a company cannot exist without a marketing depart-
ment in the company. Same principle will be in my humble opinion true for design thinking
and many had use this new approach to benefit from it where individuals with no experi-
ence in for example the car making had been employed to help engineers design a better
car. Examples are abundant and we will do well to take good note of implementing not
only in new product development systems human design thinking but also in many other
institutions including school systems to stay ahead of the competition and have meaning-
ful projects acquiring and keeping talent motivated in the companies and institutions by al-
lowing them to take ownership of their work and encourage design thinking. We will insure
if done it right like many multinationals global companies and institutions success, such
those whom hired IDEO and remain ahead of the competitions for a sustained and more
prosperous future than those who don’t see this approach as critical to embrace now.

Aiming to answer the questions formulated at the beginning we can conclude that the
stages of the new product development are as discussed and shown: discovery, scoping,
building business case, development, testing validation, launch and post launch review.
The design thinking process is similar to the stage-gate process because of the problem
solving approach.

What sort of skills are required in the new product development? IDEO does not hire peo-
ple base on their degrees or current work titles, because they focus on how an individual
fit in a more multicultural environment and their social and creative skills rather than focusing in IT skills only or technical experience. The Harvard Business Review spent two
years interviewing, running surveys and observing the methodology apply by IDEO in de-
veloping new products or designing new services and projects. The key findings according
to the HBR show that IDEO has a culture of helping. This means that everything that
they do in a collaborative manner and is crucial to acknowledge that no project is in to-
day’s business handled by one individual therefore less red tape, flatten stream of mana-
gerial skills and soft skills are required to achieve successfully a task.
Why does IDEO hire multicultural human capital? Multicultural environment is a must for IDEO and they foster and promote it. It is obvious that two set of eyes see more than one but is even more so when they see it from a different perspective and with different backgrounds. In a more globalized market and a more customized business environment and new product development multicultural workforce is more effective and incisive if managed well like IDEO does and top global companies make room for this groups as every country nowadays has culture and subcultures in within, this means for example in the US market nearly we can find subgroups from all over the world with different views, wants and likes thus is a must to have people who is familiar with those groups. There are plenty of other countries where companies now have turned to segment and target those subgroups to better satisfy the needs of the consumer and gain their loyalty. Multidisciplinary skills are need it in order to be able to work and develop projects successfully.

In the end how is the dynamics of the group in charge of a project? We mentioned earlier five in order to have successful team work and dynamics in groups and these are;

- They give center stage to others, these managers are happy to let other take the spot light and encourage their work behind scene to make the job or project benefit fully from the creativity of the employees.

- They love finding new projects, they gladly step up and lead when need arises and rely heavily in team chemistry to get the best results, they accommodate new players and see through the projects not being afraid to delay project is a right piece of human capital is not found and proceed ahead when found.

- They rise to though challenges, this means that like in other sector such as the movie making industry there are delays, ebbing budgets, long hours of work setbacks and they still need to be up to the task.

- They shoot from the moon, meaning they design impossible sometimes and lay out bold strokes that could be difficult to follow but then they work to make their dream a reality like in the case of Mattel mentioned before, where high up management hesitated on the twelve weeks of group retreat but lastly were resilience on its task.

- They wield a large toolbox, problem solving in real time isn’t an easy task nor coming up with solutions and ideas that provide the answer to big issues.
References


