

The Intangible Factors of Design & New Product Development

David Driskill, Melissa Bermudez, Sean McMahon, Fahad Ullah

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Abstract

When thinking about product value it is important to realize that there are two main value classifications to take into account, tangible and intangible value. Although it may not seem obvious at first, all values that the consumer receives through using a product, whether tangible or intangible, do not happen by accident. All aspects of a product are built in by design. This is possible because of the intangible factors of the design process and implementation itself that a design team can utilize. The intangible design process is defined by three major layers: the knowledge layer, the emotion layer, and the experience layer. Each has different aspects pertaining to them that not only make them important, but also connect them to each other in order to create the intangible value that the consumer realizes through consumption. The problem is that no one prior has created a model for intangible design, and thus unnecessary sales and market share were lost. Before, during and after consumption the consumer also develops brand loyalty, brand identity, and brand imagery. This happens for many different reasons answered by the descriptive and causal research presented to form a model for true intangible product design. A shift in focus to the intangible aspects of design has occurred amongst most corporations today because they are all waking up to the reality that intangible value dictates brand loyalty, higher sales and customer retention. The effects seen in real time this perspective is having on business today are remarkable to say the least.

Defining Intangible Value and the Intangible Factors of Design

Intangible Value of a Product or Service

Before we can begin to understand what an intangible factor in the design process really is, it is important to first realize and define the type of value that is going to be incurred by the consumer. There are two main types of value the consumer realizes when he or she uses a product or service. The first is called a tangible value. It is easy to recognize and is best defined by *Dictionary.com* as “1. capable of being touched; discernible by the touch; material or substantial. 2. real or actual, rather than imaginary or visionary: *the tangible benefits of sunshine*. 3. definite; not vague or elusive: *no tangible grounds for suspicion*. 4. (of an asset) having actual physical existence, as real estate or chattels, and therefore capable of being assigned a value in monetary terms.” In essence, a tangible value is any value you realize through consumption of a product that can be measure and is real. This is a widely accepted notion amongst professionals in all fields of marketing.

Intangible value however is not as easily defined. Many different researchers have sought to define intangible value, but it is still a hot topic of debate in the field of marketing today because of its somewhat abstract properties. *Dictionary.com* defines intangible as “1. not tangible; incapable of being perceived by the sense of touch, as incorporeal or immaterial things; impalpable. 2. not definite or clear to the mind: *intangible arguments*. 3. (of an asset) existing only in connection with something else, as the goodwill of a business.” Another great definition for an intangible asset or value comes from Baruch Lev who sums it in a very short but sweet statement saying their “sources of future benefit that lack a physical embodiment.” Although the exact definition is disputed, it is widely agreed upon that an intangible value has no standard metric and is strictly qualitative.

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Although they are quite different, the tangible and intangible value of a product would be all but useless without the other. They go hand and hand with each other and both become vital for the success of any business today. Intangible value probably plays its most useful card when it comes to competitive differentiation and when choosing an attractive target market. In today's world, most products available to the market will offer extremely similar services to the consumer and thus begin to become bland and unmemorable when alone. This is where intangible value steps in. Although the core utilitarian (tangible) values of the market mix will be very similar amongst direct competitors, the intangible value that the product offers is where the product or service begins to separate itself. For example, if two competing firms offered identical bars of soap with the same shape and color, but one smells like white flowers while the other is unscented, the bar of soap that utilizes the intangible value of a pleasant smell has just made itself very apparently different from its competitor, and will now appeal to a more specific target market with a great core differentiator. For this reason, along with many others, the intangible value of a product or service typically stands to be more valuable to the corporation than the actual tangible value of the product. It is also interesting to note here the necessity of value conversion to a company's success. Value conversion occurs when a tangible or intangible value or asset is converted into a more negotiable value; that is to say that value conversion is when you utilize an existing value of a product by using it to realize another value, one that is typically more important, through the pre-existing value. Tangible value can also be used as a pathway to creating intangible values, and vice versa, but value conversion is better known for the conversion of an asset or factor into something more negotiable such as network effects. Both will be discussed in the pages to come.

Defining an Intangible Design Factor

Moving forward, it may sound unnecessary to say, but it is very important for the reader to note that nothing in the design process happens by accident. Everything that the consumer receives and all value that the consumer realizes through using the product is intentionally designed into the product. There are many different examples of an intangible design factor that many people overlook. For example, the expertise that an employee brings to the table becomes an intangible factor in the design process because it influences and aids in developing all areas that this employee will work on during the design process. Here again is a perfect example of value conversion that a corporation uses whether they realize it or not. All employees are considered knowledge capital, and everything they bring with them, both mentally and physically, will be converted into a realizable value that the corporation can utilize. It is important to note here that through the process of value conversion, both the corporation itself and the consumer realize higher value. When the corporation converts their knowledge capital into realizable value and implements this value into the design process they thus attain a better, differentiated product while the consumer realizes more value as well. Values that the consumer can realize through the intangible design factors range from outstanding user interface and simplicity to higher tangible value as well. Incorporating intangible design factors such as knowledge, expertise, and experience that the employee offers aids in improving the tangible value that product offers. Intangible factors in design truly better the product as a whole, but they are not implemented randomly along the way. There are three different

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layers in the intangible design process: knowledge, emotion, and experience. Each one becomes essential in instilling a higher intangible value to the product you offer. It is important to note here before defining each layer of intangible design that all three layers of the intangible design process only work in the presence of the other. In essence, one does not exist without the other because they work simultaneously during the consumer's interaction with the product or service to create each other.

Knowledge

The first layer of the intangible design process to be addressed will be the layer of knowledge. This layer has been considered to be slightly obscure because it has been difficult for many to harness an exact definition to the knowledge layer of the intangible design process. There are a few different aspects that should be listed when talking about this specific layer though. In terms of the intangible value realized by the consumer, knowledge is any aspect of information about the product the consumer gains. This does not necessarily have to be acquired through use of the product or even information pertaining to the product. Knowledge in this sense can be acquired through research of a product done online, through human interaction and word of mouth communication (such as a recommendation made by a friend or loved one), through first hand experience using the product, or through knowledge of the applicable brand. It is important to realize that knowledge, however, does not necessarily have to be positive in order for it to become a value to the consumer. Both positive and negative knowledge about a product are considered an intangible value of the product itself. It is essential for many different reasons, but can best be described in terms of new product development. This is because the knowledge that a consumer contains on a product that is new to the market can be detrimental to the success of launching the product. If there was a large amount of negative information, or knowledge, circulating about a new product it is very likely that this knowledge would hurt the products sales and acquisition of market share. The same can be said vice versa when talking about the positive knowledge in circulation of a new product.

When talking about the design process knowledge needs to be noted because of the key role it plays. Knowledge in this sense can be anything from what a specific worker knows about building a product to the expertise that an employee may have because of their former work experiences. The expertise and information that all employees have are what aid in creating an innovative product and positive construction practices. This knowledge can only be truly passed on from employee to employee by first hand contact as well which is why on the job experience, or tribal knowledge, is so crucial to employment in any company for any industry today. These intangible factors in design are all part of what creates a unique, successful, and innovative product because of the unique signature left on the product by a specific group of workers at a specific point in time. It is also very critical to "keep a secret", especially when dealing with new product management, because a competitor could easily swoop in and copy or steal all the unique aspects to the product your employee's created.

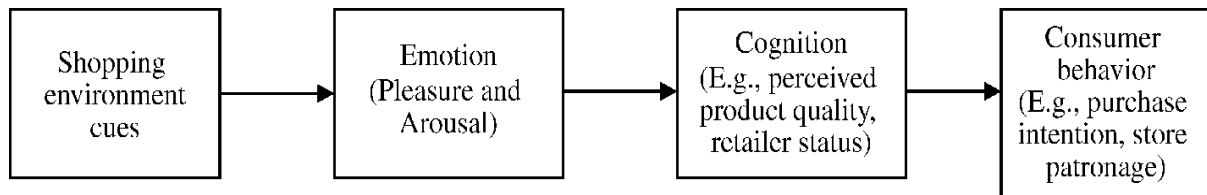
Many companies today are switching their main investments to department areas such as Research & Development, Marketing, and even training because they are slowly waking up to the fact that the intangible factors of design are what create their competitive advantage. The intangible value of knowledge acquired through training

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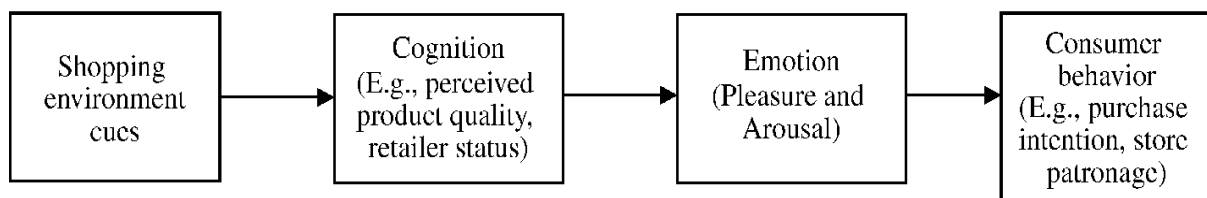
before starting work at a corporation or on a product is crucial to its success because it raises the quality level of work produced from each employee amongst other reasons. The number of different technologies used in production today is vastly increasing to boot. Firms everywhere are investing in greater numbers of information technology amongst others. This means that the average worker needs an expansive knowledge in many different types of technology as well as any additional skills required. The amount of knowledge necessary for a person to be competitive in any market today is consistently on the increase, so workers today constantly have to update their knowledge base in order to stay on top. This means good news for the corporations however because they are able to downsize the number of workers they need in many cases while still increasing the knowledge base available, all because of what has become necessary for the average person to stay competitive in their job field. The work place is also seeing large developments in IT because of the increased level of interdependence and communication between workers. Advances in technology are also creating large problems for corporations. It is most noticeably seen in new as well as existing products because of the decreasing amount of time needed to spread information on a product. All of these factors attribute to the challenges faced by the business world today, and all play into the importance of the intangible layer of knowledge in design, production and management a product or service.

Emotion

The emotional layer of the intangible design process is the next crucial piece that builds upon the knowledge layer. Knowledge and emotion can be simultaneously created through use of a product because of our body's reaction to a stimulus. The following emotion-cognition model can best explain this. It can be hard to target a particular



Emotion-cognition model used in environmental psychology based shopping environment studies.



The competing cognitive theory of emotion model also used in shopping environment studies.

emotion because of the vast spectrum of human emotions, but whether or not the desired emotion was elicited from the consumer, upon consumption of a product there is always an emotional response from the consumer. Again this is not limited to just the positive emotions such as joy and relaxation, but also includes all of the negative emotions such

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as fear, frustration, and anger as well. Consumers tend to make purchasing decisions based on the emotional appeal of a product. For example, when deciding between different brands of can openers, all other factors being the same, the consumer is more likely to pick the can opener that boasts ease of use along with a soft grip handle as opposed to its competitor relying on a slightly lower price for differentiation.

In terms of the intangible design process, when working with the three layers of intangible design it is the goal of the design team to hit the mark and elicit one or more positive emotions from the consumer through use of said product. In relation to the example above, although having a softer handle serves no purpose in actually getting the can open it does serve the purpose of keeping the consumer calm and relaxed while cooking. It is also the job of the design team to make the product look as pleasing as possible for the consumer. “In emotional design, pleasure and usability should go hand in hand as well as aesthetics, attractiveness, and beauty.” (Hanisch et al. 2008) No consumer is going to purposely purchase a product that they perceive to be ugly.

The user is able to convert the beauty of the product they purchased into value here through the emotional layer because of the positive emotions that beauty elicits. During the consumer decision process a large weight is placed upon the emotional response of others to a product that the user purchases. If the consumer believes that other people will respond positively in terms of emotion to a product then the consumer is more likely to purchase it. Conversely, if the consumer feels that purchasing a product will get them no emotional response or a negative emotional response from others then the consumer is very likely to not purchase said product. The intensity of the emotional response created is also very important because the user needs to experience a high level of intense positive emotion repeatedly from a product in order to view the product as a good purchasing decision. This is how a customer begins to become attached to a product or brand and thus begins to develop brand loyalty.

The emotional needs and responses that people make are largely influenced by the culture that they were raised in. Emotional needs and responses of a culture differ from culture to culture. Typically the farther away two cultures are, the higher the level of diversity of emotional needs and responses. Interestingly though, positive emotional response (which can be seen in something as simple a facial expression like a smile) tend to remain the same across all cultures. It is important to remember that all peoples have emotional needs and that these needs will change from person to person and culture to culture.

Experience

The third and final layer of emotional design is the experience layer. Even though we are able to break up the intangible design process into the lower levels of purely knowledge and emotion, they both culminate in the overall user experience. Here again, it is important to note that both positive and negative experiences are taken into account. A positive experience can have the added benefit of creating brand loyalty between the consumer and a specific brand. In order for this to take effect, the experience has to be highly satisfying so that the user will want to experience the product over and over again. An experience that is only moderately satisfying typically doesn't register as well with the consumer and so the consumer will be less likely to continue using the product.

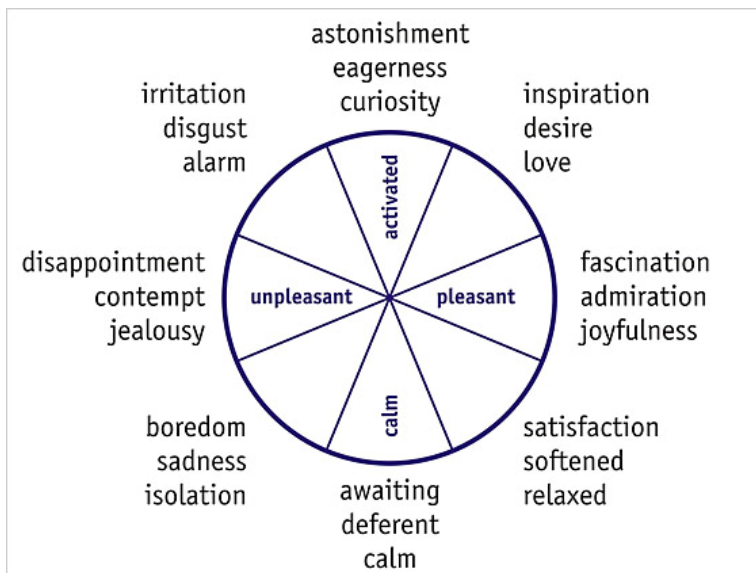
In terms of experience, we are not solely talking about the consumers experience

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with the product. Experience is everything from shopping for the product down to consumption. Even the users recollection of, or ability to fantasize about using the product needs to be taken into account. For example, if the user fondly remembers the use of a product and/ or gets excited when they think about using the product again. There is a recurring theme through out the design process of taking into account all aspects surrounding the product instead of just the core values. “Design is an integrated discipline that requires aesthetic, marketing, ergonomic, and engineering skills” (Meyers, 2011). They all culminate into the overall experience the user has with the product so it is important to realize that all three layers of the intangible design process are connected and depend on each other to achieve success. The intended experience is shaped by the characteristics of the user (personality, background, skills) as well as the product (shape, color, and texture). It is the job of the design team to instill both parts into the product. This is where the design team can make the users experience unique in their eyes. When the product allows the user to feel like they are having a highly satisfying and unique experience they are very likely to want to experience it again. The unique attributes of the experience are what will stick out in the users mind when they compare the product to its competitors. Here again is a chance for the design team to develop a competitive advantage.

There are a few different factors that can influence the consumers experience with a product, but it is mostly the setting of the experience that influences the user to a positive or negative emotion. There are different parts of the setting that need to be taken into account. These include (but are not limited too) the place that consumption occurs, the weather during consumption, and any people present during the consumers experience with the product. For example, if the consumer was being dragged out to go shopping with his/ her parents to purchase a product, and was taken to a store the consumer doesn't particularly enjoy going to, then the consumer is likely to have a negative experience and thus a negative association with any products purchased that day.

All aspects of experience design are centered around the theory of core affect, which combines the affect dimension with physiological arousal. Essentially, during a user experience with a product they will land on one of the panels in the following graph when you take into consideration the stimulus's (e.g. the product's) overall effect on the user.



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It is important to note here that any type of emotion evoked from experiencing a product will elicit a response. Said emotions can be anything from anger, to fascination, to boredom, but all will have a reaction elicited from the user. The more powerful the reaction, the more likely the user will develop brand loyalty and vice versa. What is important to remember here though is that the user can experience multiple emotions through the different aspects of the over all experience. Just because one part of the experience activated a pleasant response from the user does not mean that all parts will. This is also part of how knowledge can be attained through using a product because of what the user learns about the product through their experience. Knowledge and emotion are typically created together during the users experience in this fashion.

In essence, the experience layer in design pertains to all parts of a users experience with a product from the shopping portion of the experience to actual consumption. Design teams will typically center their focus around the theory of core affect when designing the experience because core affect is something that we all experience every day. We move from panel to panel on the circumplex in the above graph whenever a new stimulus is introduced, so it is important to realize that the user can and most likely will move between panels and elicit different responses during their experience with the product so the design needs to be prepared to manage these movements.

Intangible Value of Teams

The intangible value of teams to the design process is one of the most important to discuss. This is due to several reasons. First off, when we are talking about an employee contributing their intangible value of expertise, for example, to the design process we are really talking about a member of the design team who is offering this value. The intangible value that each team member carries is unique to each different person and cannot be recreated with a different group of team members. Each employee will have a level of expertise, experience, and knowledge on the product and design process behind the product. All of these intangible values are converted into intangible factors of the design process when the team sets off to work. These team members along with each of their intangible assets they offer and convert to intangible factors of the design process is known as intellectual capital. Intellectual capital is one of the highest values that a team offers to a particular company. The value they offer the Company as intellectual capital is realizable by both the company as well as the consumer because of the value the team adds to the design process. Their specific knowledge and expertise that is put to use during the design of a product is what aids in creating a competitive advantage because none of the company's competitors will have the same team designing their product. Each competitor will utilize a different design team with their own unique set of intangible values offered as intellectual capital. That being said, the team itself offers most of the intangible assets available to a company's disposal during the design process. Thus the choosing and management of a team becomes crucial to the process.

The design team helps their corporation realize value in a few different ways, but one of the most important ways is by ensuring that the design of the product contains the value of how the business was created to how the business is expressed through the product i.e. the brand. As was stated before, aesthetics is an essential part to the design process because of the emotional response it elicits from the consumer during the

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consumer's experience with the product, but in this sense it also aids in creating knowledge about the corporation through the product. For example, if a corporation was trying to express a more environmentally friendly image through a given product they could utilize the value of the design team by having them design a package for the product that states that the company is going green. They could also utilize the design team by having them input on and help change all aspects of production that are not environmentally friendly to being green so that the company is able to express their desired brand image correctly. All of which is part of the design teams job and their value. The design team also boots the intangible factor of design improvement because of the team's ability to constantly search for ways to improve the design of the product at hand.

Another majorly important intangible value that a team offers is the value of social capital. The best example of social capital that a team offers a company is the intangible value of trust. A company has to be able to trust a team to keep the design of their product a secret from competitors because they want to maintain a competitive advantage. They also need to be able to trust that the team is able to perform the job required of them. The corporation should be able to trust the team is able to keep improving the design of a product so that they will be able to maintain and increase their competitive advantage that they hold or will hold. Trust also becomes very important when designing a new product because if parts of the design process were leaked out during development then the corporation would be ruined. Trust here also applies to the team's ability to perform because the firm is trusting that the product designed by the team will be successful and help the firm realize higher monetary value as well as brand loyalty.

Essentially, the value of teams is something that should not be underestimated because the team itself is who is bringing the major intangible factors of the design process to the table. The team's value is thus converted into intellectual capital that the firm can realize, and convert again into monetary value because of the value the team adds to the design of the product. Thus you receive a higher realizable value of the product in all aspects.

Defining the Intangible Factors of New Product Management

Intangible Value of Product Managers

It is true that most of the intangible factors in design are implemented and realized through the firm's intellectual capital, but who oversees the firm's intellectual capital during the design process? Employee's all have to report to somebody, and teams do not just appear out of thin air and magically organize themselves. There is still an intangible factor missing from the discussion thus far that needs to be addressed because of these issues. This is the intangible factor that is the team leader or manager.

Managers have many different functions and responsibilities, but there are a few key aspects in their roles that really make them the resilient intangible resource that they are. Managers are the ones who pick and choose who will get to working on any given team set. Their ability to pick and choose who is best suited for these roles is an intangible asset not every manager possess. A manager's intangible asset of decision-making is crucial to new product management because the executives of a corporation

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have to be dependent on them to make the right calls, and make them quickly. That goes for management of the design process itself as well as managing the new product once it is introduced into the market place. Here again we see the aspect of social capital at work because the corporate executives have to be able to trust the manager to make the right decisions in choosing their design teams as well as any field decisions after the product has been introduced to the market. The executives themselves simply won't have time to over see every aspect of production the way that a hired manager can. In this sense managers also provide the intangible benefit of convenience, higher performance and reporting for those higher on the corporate ladder.

Just as we discussed with the intangible value of each differing team member, the manager brings to the table a skill set, level of expertise, and a level of experience as well amongst other things. The difference here being that not only will the manager have experience in the field, but managers also have experience in being managers as well as expertise in how to manage key situations and key aspects of the product itself. All of these reasons and more are how a manager adds to the corporations existing intellectual capital. On that note, one of the most important intangible factors in terms of new product management is the ability to manage the image of the product through the design process as well as after it is released into the market place. For example, the manager needs to ensure that product puts forth the correct representation of the firm. If the firm is trying to put forth a more green and eco-friendly image it is the product manager's job to ensure that the design team is using green methods in all areas of design from research and development to construction. If said new product is released into the market place and puts forth an undesired image of the corporation either through the consumer's experience with the product or perhaps the advertising campaign for the product it is the manager who brings forth the intangible benefit of damage control.

In terms of new product management, it is very important to manage the company's image through the product because of its effect on brand loyalty. A loss of stature in brand loyalty would spell doom for the product and so the product manager's intangible asset of brand management through the new product becomes just as crucial. When launching a new product a corporations image is at stake because failure of this product could result in damage to multiple areas of revenue for the firm which range from monetary revenue to brand loyalty. With that said, part of this intangible factor is the managers ability to pick and choose which aspects of the company this new product should be expressing. All of which can be designed into the product, but if the design team misses the mark somewhere or an unexpected product image as well as an unexpected brand/ company image is portrayed the product manager will thus go and resolve the issue.

The most valuable intangible factor and asset to new product management is without a doubt the product manager. Even though the design team does the majority of the actual work, it is the product manager who not only picks the design team in the first place but also influences the team while drawing on their intellectual capital that they offer to ensure that said new product is successful and innovative. They create the most social capital through the conversion of their intellectual capital into value because they will be the most trustworthy team members at the end of the day because of their intangible factors they bring to the table.

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Technology Revolution and the Increasing Value of Intangible Assets

During the twentieth century we saw the rise of technology, and how it began to take its permanent place amongst our society. Computers got smaller, faster, more efficient, and more importantly more common. Many industries began to outsource their internal operations, such as manufacturing, and all industries began to incorporate more technology in the work place. As industries expanded, time went on, and the need for technology began to rise in the work place, products and services in all industries started to become more similar to each other than ever before. Most competing companies began to utilize the same types of technology and so it became that much harder to establish a competitive advantage from their competitors. This is in huge part a reason to why the corporations of our world began to put a larger focus on the intangible value of their products and services.

Because so many aspects of these competing products had become so very similar to each other, it made perfect sense that to be innovative in today's world and market you had to look else where outside of solely the utilitarian value that came through consumption of the product. It was no secret that a product or service needed to be aesthetically pleasing to the consumer in order for it be successful, but never before had something like aesthetics become a main focus in the design of a product. The weight of all external or hedonic value associated with any product was on the rise. This is where you begin to see the importance being placed on intangible design, and thus the three layers of intangible design: knowledge, emotion, and experience. This was especially true for new products trying to enter into a market place. Because of the increasing similarity between competing products and services, if a new product were to enter the market place without perceiving the necessary and demanding value of the intangible factors surrounding it the product was sure to fail. This is even truer today because of the ever-increasing advancement and evolution of technology.

Corporations everywhere began to wake up to the fact that in order to be successful in advertising and marketing of any new product they had to place a new focus not only on the intangible value of their product, but on the intangible factors in design during the products development. Again, this included everything from the experience surrounding the sale of the product, to the emotional design of the product, to all knowledge associated and gained through consumption of the product, especially that of brand image that the consumer perceives through consumption of a product. Corporations everywhere are waking up to the fact that they need teams and managers that they can value as intellectual capital instead of handy men as the need for knowledge and experience increases, and the need for hands on work and product construction decreases.

The Importance of Intangible Factors in Today's Market

Literature Taxonomy of the Three Layers of Intangible Design

As mentioned in the previous section the three layers of intangible design are knowledge, emotion, and experience. These layers work together to enable a company to create value within the organization and for its customers as well. The three layers can be implemented to further connect with consumers to further understand how exactly to target their needs in the most beneficial way. This section will dive deeper into how

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exactly these three layers can be utilized to help a company reach brand loyalty. Below showcases a review of each layer of intangible design.

Author/ Research year		Key Insights
Knowledge	Allee, V. (2008)	Knowledge can be traded for more knowledge; it can be traded for another form of intangible value or a packaged and sold for profit as an intangible
	Bowden, J. L. (2009)	Involvement, commitment, loyalty three distinctions in customer engagement
Emotion	Fleur, J. M. (2005)	Positive and negative affect emotions. Positive emotions divided in interpersonal emotions and emotions without interpersonal reference
	Khalid, H. M., and Helander, M. G. (2006)	Pleasure existence in emotion: Physical pleasure, social pleasure, psychological pleasure, reflective, pleasure, and normative pleasure
Experience	Desmet, P., and Hekkert, P. (2007)	Three types of product experience: aesthetic experience, experience of meaning, and emotional experience
	Higgins, E. T. (2006)	Hedonic experience increase the opportunity for strengthening value and engagement

Consumer Value

In the 21st century economy traditional methods of business reporting simply does not reflect the full value of a company. For example a growing share of a company's market value can be attributed to intangible factors, which become the new centralized role for driving market value. Customer satisfaction is what creates value for a firm; therefore integrating intangible factors within product offerings will allow greater overall success for companies. However establishing understandings for the audience at hand as well as the brand itself, are crucial first steps. By doing so firms are to reach the correct

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and most effective audience available while positioning itself correctly to connect with their needs and wants.

Consumer purchasing decision

Every consumer has created their own unique buying habit; this includes the mental and social processes that are established. There are multiple influences that direct the consumer to choose one product over the other. Understanding the five stages of the consumer purchasing process will give better insight to how consumers make these choices, why they chose one product or brand over another and reveal point of opportunity for firms in the design process. The five stages of the Consumer Purchase Decision Process are as follows:



Stage 1. Need Recognition

The point where the consumer determines that they have an unfilled need or desire to be met. This can be triggered by an internal stimuli, hunger, tiredness, etc. or an external stimuli being a suggestion from someone else or advertisement seen (Kerin)

Stage 2. Search for information

At this stage the consumer clarifies the options open to them by using an internal search and/or external search. An internal search entails process such as scanning ones memory to recall previous experiences, or simply using established information and knowledge to access the decision. While external such is using personal sources such as friends and family, public sources or marketer dominated sources during the information search.

Step 3. Evaluation of alternatives

This stage is when the consumer uses the information collected and established to evaluate alternative brands in the choice set. The products evaluated will go through the evaluation criteria uniquely created by the consumers, the establish characteristics that are important to the consumer. Once the screening is complete most choices will be eliminated and consumers may rate and rank alternatives.

Stage 4. Purchase Decision

This is the point where the consumer chooses the product to be bought. This stage also incorporates other decisions such as from whom to buy and exactly when to buy. These actions depend on the terms of sale, past experience buying from a specific seller, return policy, time pressure, shopping experience, etc.

Stage 5. Post Purchase Behavior

At this stage the consumer undergoes an evaluation of the purchase decision, which will determine if it was satisfying or dissatisfying experience. This will

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further determine consumer value perceptions, consumer communications and repeat purchase behavior (Kerin).

Concepts such as motivation and personality; perception; learning; values, beliefs and attitudes; and lifestyle are useful for interpreting buying processes and directing marketing efforts. Additionally, further analyzing a consumer audience will allow identifying how to target the established need uniquely through intangible factors in design. Consumer purchase decision goes beyond reasons behind accepting or rejecting an alternative but more so encompasses a plethora of influencers, internal and external factors. It uncovers strong elements that influence buyer decisions, uncovering opportunity areas for design methods.

Motivation and Personality: The energizing force that causes behavior that satisfies a need. It can be broken down into four different needs. Physiological needs being the basic needs for survival. Safety needs, being the self-preservation and physical well-being. Social needs include love, friendship, achievement, status and prestige. Lastly is self-actualization needs simply being personal fulfillment. Understanding that “value is, indeed, a hedonic experience, but it is not only that. It is also an experience of motivational force—experiencing the force of attraction toward something or repulsion away from something.” is granting a different view of the consumer being targeted (Higgins 2006). Following is personality, a person’s consistent behavior or responses to recurring situations. This affects consumer brand and product-type preferences. Further analyzing a consumer audience will allow companies to understand the trigger for their choices and how to adequately incorporate *emotional* intangible factors to its design methods.

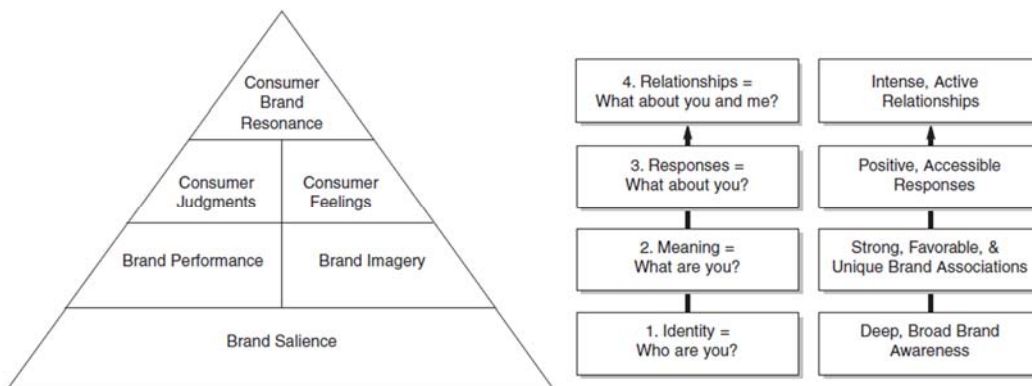
Perception: The process by which an individual uses information to create a meaningful picture of the world by selection, organizing and interpreting. Further more perception depends on more than the physical stimuli but also the stimuli relating to the surrounding environment and conditions within an individual (Keller 2001). Therefore, understanding perception is crucial since people selectively perceive what they want and it affects how people evaluate risks in a purchase. In additionally if the brand or product is assessed positively it leads to a reflection of positive quality and credible perception, which can result in brand consideration and even possibly to brand superiority (Keller 2001). Perception in other words can be explained as a consumer’s *knowledge* about a product or brand, establishing a foundation for consideration during the purchasing decision process.

Situational Influences: Situational influences included five different base effects on a final purchase decision. First is purchase task, meaning the reason for engaging in the decision essentially what was the primarily goal for the potential purchase. Second is the social surroundings, which for example is if other individuals were present when the decision is made. This is physical surroundings, the decor, music and crowding of the setting. Forth is temporal effects this is the time of day or the amount of time available. Is the individual rushed or do they have the ample amount of time to make a thought out decision. Lastly is antecedent states, which the consumers mood or amount of cash available at the time.

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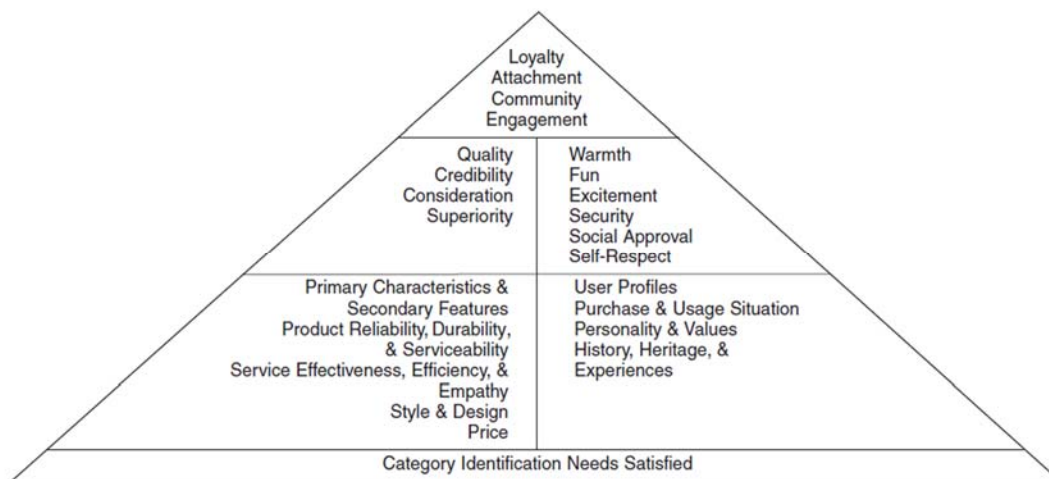
Building Loyal Customers: The Four Steps of Brand Building

Establishing a strong brand with loyal customers has shown to provide successful outcomes for a company. However a product does not simply attract a large following on functional and technology features alone, as discussed earlier a consumer's purchase decisions is the accumulation of multiple factors which then influence their acceptance of one product over another. Essentially simply understanding the motivational factors of the target audience and aligning the product offering to those factors will potentially lead to a valued hedonic experience which furthermore can establish a possibility for gaining a loyal/ repeat customer (Higgins). Building loyal customers is not just an external idea, but one that is created from within the firm's framework. Brand building, highlights just that. Building a strong brand can be seen as a step by step process which at each point a brand accomplishes certain objectives with the customers, both existing and potential. The four-step process includes brand identity (who you are?), brand meaning (what are you?), brand responses (what do I think or feel about you) and brand relationships (what about you and me?). The steps are in sequence meaning one cannot be established before the previous one has. Below is the customer-based brand equity pyramid, essentially the building blocks needed to meet all four steps in the brand building process. The second figure shows in more depth what the supporting building blocks represent (Keller).



Brand Identity

Customer Based Brand Equity Pyramid:



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The first building block encompasses the importance of brand identity. To be able to accomplish brand identity there needs to be brand salience, essentially the awareness a customer has of a brand. Brand awareness can be explained as a customer's ability to recall and recognize a brand. Additionally brand awareness is more than just simply naming a brand, but also encompasses how well a consumer can link the brand. For example, based on the brands logo, name, symbol or even jingle. Establishing a clear link between product offerings will allow the consumer to differentiate the brand between other competitors, which further strengthens brand identity. Having strong brand salience will open the opportunities for possible purchase and consumption with influencing the likelihood that the brand will be a member of the consideration set (Macdonald).

Brand Meaning

The step of brand meaning works with brand silence to establish brand equity. Brand meaning is simply is the image of the brand the customer has established using the what the brand itself is characterized by and how it desires to stand for in the minds of consumers. The brand itself needs to create its image, to be the basis for consumer perceptions around the brand. Essentially brand mean can be broken up to two major categories, functional, performance-related considerations versus abstract, imagery related considerations.

Brand Performance

Creating brand equity cannot be completed with customer perception alone, the need for the product to function correctly is crucial. The product itself is what influence a customer's experience with the brand and what they share to others, positive or negative. For a brand it is highly important to design a product that fully meets the consumers needs and wants to create demand and interest among its audience. In addition once a brand has a full grasp and understanding of the consumers needs it can produce a product that can meet, or even exceed their expectations creating a higher potential for loyal and return customers.

When evaluating a brand's performance customers may take into consideration multiple attributes such as the product's reliability, durability and serviceability. Meaning how the product itself ranks in terms of its consistency of performance over time, the life of the product and how easy is it to repair the product if needed. Another is simply the style and design of the product. Is it aesthetically pleasing in terms of size, color, materials etc. Lastly a customer may evaluate a product by price. Depending on the brands pricing strategy the view of a product can highly change. For example pricing a product high may be done to create a sense of prestige to the audience.

Brand performance creates a foundation for how consumers view the overall brand will gain differentiation in the market. Using the correct strategy can result in better connection with your consumers while establishing strong competition with other competitors.

Brand Imagery

The second type of brand meaning is brand imagery. Brand imagery tapes into the consumers psychological and social needs and moves away from what the brand actually

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does or offers. Thus taking into consideration the intangible features a product or brand offers to its audience. A brand's intangible factors that allow for brand imagery include:

User Profile: User profile is simply the characteristics of the person who use the brand. These characteristics may involve general demographic factors, age, gender, race or more deeply psychographic factors, a user's lifestyle and attitudes.

Purchase and Usage Situations: Another consideration for establishing brand imagery is the conditions under which the product is purchased and used. The type of channel, specific store and ease of purchase affect the overall perception of the situation. For example if a customer purchases a luxury brand purse online versus in the brand's standing store, the experience is going to completely change. Online there is minimal customer service and interaction with an expertise while in store you are able to attend quickly. Other factors also include when and where the product is used (Keller).

Personality and Values: The established values and the inherent personality a brand has created influence brand imagery, as well. The values established are what communicate to consumers what exactly the brand stands for, while the personality of the brand further supports its values. The brand can harness sincerity, reliability, intelligence, innovativeness etc.

Brand Responses

Brand responses are how consumers respond to the brand, and the products it offers. It is the overall reaction to the brand. Brand responses can be simply split into two categories, brand judgments and brand feelings. Brand judgments are the accumulation of information the consumers have gained to build their opinion. Brand judgments can be established through the brand quality, how the consumer perceives the quality of the product, brand credibility, how trusting and knowledgeable is the brand itself, and brand superiority, how consumers see the brand in comparison to other competitors. While brand feelings encompasses the emotional responses and reactions consumers have to the brand, how the brand connections on an emotional level. Brands can provide a feeling of warmth, fun, excitement, security and even social approval to consumers (Keller). The goal here is to create a positive and satisfying experience since it is known to be a determinate for if a customer will be a return or loyal customer or if they will recommend the brand to others (Bowden).

Brand Relationships

Brand relationships relates to brand resonance. Brand resonance being the nature of the relationship the customers have with the brand and the extent to which they feel that they are connected with the brand. Furthermore it is the bond the customer has created with the brand, for example, being frequent repeat customers or even taking time to search for brand information. It is also crucial to understand that a consumer's emotions play part. It can be trigger for complaining, service failures and product attitudes essentially influence the level of brand relationship a consumer may have (Laros). Therefore increasing and establishing strong customer knowledge they likelihood of the customer interpreting the brand incorrectly will decrease, minimizing dissonance and increasing potential for satisfaction (Lombard).

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Brand resonance consists of four different categories, behavioral loyalty, attitudinal attachment, sense of community and active engagement. Behavioral loyalty is simply how often a customer purchases a brand and how much do the purchase. For instance, someone who is a repeat customer and one that purchase often and perhaps in large amounts may have a strong brand resonance with a strong brand relationship, as well. Next is attitudinal attachment meaning the high need for a specific brand over another. Many times consumers will purchase on convenience or what is cheapest but to create a strong brand resonance consumers must also go to high measures to purchase the brand since they have a strong attachment to it. They may explain the brand as being one they enjoy, love and something the look forward to. The third is a sense of community, which is the connection consumers make with other individuals by using the brand. These people can include other customers, employees or the representatives. By establishing a sense of community customers feel as if they are part of a family or belong to something relatable simply by using the brands products. Last is active engagement. Engagement includes “ feeling of confidence, integrity, pride, and passion in a brand” (Bowden). Specifically, active engagement is when consumers are willing to spend time and/or money to keep connected beyond the product purchased and with the overall brand. For example, joining to a subscription, sign up for updates or being active on review boards and discussions. The intensity and activity of each category will determine the strength of the relationship a customer may have brand which further leads to determining if they are on track to be or already a loyal customer (Keller).

Implications

Literature Taxonomy of the Creation of Brand Loyalty Through Intangible Design

The literature taxonomy showed below highlights the benefits created by each of the layers of intangibles and their relation to strengthening brand loyalty. Knowledge is able to boost a brands consumer awareness and judgments. Having a strong understanding about who and what influences the consumer’s purchase decision will allow the brand to position itself accordingly, to fulfill their needs. The layer of emotion can provide more engagement between the brand and consumers, further creating a bond and relationship between the both. Lastly, experience can strengthen the trust and credibility a consumer gives a brand.

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Literature Taxonomy of the Creation of Brand Loyalty Through Intangible Design

<u>Knowledge</u>			
Consumer Awareness	"The relations among the brand awareness, perceived quality and brand loyalty for purchase intention are significant and positive effect"(Kuang).	"Brand awareness is also likely to contribute to consumer perception of price fairness" (Oh)	"brand awareness seems to be an important choice tactic for consumers, even when facing a familiar or repeat choice" (Macdonald).
Consumer Judgments	To support brand judgments four types are needed, brand equality, brand credibility, brand consideration and brand superiority (Keller).	"No matter how highly regarded or credible brand may be, unless the brand also received serious consideration and is deemed relevant, customers will always keep a brand at a distance and never closely embrace it" (keller).	"Credibility...enhances word-of-mouth and reduces switching behaviors among customers" (Sweeney).
<u>Emotion</u>			
Emotional Engagement	"Affective conviction about the brand would be a major element to emerge when retrieving the memory associated with the brand...influence the loyalty.." (Jooyoung).	"The higher the affective brand conservation, the higher the level of brand commitment" (Jooyoung)	"Emotions act as better predictors of behavior than do cognitive evaluations..." (Dick)
<u>Experience</u>			
Brand Reliability	To create brand loyalty consumers experience with the product needs to meet their expectations (Keller).	"brand credibility...is the initiator of establishing brand loyalty"(Jooyoung).	"Brand as a whole is seen as credible in terms of three dimensions-perceived expertise, trustworthiness, and likeability" (Keller).
Past Experiences	"Product experience is a multi-faceted phenomenon that involves manifestations such as subjective feelings, behavioural reactions, expressive reactions, and physiological reactions" (Desmet).	"A successful brand shapes customers experiences by embedding the fundamental value proposition in offering every feature" (Meyer).	"Peoples expectations are set in part by their previous experiences with a company's offerings. Customers instinctively compare each new experience, positive or otherwise, with their previous ones and judge it accordingly" (Meyer).

Building a strong brand will lead to understanding the true value a consumer holds for a brand. It is not only about creating the best product or adding the most high tech features but more so about creating a product that fully aligns with its audiences needs and wants. Once a brand is able to learn about its customers past experiences, influencers and motivators it will open the opportunity to benefit adequately from the knowledge learned. Essentially, for a brand to be successful in creating brand equity it needs to create positive consumers response and by doing so it needs to understand the consumer first. There are multiple benefits a brand will create if done, such as improved perceptions of product performance, greater loyalty, less vulnerability to competitive market, etc. (Keller). Once a brand has a good grasp on its values, what it stands for, and its image it can move forward to connecting with its customers based on the created foundation. It is essential to understand the consumer as well. The consumer's needs are established through multiple factors and diving deeper in analyzing such factors will uncover the strategy necessary to design and promote adequately to the audience.

Intangible Value

From our current findings we start to dive into intangibility but we still need to answer a few questions about intangibility to see how useful it is for companies today. First we need to answer what intangible value is, the intangible factors of design and their importance to new product development. Second is how companies are trying to design intangible value into products while utilizing intangible factors in their design processes.

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Last is what effect is this focus on intangible design having on companies and how they are utilizing intangibility into new product development?

Intangibility is defined as something that cannot be touched. For something to be intangible there are specific properties that differentiate tangible from intangible. Harmon & Steiner (2009) describe the five properties of intangibility as:

1. **Incorporeal Existence:** The first property is incorporeal existence or not being made out of physical matter.
2. **Abstractness:** The second is the fact that intangibility is abstract and is something apart from a material object i.e. joy, happiness, financial security.
3. **Generality:** The third property is the idea that intangibility is that it must be general instead of specific, consisting of a class of things or ideas instead of being a specific object.
4. **Non -Search ability:** The fourth property shows the fact that you are unable to find what the intangibility is before you have come in contact with it. This property is broken down into three key attributes, search, experience, and credence.
5. **Mental Impalpability:** The fifth property shows that the idea of intangibility is very hard for ones mind to grasp. Individuals often are unable to grasp this idea as intangibility itself is extremely complex, abstract, and must be experienced before you can even understand it. This leads to people taking intangibility on faith and reputation of the findings they currently have.

These five criteria give specific terms that are able to define intangibility, but concerning business and markets they do not give a clear understanding on how intangibility creates value for a company as well as the consumer. There is still a grey area concerning intangible value and its potential impacts in the market (Steiner & Harmon, 2009). With the given criteria this section will further address what intangible value is, how companies are using it, how its components effect the customer, and how companies are using it in new product development.

From an accounting perspective, tangible and intangible assets can increase the overall value of a company (Stickney, Weil, & Schipper, 2009). There are numerous intangible assets a company holds that contribute large amounts of value to their company. These assets can be in the many different forms and are very valuable to companies as intangible assets are key to the success and growth of a company. One of the most common frameworks that outline what forms intangible assets can be is the EU's MERITUM (Measuring Intangibles to Understand and Improve Innovation Management). This framework out lines the 3 C's that intangibles can be separated into. (Baxter, 2004)

Human Capital: This is defined as the knowledge as the knowledge that employees take with them when they leave the firm. It includes the knowledge, skills, experiences and abilities of people. Some of this knowledge is unique to the individual, some may be generic. Examples are innovation capacity, creativity, know-how and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education.

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Structural capital is defined as the knowledge that stays within the firm at the end of the working day. It comprises the organizational routines, procedures, systems, cultures, databases, etc. Examples are organizational flexibility, a documentation service, the existence of a knowledge center, the general use of Information Technologies, organizational learning capacity, etc. Some of them may be legally protected and become Intellectual Property Rights, legally owned by the firm under separate title.

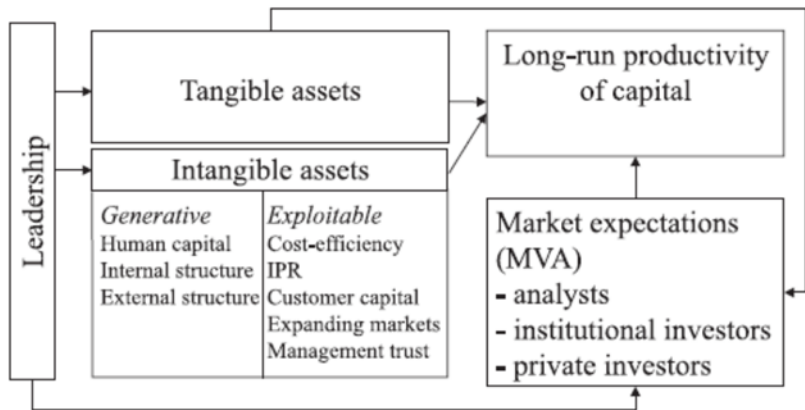
Relational capital is defined as all resources linked to the external relationships of the firm, with customers, suppliers or R&D partners. It comprises that part of Human and Structural Capital involved with the company's relations with stakeholders (investors, creditors, customers, suppliers, etc.), plus the perceptions that they hold about the company. Examples of this category are image, customer's loyalty, customer satisfaction, links with suppliers, commercial power, negotiating capacity with financial entities, environmental activities, etc.

Intangible assets as described in this model are comprised of knowledge attributes that a company owns. Different types of knowledge are important as they promote new product development and secure their product offerings from imitators. Intangible assets alone cannot be turned into value because they are not able to create outcomes without being bundled with a tangible asset. But this leads one to question if intangible assets fit the accounting criteria for actually being an asset. An asset is defined as something having a probable long-term economic benefit. An asset has three essential characteristics: (a) it embodies a probable future benefit that involves a capacity, singly or in combination with other assets, to contribute directly or indirectly to future net cash inflows, (b) a particular entity can obtain the benefit and control others' access to it, and (c) the transaction or other event giving rise to the entity's right to or control of the benefit has already occurred. (Baxter, 2004)

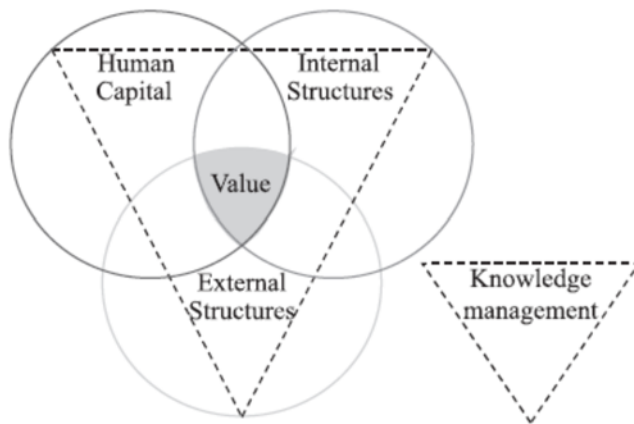
From this definition an intangible asset does have these characteristics but they are very hard to grasp, as the idea of intangibility is mentally impalpable. While it's hard for a company to understand just how much benefit their intangible assets give them there is currently a few ways for them to try to measure them. The way companies treat intangible assets needs to be different from their tangible assets. A Macro Economic understanding of intangible assets outlines four areas of intangible investments into R&D, Software, Training, and Marketing. These areas provide value to the company through creating something that provides long-term economic benefits through future net cash flows, and creating a benefit others can easily obtain.

Management in a company sees it as being essential to recognize none of the elements of intangible assets are sufficient for a successful performance. The key elements of both tangible and intangible assets must be combined into the best possible balance to provide the company the most value they can from these different assets. Through leadership a company can combine their intangible assets from human capital, structural capital (internal structures), and relational capital (external structures) with their tangible assets to meet market expectations and in turn produce long run productivity of capital for the company (Hussi, Ahonen 2002).

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A company's current performance is based on its existing commercially exploitable intangibles. To continue growth the company must make sure that its commercially exploitable intangibles are continuously renewed. This requires investments in generative intangibles in such a way that its main dimensions develop in a balanced way. The model below is the contribution model where the intersection of the three dimensions are where value is created. Knowledge management is done through leadership to promote a full integration of these intangible assets to produce the most value. The intersection of human capital, internal structures and external structures guarantees the creation of new commercially exploitable intangibles to be used in future new product developments.



Intangible assets can be made or purchased and increase the companies overall value just like their tangible assets. Companies however must have both tangible and intangible assets as they are interconnected. This interconnection creates value and without one or the other this value could not be created. The value customers derive from a product is from the overall benefit the product provides to them. Some of the customers perceived benefits are shown to not be related to the product or service but instead is added by the customer (Steiner & Harmon, 2009). From this understanding of customer value, the intangible asset alone will not create value, but must be developed with tangible assets to create the most benefit.

From a customers point of view they are not as interested in whether a product attribute is tangible or intangible. Their main interest is the value that they can get from the product. The perceived value the customer gets from the product is greatly influenced by the intangible dimensions which are knowledge, emotion, and experience. These

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dimensions have a large impact on the value the customer gets from the product and are important for companies to understand these ideas to maximize their potential (Steiner & Harmon, 2009). Intangible factors play a vital role in differentiating a company through the products they make. The intangible dimensions create an intangible value in a product that is impossible for another company to imitate. The importance of these dimensions is crucial for companies to understand as they help facilitate the consumption process and create a competitive advantage (Steiner & Harmon, 2009).

Intangible Dimensions

Experience Dimension

A consumer's experience relates to the sum of all experiences they have with a company during their relationship. Experience is an internal and subjective response that a consumer has to any contact they have with a company. Contact with a company can be either direct or indirect contact. Direct contact can be anything to do with the product or service such as the purchase or use of it (Meyer, Schwager 2007). Indirect contact are encounters that the consumer has between them and a company. This contact can be made with a company's products, services, or brands and can in turn become criticism about the company based on these experiences. Experiences have a direct affect on people's perceptions and new experiences are used to judge your previously held perceptions and adjust them accordingly (Meyer, Schwager 2007). The customer experience originates from a set of interactions between a customer and a product, a company, or part of its organization, which provoke a reaction. Customer experience is comprised of different factors from cognitive, affective, social, and physical. A company's strategy is to promote a positive customer experience through creating a social environment, a good service interface, and brand identity to work together during interaction between the consumer and the company (Verhoef et al. 2009). This orchestration allows companies to affect a customer's experience and promote a positive consumer experience.

The idea of customer experience is very holistic in nature and involves the customer's cognitive, affective, emotional, social and physical responses to the retailer. This experience is not totally controlled by the company as experience comprises of several factors that are externally motivated. Because of this the customer's experience is part of the total experience they get from the whole consumption process (Meyer, Schwager 2007). From a developed holistic model there were several determinants that made up customer experience that include the social environment, the service interface, the retail atmosphere, the assortment, the price and promotions. Customer experience is spread across multiple channels and each of these channels has their own individual perception. Because of this a customer's experience in one channel can affect a completely separate channel.

The social environment that the customer is in has a large impact on their experience's they have in everyday life. The social environment can include brick and mortar stores where large amounts of customers congregate at once. Another example would be an online community for a company where customers can share their thoughts and feelings digitally. The biggest social variable that affects a customer's experience is the interactions they have with other customers. Relationships are important to facilitate a

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positive experience but if the relationship between customers is not good this can have an effect on their overall experience. Customers have a large impact on one another and can enhance or degrade the other customer's experiences around them.

These experiences in turn have a large effect on a brand identity and makes up the customers brand perceptions. Ambler et al. (2002) and Leone et al. (2006) looked into the interplay between brand equity and customer equity and suggested that each may influence the other. The customer's mindset (awareness, associations, attitude, attachment and activity) are key drivers of brand performance. From this they proposed that a customers experience and knowledge of brand attributes and brand benefits are key determinants of customer based brand equity (Verhoef et al. 2009). Experiences alone would not be a deciding factor for a customer to make any decisions. Intangible dimensions work together with each other by giving the customer different points of reference to express how they feel about a company or product. They all contribute to the customers perceived total value from the consumption process, which is why these dimensions must be understood to generate the highest amount of total value for their customer.

Knowledge Dimension

The knowledge dimension is very subjective as it deals with the customer's current perceptions of the expertise and the capabilities of a company and its products (Steiner & Harmon, 2009). Consumer knowledge is a significant intangible dimension that influences how consumers gather information, organize it, and ultimately what products they buy and how they use them (Cordell, 1997). Knowledge has the ability to affect quality judgments and price acceptance, as well as the relative use of tangible versus intangible product cues (Cordell, 1997). How much knowledge a consumer obtains can show just what kind of knowledge they are gathering. Someone who is a high knowledge consumer will obtain mostly objective information where as a low knowledge consumer will obtain mostly subjective information and recommendations from other people (Cordell, 1997). The amount of knowledge a person has on a subject can dictate their perceptions on a company, purchase decisions, and impacts customers' perceptions of product value (Steiner & Harmon, 2009).

Knowledge can be broken down into three distinct dimensions of familiarity, objective expertise, and subjective expertise (Bricks, 1985). Alba and Hutchinson (1987) define familiarity as the number of product related experiences that have been accumulated by the consumer. Familiarity goes hand in hand with expertise as they relate to the ability the consumer has with understanding and using the product. Knowledge gives the consumer understanding and applications of a products potential, as well as the ability to gather more knowledge though exploration and learning on an already understood product (Cordell, 1997). Objective expertise is the way the consumer gathers their information as they tend to gather a majority of information that is objective in nature. Subjective expertise is knowledge that is formed from impressions, recommendations, and opinions which could be biased, or misleading. Research has found that higher levels of objective expertise was associated with greater use of newly acquired information, where high levels of subjective expertise was positively related to the reliance on previous knowledge (Cordell, 1997). The importance of knowledge, especially subjective knowledge, relies on experiences from a product to drive the intake

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of this type of information. Product experience cues allow a customer to obtain subjective information about a product, which in turn influences the customers overall product judgments.

Consumer's knowledge is able to increase a customer's ability to estimate the worth of a product. Giving them enough information to correctly figure out for themselves how much a product is worth to them and their needs does this. Knowledge also shows the total amount of competence in willingness to pay for extrinsic attributes that fit their needs (Cordell, 1997). These extrinsic attributes can include price, brand, and retailer cues. Extrinsic attributes can be manipulated by companies to increase the products perceived value by the customer. Another extrinsic cue is found to be the origin of the product. This can effect how a customer sea's the product quality as they have stored knowledge about their past experiences with other products from this country. This origin can act as a summary construct for the consumer that can influence beliefs about the attributes and directly affect attitudes toward a product.

Emotion Dimension

The emotional dimension is the last dimension of intangible design. It explains the emotions that can arise in various forms during the consumption process. Emotions can be positive or negative, but companies strive to develop positive emotions from their customer. Positive emotions include happiness, hope, joy, enthusiasm, peaceful, sexy, passionate, warmhearted and all of these can make a product more valuable for the customer (Steiner & Harmon, 2009). Emotional states are very important as they can influence areas such as decision-making about products. Positive emotional states were found to reduce decision complexity and have shorter decision times (Sherman et al. 1997). Customers will have both knowledge and experiences about a company or product that influence their perceptions about them. Emotions are triggered by stimuli that arouse or incite to action increased action. For consumer buying behavior, these stimuli are in the form of external factors associated with a pending decision. These factors are external to the person and environmental inputs such as social factors, design factors, and ambient factors (Sherman et al. 1997).

Social factors relate to other people in the store or around the customer during the buying process. Ambient factors relate to non-visual elements of a stores environment. Design factors are visual in nature and include the layout of the store, colors, cleanliness, clutter, and space. All three of these factors have significant influence over the stimuli a customer receives, as well as the emotions that are brought up from them. Companies have a lot of control over these factors, as they are part of their own storefronts. The control of these factors is very important for companies which is why they spend a great deal of money to improve all three of these factors in their stores and online. This intangible dimension is the only one where the control is totally external of the customer. Since companies are able to control all of these they can effectively control or moderate what emotional state their customers will have once they enter their store (Sherman et al. 1997).

Emotions have associations with products that have helped marketers use emotional branding to connect products to positive customer emotions (Steiner & Harmon, 2009). This connection allows for companies to produce an emotional connection with their brand and products. The connection that is made between the customer and brand can be so strong that the customers not only become loyal to the

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brand, but also develop an actual relationship with this brand (Steiner & Harmon, 2009). As shown companies have the most control over this intangible dimension as they can create an atmosphere that produces the most positive emotions. By combining the emotions derived from the shopping experience with emotions derived from the individual products companies can produce a brand personality from this relationship (Steiner & Harmon, 2009). The relationship produced from this can create a loyal customer who join groups, become brand advocates, and creates a brand culture around this company. Because of the power of the brand and the relationships built around it companies often try to create or influence brand communities for their own good (Veloutsou, 2009).

Relationship Between Tangible and Intangible

Intangibles have been shown to include 3 important dimensions, emotions, experience, and knowledge. These dimensions work together to help produce a perceived value from a product. However each dimension relies on one another to allow each one of them to contribute to their ability to produce value from the product. Together these can make a product unique by the emotional state a product or brand has with a customer, it can also be because the customer has a great experience with the product, or the customer's knowledge about the company and product lead to a perception of quality and value. Each of these dimensions feed off of one another and can help enhance one another (Steiner & Harmon, 2009). This process however does not end after the consumption process is over. These dimensions continue to build on one another and continue to shape the customers perceptions throughout their life. This continued process is why relationships are important to build as you can continually manage your customer's perceptions and build a stronger relationship and brand loyal customers.

Intangible dimensions are shown to rely on each other to promote value creation in a product but they also have an important relationship with tangible dimensions to create value as well. A product or service consists of tangible and intangible dimensions. This total product consists of an intangible layer, a service layer, and a product layer (Steiner & Harmon, 2009). The intangibles layer houses the 3 dimensions of intangibility, emotions, experience, and knowledge. The service layer houses the services that the product is bundled with. Last is the product layer, which is the physical product that provides the core functions the customer desires.

The Intangible Factors of Design & New Product Development

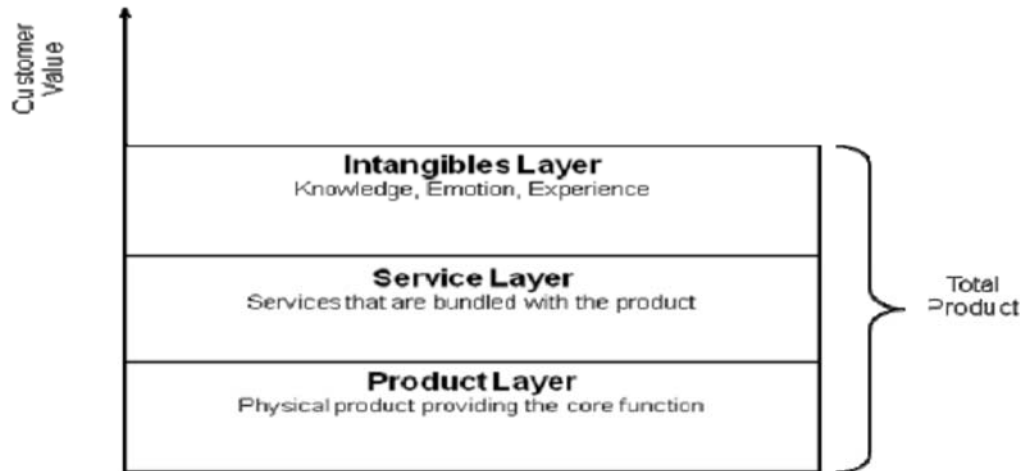


Figure 1: The Extended Customer Value Model

Figure 1 (Steiner & Harmon, 2009)

From this total product a value is created that is perceived by the customer. All these dimensions play a key role in helping the customer realize what this value is. The value a customer gets out of a product is from its benefits minus its cost. These benefits are derived from the functions of the product and if they meet the needs of the customer, the services bundled with it and if they provide a value to the customer, and the value from these is perceived using the intangible dimensions. This interconnection is important for companies to understand and they have been working to not only develop products that meet the needs of the customer, but also creating a lasting relationship to increase the value their customers receive from their products and services (Steiner & Harmon, 2009).

New product development is where a products value is created and integrates tangible and intangible factors together. Hess et al. researched the importance that intangible factors had on the final product that was produced by a company. New product development is a linear process that moves from one stage to the next. Through these stages the development takes on different tasks to complete one part of a new product. Each stage is reliant on the previous as they are individual building blocks of a product. Through their research they found the importance of integrating intangible design factors into the new product development process. Once the final product was made they found that the customers perceived value of the product had increased significantly. The integration of users into the design process had allowed for better creation of intangible factors into their product (Hess et al. 2013). Understanding the customer was the main focus of this research and showed that in order for a company to successfully develop intangible factors into their products they need to have sufficient knowledge about their customer and what they personally feel about the specific product. Knowledge is important for designing intangible factors because it gives you a better idea about what exactly each intangible dimension is. Companies are now realizing that in order to understand intangibility they must first gather sufficient knowledge about what the customer feels when using the product to start developing this knowledge into effective intangible factors and develop intangible value from the product.

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New Product Development and Intangible Factors

In the business realm today companies are now realizing the importance intangibility has on their customers and how they derive value from products. This importance has made companies change their view on how they make their products and how their new product development should be handled. Before new product development was very industrial and only focused on making a product that was innovative enough from its predecessor to make it marketable. Now, new product development strategy is transforming into a modern creative process that involves many different areas in the product development process.

Currently, new product development is typically done using a stage gate process, which consists of 6 different stages a new product goes through from Idea generation to its launch. As shown in figure 2 we can see how each stage goes off of the previous to build a product up from its ideation. Each stage is separated by management decision gates that require management approval to proceed to the next stage.

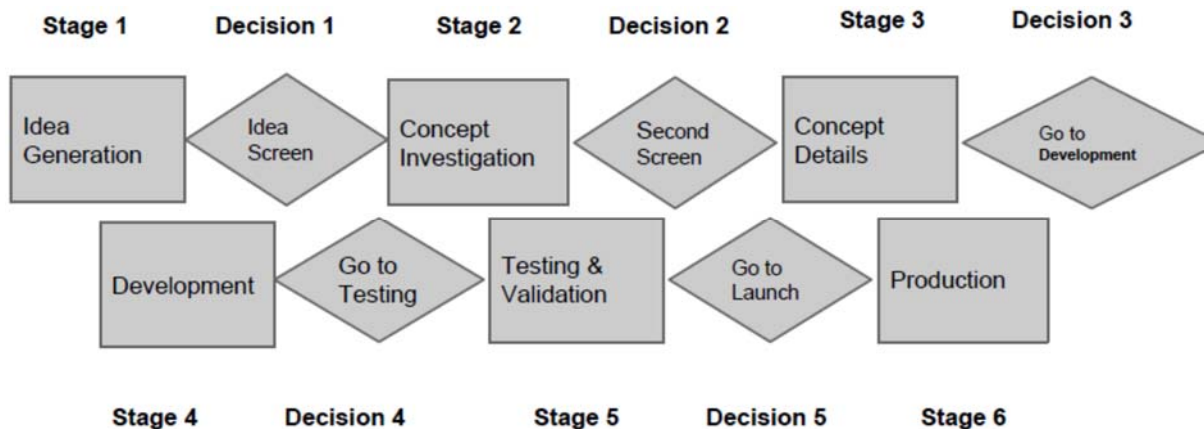


Figure 2 (Veryzer, Brigitte 2005)

This process has worked for companies in the past, but with this insight into intangible value companies must understand how to integrate new product development with the factors of intangible design. Since the stage gate process has been working very well in new product formulation and creation, as well as being very cost effective, the important factor is to integrate these two concepts instead reinventing the wheel with a completely different model for a company to follow for new product development. To do this we will need to understand what new product development does, how intangible design can be integrated into it, and what this model would look like once integrated.

New product development is about creating a product that either solves a problem the consumer experiences or improves and simplifies an existing process. Enabling the intangible dimensions in the product is now the key focus of new product development in business today. However, companies are trying to redefine the new product development process to allow for intangible factors alone to be value creators. Redefining value in accordance with the intangible perspective allows for value to be seen as not just a tangible or intangible good or service, but also knowledge, or benefits that are desirable or useful to its recipients or the company. Each of these types of value also act as currency for some companies as you can exchange knowledge for tangible goods, or knowledge for an intangible asset such as customer loyalty. Sun Micro Systems

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employed this idea by giving away its java programming language in order to build a loyal web of users for java technology. In the new economy, value and currency both begin to take on many different forms (Allee, 2000). To understand how intangible design can create value for a company they must understand the intangible factors of the product and its design, than analyze how they work together in a product to deliver value to the consumer. This knowledge gives the company insight into the intangible dimensions of the product or service and gives them the ability to design intangible factors into their products.

Companies are changing their new product development process to understand their consumers as much as they can and utilize the voice of the customer. This importance goes back to the intangible dimensions of knowledge and works for companies as well. Understanding your customer is the most important part of creating intangible value in a product. Without this understanding you will not be able to create a product that carries all the necessary traits the customer is looking for in it. Researching consumer behavior and choice provides companies with the most insight about their customer and what they view as value (Kaplan, Norton 2004). Companies are also taking this one step further and actually bringing the consumer into their development process to bring their insights directly into the development process. Jan Hess et al. analyzed a company called Omega and followed their success deploying community driven development by constructing a user based forum. They show the process that Omega used to implement a community driven development (CDD) in the form of an online forum where everyone connected was part of the development process. This platform allowed users from different demographics to voice their opinions on a product that had not been released to the public yet. Omega released a technical preview of their product as a first impression, a phase 2 to focus on discussing and adapting the requirements, phase 3 focused on improvements to their software, and last was 5 alpha versions and one beta version in the last phase.

Their research allowed them to observe the role of the user, their intensity of participation, the decision process, the users satisfaction of this process as well as the employee's satisfaction while using this model. During this process they found it was much easier to communicate with the actual user and implement the design changes Omega felt would fit the user's needs. They also found they had made things that none of their users actually needed and were able to get rid of those qualities by analyzing the consumers comments on the design features and benefits (Hess et al. 2013).

From this research we can see that there is a need for the intangible dimensions to be integrated into the design process but to do this there needs to be a model to help companies understand how to do this. It has been shown that to create the most value from intangibility you must create intangibility separate from the tangible product and analyze it separately to understand the value it creates as well as gather more knowledge about the intangible dimensions you have created. This makes a need for not just intangible dimensions in the design process but also analyzing the relevance of the intangible factors and their effects in the market you product is in, ideally in real time. The last important step to fully implement the intangible design process is the need to use your company's current intangible assets to assist with product management during the development of intangible design dimensions. As shown previously we have seen that companies utilize their intangible assets to create a value through the use of their human

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capital, internal sources, and external sources, all through the guidance of their knowledge management. A company's intangible assets give them their competitive advantage and ability to use their resources to start new product development endeavors as well as promoting efficient product management during the entirety of the product development process. From these aspects we have developed a model that represents how the intangible design process would look like on its own.

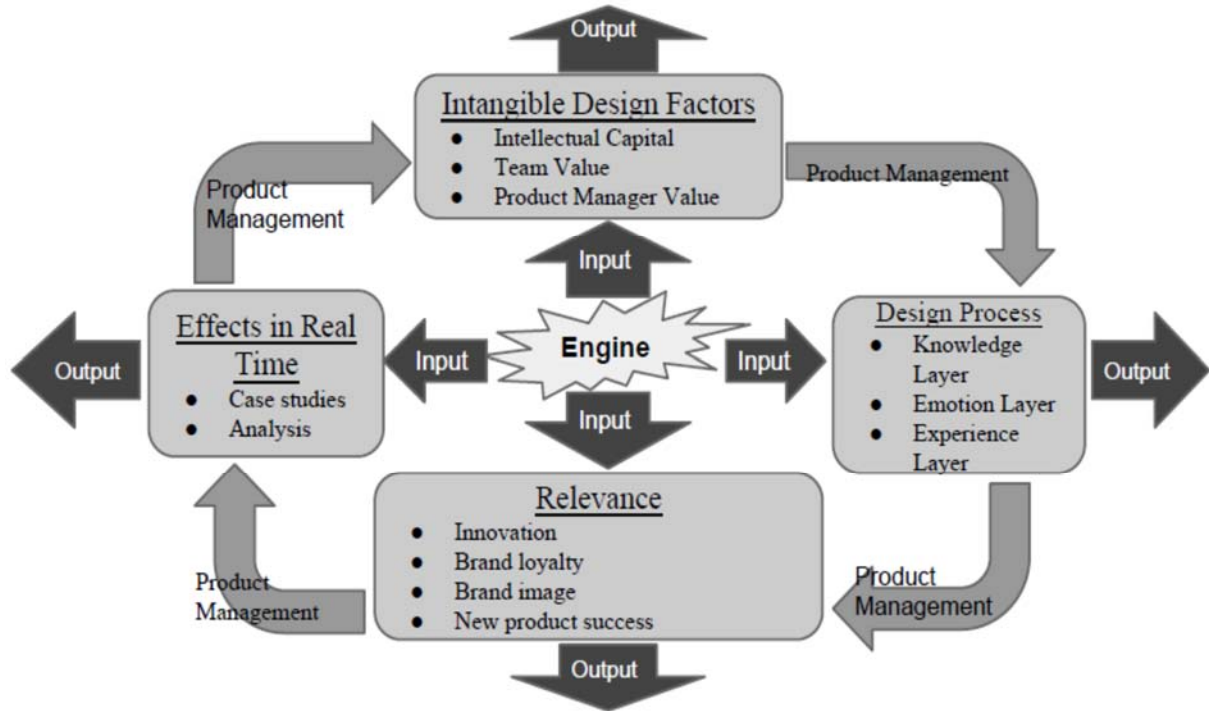


Figure A: Research Model

To fully integrate intangible design into new product development there must be a stage gate process associated with the intangible design model. From this integration we can see how the intangible design models key aspects fit directly with each management decision gate. Each gate requires management to come to a conclusion as to whether or not to proceed to the next stage. This requires them to gather enough information about the previous stage to decide if the product at that point is good enough to move to the next. To implement true intangible design correctly into the development process it must be part of it every step of the way instead of only at the front end or development stage. At each gate management must gather enough information about the current stage to understand the intangible factors associated with the current stage. To do this they must gather information about the intangible factors present at that stage. During the idea screen gate management must gather information about their companies current intangible design factors and use their available intangible assets to help with idea generation and use their team value and product manager values to move to concept generation. Management would input their current information from the stage gate process into the intangible design model at the design factors stage. They can go through their current assets until they have gathered enough information about the intangible design factors so far to make a decision to move onwards. Each gate has an input point associated with it such as the idea screen which would input information into intangible design factors, the second screen gate and go to development gate which inputs into the

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design process, go to testing inputs into relevance, and post implementation research into the effects in real time stage.

To see the true value of this model it is important to realize that each gate allows management to perfect their intangible design factors during each gate. With more and more information available about the product at each stage the management team then has more information to input into the intangible design model to create more value from these intangible design factors. At each point in the intangible design model there is an output into the company, which comes in many different forms, but the most relevant would be the knowledge acquired at that point. This knowledge can be output to the company and the management team can gather knowledge about their intangible design factors and use them to make a decision about the current stage, as well as the next stage and what intangible design factors should be implemented in it. As each stage progresses the company will see a more developed product that has a finely tuned intangible value up until the final product that will have taken into account not only the tangible design factors but intangible as well. The integration of these two processes will create a product that will provide the highest level of value to the consumer as it will provide the maximum amount of benefit to them through intangible and tangible design.

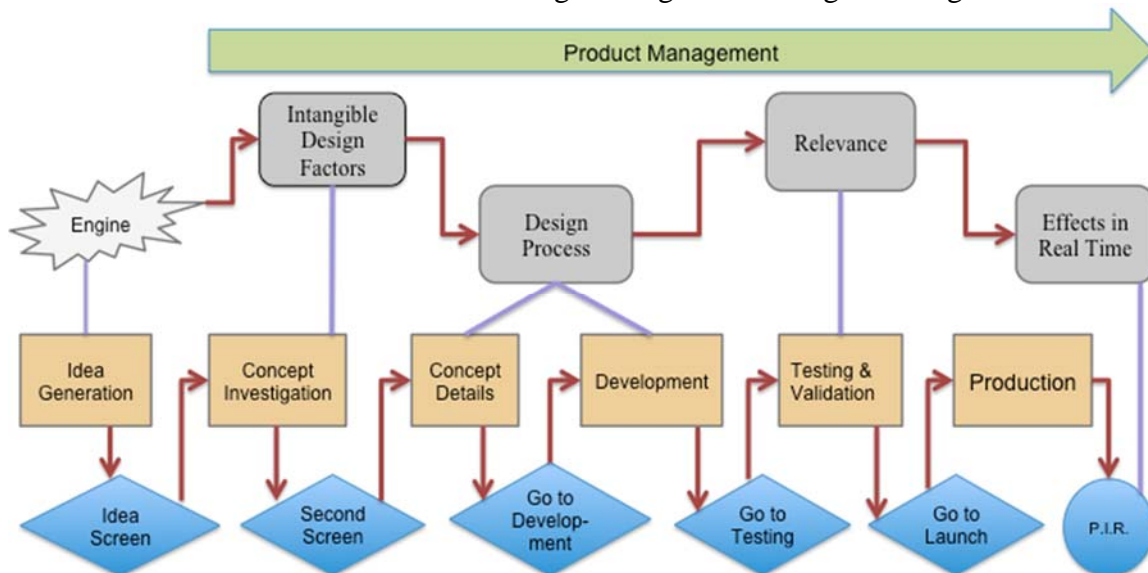


Figure B: Model Integration

The best part, and the most important part of this model, model integration, and new method of thinking is that is not discontinuous. You can loop through this system repeatedly for all future versions of the product or service as the engine is the product itself. It does not end until the product itself becomes obsolete. For visual representation we will think of the two models in succession as a double helix. The model splits the same way a double helix splits and forms 2 new strands with a new version release or even a new product all together. At which point you then reconnect the relevant model to the other with each product as the bond that the models together, and thus move through the connected processes again. The consumer is always the driving force behind a product and its innovation, and thus the product holds intangible design and the stage gate process together forever intertwined. Production, design, the product itself and

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management of have always been the DNA/ blood of any corporation worth its salt and must be treated as such.

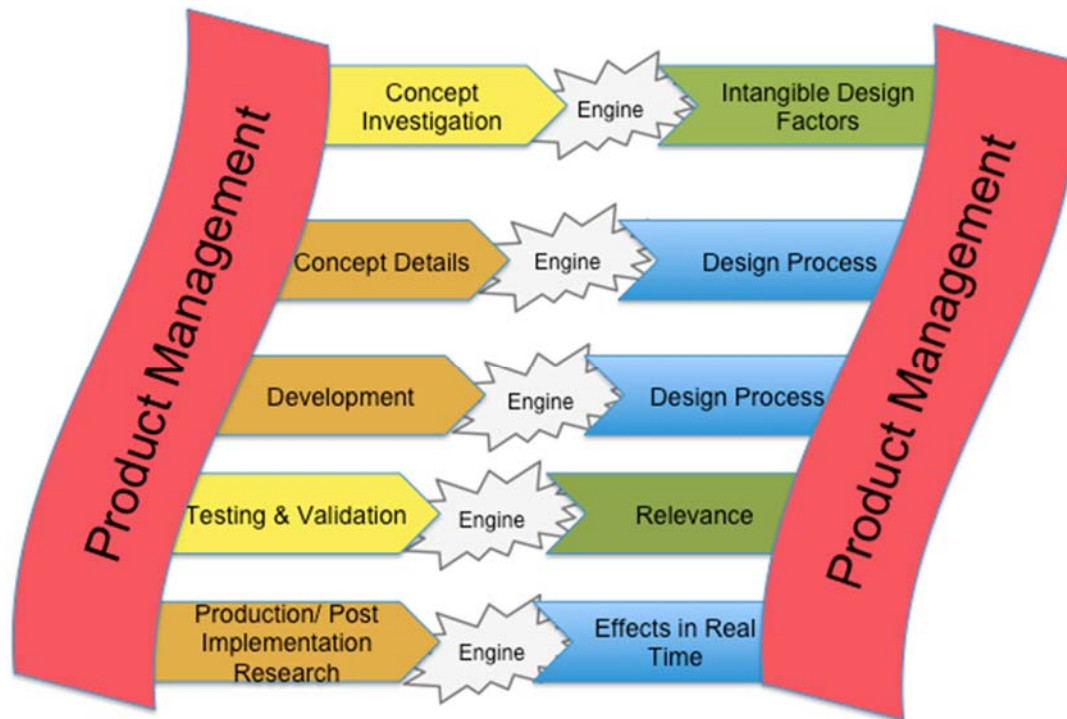


Figure C: Double Helix Model Thinking

SAP Community Network

Abstract

SAP Community Network (SCN) was launched in 2003 as the SAP Developer Network to bring together various groups under the same umbrella. Soon after the launch of the developer community, SAP ran into problems of engagement among the users. They needed to encourage the sharing of knowledge and collaboration between community members. Therefore, SAP needed to find new ways to encourage people to get involved in the community, gamification was the solution.

Gamification

Gamification is defined as the use of game elements and mechanics in non-gaming applications to improve a user's experience and promote their commitment to the "gamification" application. Gamification market value rose to \$2.8 billion in 2012. Many companies are planning to introduce gamification to their existing or new business applications in near future.

Background

SAP is one of the world's largest business software companies, with more than 50,000 employees in 120 countries. In the early 2000s SAP was a global enterprise application giant that was competing with Oracle and PeopleSoft.

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Communication issues

In the early 2000s SAP was a global application giant competing heavily with Oracle and PeopleSoft, as well as start up companies such as salesforce.com and NetSuite. The key factor for SAP's success in the market was not only to have a large developer and customer base but also having engagement between them. Launching an online community to provide a platform for customers, independent developers, partners, and SAP employees to interact was a good step, but just having an online community did not mean there would be engagement between developers and customers. To create engagement, SCN wanted to incorporate functionality, which would encourage, recognize and reward people in the community for participating. SCN was launched in 2003 as the SAP Developer Network. Over the next few years the membership grew, new communities developed, and in cloud computing, the SAP BPX community for business process experts was launched. In 2007, SCN was launched to bring together all the various groups under one umbrella brand (Lusher, 2013).

Points, Mentor, and Level status

SCN's use of game mechanics started in 2004 to award points to forum participants who helped other members with technical questions, posting contents, sharing knowledge and so on. At that time, the point system was not particularly tied to anything rewarding or status, to stimulate participation. In 2006, the SCN team used the point system as the criteria for judging the "top contributors annual contest." This incorporation of the point system increased the participant's visibility and created desirability by rewarding contribution with recognition within SCN all the while sharing knowledge which was the ultimate purpose. In 2008, points were incorporated into the selections process for the new SAP mentor program. SAP mentors are the top community contributors. Most mentors work for the customers or partners of SAP and they possess hands on experience on SAP's product and services. Being an SAP mentor is a significant career boost due to its elite nature of the program. In 2009, levels were added to provide additional recognition of the community. SCN used sporting event reward levels system such as bronze, silver, gold, and platinum just as they do in Olympic events. This system was easy for members to understand and it gave members intermediate goals encouraging more participation than a simple point system. The figure below shows the progression of SCN over the years (Lusher, 2013).

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Source: SAP

Knowledge Layer

The idea of gamification by SCN was a brilliant innovation and what was more intriguing was how they took it one step further. The community it created by its users, developer, partners, etc., it accumulated a knowledge form of database. SCN created this community that personifies the knowledge layer of intangible design. The system does show signs of the experience and emotional layers but we feel it makes more of an impact through knowledge.

By having more minds involved in the community sharing thoughts, people's opinion gets shared and grows as a community. This knowledge of information helps people to share more and get more engagement throughout the community. The introduction to gamification made people work toward a goal and have some incentive as a reward.

Analysis and Conclusion

According to our research model (figure A), SCN started in the *Relevance* stage when they initially implemented the forum system. Their first goal was to drive engagement among users, developers, employees, but that did not occur right away due to lack of incentive. Therefore, they went to the *Effects in Real Time* Stage, and tried re-assessing the phase to see what they could do better. They came up with the point system which created engagement among community. People started to post and reply to questions giving rise to gamification.

The next phase we see in our research model is, *Intangible Design Factors*, which gave a team value to the community. When they moved to the *Design Process* Stage, you can see they built in a way of engaging within the community, thus people felt they were recognized and hence valuable. Then we move to *Relevance*, where we saw this new innovative point system take off. People were using it to show off – to show others how

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knowledgeable they were. This sense of competition, or showing status or ranking, created more loyal customers due to higher switching costs. As we arrive back to *Effects in Real Time* again, we assess the phase to see if it is working or not. It took SCN two years to implement the mentor program as a result of the point system becoming outdated. If we look back to the model again we repeat the circle once again going back to *Effects in Real Time* to assess if there is anything wrong with the system. In another year, SCN implemented the level system based on customer engagement in the forum. This proves SCN can go through the model over repetitively to see where gamification fails and create and implement new ideas in response. It also shows if they had implemented the intangible design model that they may have been well equipped to tackle the problems they encountered with their first launch, or possible have avoided them altogether.

IKEA Inc.

Abstract

IKEA's idea of offering low-price high-quality product to their customer was a unique value proposition that holds true to the company. They are a customer-oriented company that offers the best experience to their customers the minute they walk through the door. From the showroom to their flat box shipping, they offer a great experience to leave every customer satisfied.

Company Background

IKEA was founded by architect Ingvar Kamprad in early 1950's. He demonstrated strong salesmanship, practiced business acumen, had unconventional perseverance in the face of adversity and knew how to identify well with ordinary people. This helped him become a true entrepreneur. His habit of staying close to his customers and his ambition to own manufacturing furniture plants, gave him freedom to be innovative in all aspect of distribution. In 1953, he opened his first showroom at the furniture plant he had bought in Almhult, Sweden. Kamprad was obsessed with low price, and the only way he saw it happening was to keep costs as low as possible. This became the driving force of the economy. He constantly seeks new ways to cut costs to keep prices low (Grol, 1998).

Customer-oriented

Retailers in addition to selling products and services to customers, also concerned with making the shopping experience more rewarding for them. According to Wilkstrom, when it comes to business development, nowadays great focus is put on the customers. Wilkstrom mentions that IKEA's customers can be involved in the design process. IKEA, which builds heavily on mass production, has realized that their customers no longer want to see the same furniture as they see it at their friends house, people want something different. Therefore, IKEA made it possible for their customers to design their own kitchen in interaction with a trained sales representative. The author also mentions that, IKEA's flat package of furniture is a good example of how the customer can take over the finishing, and create a better experience in the process (Isaksson, 2006)

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Low-price

IKEA made their whole company based customer-orientation. They made great efforts to fulfill the need of their customers. They emphasized that every aspect of service provided by IKEA should be designed from the customers' perspective, service provided by IKEA should be designed according to the need of the customer to provide the maximum value for them. IKEA knows that experience and exquisite furniture is the choice of the rich people and they know that most ordinary customers will chose products based on the value and affordability. Therefore, IKEA offers products that are reasonably priced to meet the needs of the customers in the world. Based on their business philosophy, IKEA offers both beautiful and practical high quality, low price products to its customers. Controlling cost of their product is one of the most important things IKEA does best. IKEA's product developer designers and purchasing department are trying their best to find ways to have most cost-effective products in the shelves to save customers money. Most other companies put design first then set prices, whereas IKEA's process of setting price first then designing under the cost top line. IKEA always set price of the product under the customers' perceived value before the product design and production, then choosing the low-cost material with equivalent quality. By doing so, IKEA can keep low prices while keeping the original design ideas. This low cost process means better customer value. The cost of transportation is a big part of the furniture industry. IKEA uses the "flat-panel transport" technology to reduce the cost. IKEA knows that a customer prefer DIY rather than pay a higher price, so they had to assemble the furniture themselves in order to get the low price. IKEA also takes part in their need and provide chargeable assembling service for them (Han, 2012).

Shopping Experience

The structure of IKEA's stores are designed under the impression of customer-oriented experience. To provide most convenience and one-time shopping service, IKEA provides almost all the household goods needed by people. IKEA design the store based on experience marketing, they set up sample rooms in IKEA to display how the room would look. These sample rooms are designed according to different customer type, such as family of three, newlyweds, young white-collar, etc. The IKEA products are displayed by how they are used in the sample room, living room, bedroom, storage room, balconies, etc., so customers can get the feeling of how the product would be used in their household. The use of the sample showroom, with displaying to customers not only they can buy bedstead, the mattress, and the wardrobe, but also can buy the sheet, the vase, the lamp, the photo frame and other furniture. This method of showroom not only gives the customer the experience of convenience to choose product and improve efficiency of their purchase, but also can help sell more related products. IKEA provides customers with relaxing shopping experience by creating a pleasant environment. IKEA's promise, "In our store, if you like, you can sit, lie-down or test our products. Our salesmen will never urge you." This way the customers never feel pressured into buying anything. They provide useful things like, papers, tapes, bags, pencils, shopping carts to help customers measure and take notes about what they want to purchase. IKEA also provides a cafeteria in their store for customer's relaxations and pleasantries. All these functionalities provided by IKEA creates an experience for customers by providing an environment for

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relaxation, entertainment and shopping which can attract customers to enjoy themselves (Han, 2012).

Experience layer

As mentioned above, IKEA provides a great deal of experience layer to their customers and they also do provide knowledge and emotion in the process but at a lesser degree. Therefore, we will focus on experience layer of IKEA and how they best utilize their infrastructure to provide that.

By focusing on the customer first, you build a better experience for them. Companies tend to make the product first then find its customers, which is not the methodology IKEA follows. They pick a price, and then make the product. Therefore, by providing a lower price with higher quality, IKEA provides a higher value to their customer. That higher quality product offered by IKEA can turn into a great experience for customers so they will come back repeatedly. As explained before, intangible design process is also provided by knowledge and emotion under the experience layer. Spending less money on products and knowing the reliability of the product lasting a long time, leaves the customer with satisfaction of becoming a loyal customer. By having that emotional attachment to certain product made only through IKEA will build better brand equity. All of their packaging is also square shapes, which is something very unique to the market; no one in the same market has the same business model that in turn gives them a competitive edge. Having to carry all the flat boxes in a car, gives a great deal of advantage to customers. Going to a furniture store, people always worry about how to get the product home and it leaves a bad experience if you don't own large enough vehicles to carry the product. IKEA solved that problem of frustration by being able to carry everything back home in one trip makes the shopping experience that much better. IKEA is all about customer-oriented experience, so it is no surprise that they build their infrastructure to accommodate that belief. They created a one-time shopping experience so people don't have to make multiple trips. The showroom IKEA show customers what it would look in a sample room is a great way for customers to get a sense of satisfaction well before they actually purchase the product. It also gives them more options to buy other items they never thought of. The intangible value of experience is greatly portrayed by IKEA.

Analysis and Conclusion

According to our research model (figure A), we see that IKEA's starts at *design process* in the flow model. IKEA tries to incorporate the experience layer into the process and accomplishes it by offering an infrastructure, lower price, and a good shopping experience. Then we move onto the next phase, *Relevance*, where they build brand loyalty based on the experience IKEA offers. People love IKEA products and shopping at the store is a unique experience, due to that, people come back time and time again. Their innovative way of pricing each product is different than everyone else. The next phase we move to is *Effect in Real Time*, where they actually put the product in store to sell or have the showroom ready for display. We believe this is where the model ends with the implementation and IKEA assesses the market to see if product was a success or not.

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IDEO

Abstract

When the world's largest bicycle components manufacturer, Shimano - a Japanese based company - asked IDEO to help them design a casual bike for wealthy baby boomers, the firm started by questioning whether the company was even looking at the right market. IDEO wondered if Shimano should seek a broader market audience or send out behavioral scientists as well as marketers to figure out who the ideal customers were. (books.google.com). The challenges were not only to design a bicycle for the target market but also find an ideal target market that will entail them a great deal of emotional intangible value toward riding the bike. Though IDEO's design process is very meticulous, it spends its time researching the market to provide a greater emotional experience for their customers.

Company Background

IDEO is a modern technology broker. Founded by Hovey-Kelley Design in 1978, the firm has been in the leading edge by providing innovation and design service to clients in a range of industries. Chairman, David Kelley once stated the firm's strategy, "we want to be the high-tech company to low-tech companies" (Hargadon, 2003). IDEO's headquarters occupy six buildings spread along a quarter-mile stretch of High Street downtown Palo Alto. Branch offices are located in San Francisco, Boulder, Chicago, Boston, London, Munich, and Tokyo.

One of IDEO's early projects was the design of the first Apple mouse. Since its early job, IDEO has designed over 4,000 new products and worked for almost 1,000 different clients. It has worked in over fifty different industries, on products that range from portable computers to toy guitars, from medical products the size of small automobiles to toothbrushes for kids, they have worked on projects as big as making mechanical whale in Free Willy to projects small as water bottles for bicycles. The list of products IDEO designs is endless, Nike sunglasses, Smith ski goggles, Logitech joysticks, Crest's Neat Squeeze stand-up toothpaste tube, e-books, medical equipment, and surgical devices. IDEO is almost as well known for its creative process as for its innovative products (Greene, 2010).

Shimano's Dilemma

Each product design process is different; therefore, we will show the process of how IDEO goes about designing a bicycle for Shimano, a Japanese company. Shimano makes the best components for bicycles and they needed help from IDEO due to market saturation and probable stagnation for the bicycle industry. Lance Armstrong dominated the Tour de France for seven years, causing a steady growth in the market for high performance components in the USA. When Lance Armstrong announced his retirement, Shimano realized that a high-end machines demand would deteriorate and tried new ways to market to people.

Design Process

At IDEO a design team was formed and they set about discovering what people thought about riding bicycles, searching for underlying perceptions, habits and desires.

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Their research showed that a lot of people who were not riding anymore, remembered fondly the pleasure of biking what they had enjoyed when they were going up. They missed riding but they were intimidated when they saw all the specialist athletes riding by on the roads in professional looking clothes, so they couldn't muster the energy to become a cyclist again; they used their cars instead. This turned into an opportunity for IDEO, bring riding back to the people who just want to be able to get on a bicycle in whatever clothes they are wearing and ride down to the store or cruise around the park. If you visit Copenhagen or Amsterdam, you see a lot of people riding around in the city with normal clothes and upright posture, but they are riding classic bikes designed many decades ago (Moggridge, 2008).

For the American crowd, they found something lighter and easier to ride, an automatic gearbox so you are not required to change gear was what people looked for, as well as a comfortable seat with storage inside it for wallet. Their most innovative design was the automatic gear change, as it gives the bicycle having some intelligence and knowing when to change gear by responding to your pedaling. It works as smooth as the automatic transmission on a car. Creating components that allows people to enjoy a relaxing ride does not solve the fact that those who no longer actually cycle. To answer this question, greater research was done (Moggridge, 2008).

The methods included:

- Interview people of all ages who do not bike and potential bikers.
- Home studies of those potential bikers who have bikes at home but do not ride their bike and understand how they spend their free time.
- Extensive research into four parts of United States to account for regional differences such as culture, weather, and city layouts.
- The "try it yourself experience," where the IDEO team tried activities to empathize with what the potential bikers will experience when they try to bike.
- Observation – going to park to watch people's emotion when they are riding their bike.
- Prototype testing where participants tested the bike concepts and gave feedback on what their experience of riding was.

The most insightful discovery was that every one of the participants who didn't currently bike had fond memories of biking when they were younger. The pleasure they received from biking, simple exercise, feeling of freedom and feeling the breeze when they were outdoor – did not have replacement in their current lifestyle. The key insight here was that there was a big world full of people who don't bike but would like to (Moggridge, 2008). A critical factor in IDEO's recipe for innovation is the use of interdisciplinary teams. IDEO's team is usually made up of people from disciplines ranging from industrial design to hardware/software engineers. IDEO employees sometimes find themselves working with people from other departments, which is a norm in their work environment. This idea of working together through the organization creates more creativity within the organization and stimulates new influences (Bhavnani, 2006). Although the IDEO innovation process is constantly evolving, there is an underlying "project journey" or set of steps:

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IDEO Project Journey

Observe > Synthesize > Generate Ideas > Refine > Implement

Observe: IDEO gathers their data not only through market surveys and user data, but also spends a great deal of time observing and empathizing with users to truly understand their needs and requirements. The user-oriented design process is what enabled IDEO to have a competitive edge and be successful for so many years.

Synthesize: After gathering primary data, IDEO puts them to use by applying what they learned from observation.

Generate Ideas: Based on observation and synthesizing, IDEO will work on brainstorming new ideas. They have strict guidelines for brainstorming new ideas and they are all aware of what is required of them

Refine: this process defined by its chairman David Kelley, as: “Fail early and fail often.” This “culture of failure” is one the foundation stones of the IDEO creative process: quick and dirty prototypes are created to further fine tune the process to ensure that they can be fleshed out early so to avoid costly wrong decisions further down the line. Additionally, IDEO solutions are iterative loops, with each iteration, the process is further refined and brought close to final solution.

Implement: Implementation is an important step of the design process. By following all the previous steps, and increasingly refining prototypes, it leaves very small room for failure in the implementation phase (Bhavnani, 2006).

Emotional Layer

As mentioned earlier, IDEO provides a great deal of emotional value to their customers but they also provide knowledge and experience in the process at a lesser degree. On an emotional level, IDEO provides an aesthetically pleasing design that makes the customer feel good. Bringing back to the bike design for Shimano, IDEO designed the bikes with customers in mind and what they wanted. From their research, they discovered that people were not riding anymore, but remembered fondly the pleasures of biking when they were growing up. Potential bikers wanted a retro look because it reminded them of their childhood. With customer-centered design in mind, IDEO designed the entire bike based on what the customer wanted. From designing a comfortable seat to having an automatic gear change, all was created to satisfy the customers needs in every possible way.

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Coasting Bicycles from Trek, Photo IDEO

Analysis and Conclusions

IDEO's project journey is necessary as to not fail in the implementation phase. Their project journey follows our research model (figure A) to fulfill the customer's three layers of intangible value. Looking at figure A, we see that IDEO generally enters through the *Intangible Design Factors* Stage, where they do primary research to find out what their market values the most. This is the phase where they find out what the customer's wants and needs are and how to utilize them into their product. Next we move onto the *Design Process*, where they must figure out how to encompass intangible value through their product. By generating ideas, they make sure to entail great deal of emotion toward their product. Next we move onto *Relevance*, where they find new ways to help customer create value. This was done with the automatic gearshift. This was something that was concerning their customer, so they made an effort to fix the issue. This is the phase where refinement takes over and fixes issues that are concerning the customers. Finally, the last step for this process is *Effects in Real Time*, which is really the implementation phase. This is where they assess all the other phases to see if it fulfills all the previous requirements to release to the public. If all the steps were taken properly, it will be hard for IDEO to fail to deliver emotional experience and as well other intangible value to their customers.

Recommendations for Future Research

The co-creation of value through product consumption is one of the largest benefits to the consumer as well as the corporation. It happens most often and of the strongest magnitude through the intangible values derived and instilled through the intangible design process. What's more is that through the process of value conversion the consumer and the corporation is able to simultaneously realize value through the users product consumption, but what effect does this have on the corporation itself? Does this only happen through a certain level of consumer response to a product? Besides brand loyalty, what other values are co-created through the process of value conversion for both the consumer and the corporation? It is recommended that further exploration into the process, value, and effect of value conversion be taken to come to a better understanding of the power of intangible value and its importance to corporations everywhere.

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Similar to the process of value conversion, it may also be necessary to explore the total effect that intangible value has on a consumer's behavior. How strong of a connection does a consumer develop to the corporation through the realization of intangible value? In what ways does the consumer realize brand image through product experience and consumption? What trends are there between the created value of knowledge and the consumers spread of knowledge and attachment to the product that effect what values the corporation designs into the product? Furthermore there should most certainly be further exploration into whether you can only add intangible value through means of innovation. Does the design team have to verge on a market changing innovation every time they want to instill a new or stronger intangible value into their product? Is it even possible to simply strengthen an existing intangible value already being realized by the consumer and/or corporation through the process of intangible design to begin with? All of these are questions raised by the research done on the topic of intangible design factors of new product development that future research should seek to answer.

Concluding Thoughts and Statements

One of the most interesting aspects found through the research done on this topic is that next to no one realized the importance of intangible value and the intangible design process until very recently (within the last ten years). The intangible factors of design need to have a special emphasis on them because of their ability to influence all of the tangible factors in design both consciously and subconsciously. They are what separates a corporations design team from another corporations by creating a competitive advantage specific to the team and the product manager in place. All parts of the intangible design process are interrelated and depend upon each other in order to be manipulated by the corporation. They all aid in creating each other and so a full understanding of their interrelation is necessary to successfully complete the intangible design process. Intangible and tangible factors as well as their value work in much the same way. They aid in the creation and realization of each other. In essence, you can not have one without the other, and the fact that they help each other because of their presence in the creation of each other is a huge part of why it is so important to understand exactly how these values are realized, and how these factors are utilized. Observing how the consumer uses and interacts with a product is crucial to the design process because the consumers intangible needs can be very hard to decipher, and so observation is the best way to try to determine them.

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