BUSINESS FOR DESIGN THINKERS

by

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Abstract

This research assessed the use and success of design thinking in business. The goal was to emphasize the importance of incorporating business education into an existing product design course. With exploration of the design process and approach to problems in comparison to the conventional business approach to problems, there was discovery of many similarities as well as significant differences that drastically change the approached outcome. Examining the leading education programs in design and business, a need for integration was found in the education of Industrial Designers. The area for change was discovered to be very efficient in creating expansion of education and increase in knowledge of the students who would take the proposed course, without overextending the requirement of the course or adding additional courses in the existing curriculum.

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Chapter 1: Introduction to Research

The main focus for this research is to emphasize the importance of incorporating Business and Entrepreneurial education into an Industrial Design curriculum, as well as exemplifying how it can be done. This subject is appealing because of the prominence of "Design" and "Design Thinking" in business today. There have been many attempts to utilize "Design Thinking" to reform big corporations and make their culture more innovative. According to IDEO, a global design consultancy, "whenever a company designs a new product, service, or experience, it is essentially designing its business. When done well, Business Design creates offerings that inspire organizations and excite customers." At IDEO, design thinking and traditional corporate strategies are combined to help clients create avenues for market growth. By shifting focus from linear practices to iterative design processes, IDEO can shed light on new options and explore the various alternatives (IDEO, 2014). Businesses other than IDEO are increasingly recognizing the importance of creativity in their leaders and organizations. As reported in some literature, the design approach can be highly useful in business for dealing with issues of the highest level, such as business planning and business model innovation (Choi, 2011). Most recently there has been proven success in applying the design methodologies to the startup process of business.

Robert Safian, editor and managing director of award winning business magazine Fast Company, concluded that "when design is embedded at the center of business, anything is possible" (Safian, 2013). The question raised here is that if businesses can use design methodology to better their business and increase their success rates, then would it be beneficial for industrial design students to learn business essentials and entrepreneurial skills? Initial analysis suggests that it would be beneficial because it would provide greater business

sophistication and a enhanced understanding of how to be entrepreneurial, which would in turn provide more career opportunities for graduates, whether it is to start a business or navigate through an existing corporation.

Intentions for this research are to initiate the incorporation of necessary courses for solid business sophistication and entrepreneurial skills within an existing Design Studio program. The need for such collaboration is recognized, for instance, at Parsons, where the BBA in Strategic Design and Management educates students in the entrepreneurial and strategic aspects of design and in design aspects of business. Project-based studio and seminar courses integrate business, design, and liberal arts education, promoting interdisciplinary learning through wide-ranging research and collaborative work (Strategic, 2014). However, the appeal for the current research is to make such collaboration without changing an entire curriculum or overextending the requirements of the course. The most efficient way would be to use existing classes of Industrial Design, interpret the similarities to business and entrepreneurship education and make minor adjustments and fine-tuning to enhance the curriculum to embrace both business and design.

In proceeding with this study, there will be examination of the design approach, which many have termed “Design Thinking” and its possible use in business in comparison to the conventional business approach. The assessment of the existing processes to start a business is compared and analyzed with real life experiences. There will be recognition of existing philosophies on how to teach business and entrepreneurialism in comparison with leading business and design curriculums and the teaching curriculum in the Industrial Design Department of Auburn University to explore the possibilities in overlap, incorporation, and collaboration in an Industrial Design classroom.

The final deliverable will be a proposed curriculum for Business in Design and a sample course syllabus for an Industrial Design Business Studio, "Business for Design Thinkers." The overall goal is to provide students with a better understanding of the steps involved in starting a business and how to avoid possible problems that may arise as well as to impart business sophistication and entrepreneurial skills for future endeavors, by supplementing a standard design process used by most industrial designers for concept and product development, with principles of business aimed at entrepreneurial undertakings.

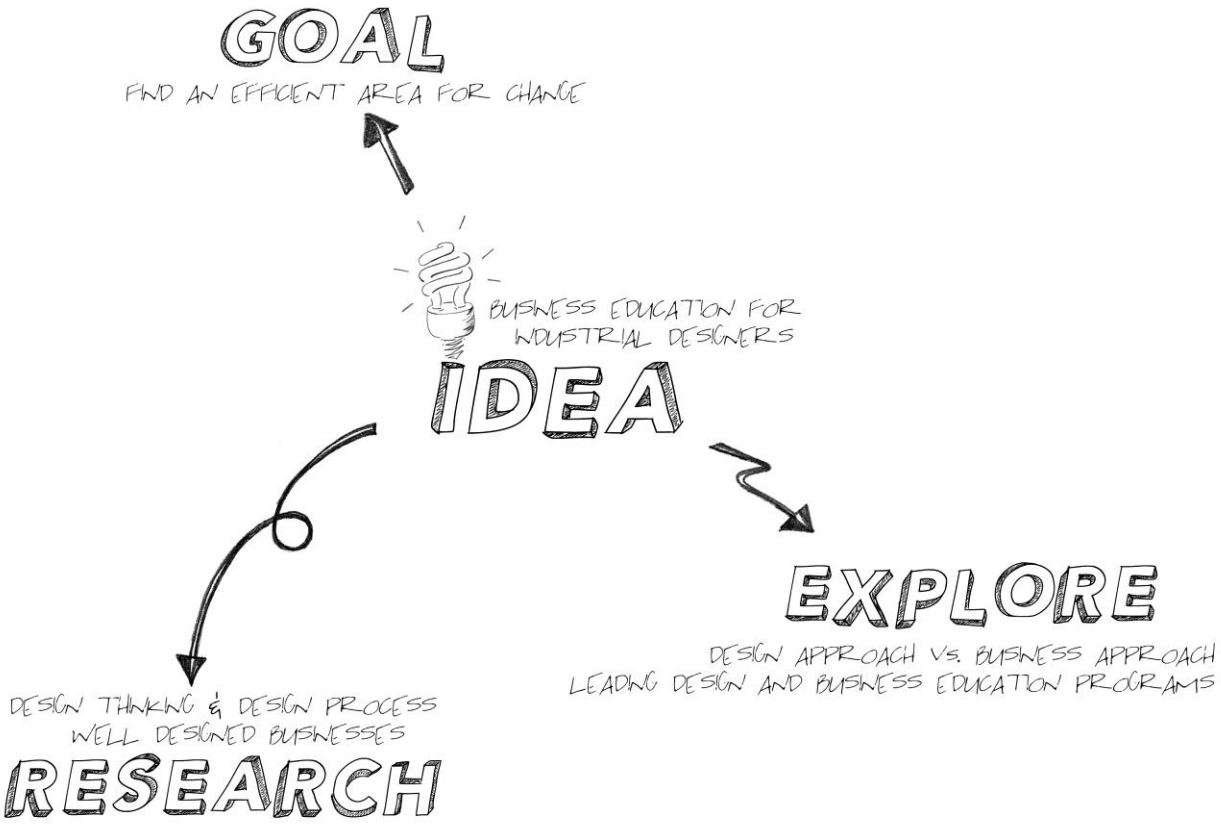


Illustration 1: Idea for Research.

Chapter 2: Theoretical Background

According to Helen Walters (2011), former editor of the innovation and design section at Bloomberg BusinessWeek, "if designers want to make a genuine impact on the world, they would do well to learn how to navigate big companies and figure out how to articulate their value to the people who run them." Or designers can as well learn business traits to counteract the many collapsing companies around us, by starting new businesses and creating new products and services, as well as jobs (Walters, 2011). Today's global environment presents new challenges and opportunities for small businesses. To compete, they must improve their capabilities and address the primary factors that will allow them to grow and thrive. By providing such education to design students, these students would then have the confidence and knowledge necessary to use their ability to influence and shape society for the better. The freedom and opportunity to create a personal destiny represents an influential value in the nation's economy and society (Weisz, 2008).

As stated by Margo Weisz, a seasoned social entrepreneur and non-profit executive, "small business and entrepreneurship underpin American democracy." According to the Small Business Administration Office of Advocacy (2012), in 2010 there were 27.9 million small businesses, and 18,500 firms with 500 employees or more. The entrepreneurial drive fuels the innovation and job creation that secures our country's economic future. Discussions about economic growth often revolve around big companies and major industries. Yet the small business sector keeps our economic base diversified, generates risk-taking innovation, and accounts for much of the employment in America (Weisz, 2008).

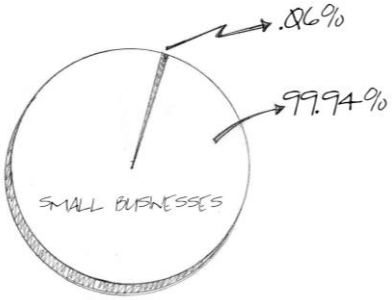


Illustration 2: Small Business.

Nurturing the entrepreneurial spirit is paramount to our country's cultural values and economic future. The essential contributions small businesses make to innovation, economic diversification, revitalization, and job creation can be amplified in a supportive environment, especially in a classroom full of young, motivated, and passionate design students. For example, a recent event, organized by NYCreative interns group, called "Start Something – Why every Creative needs to be an Entrepreneur" highlighted the emerging trend of creativity's crash into capitalism to forge a startup model for the future. In this model, designers drive the force of American entrepreneurialism. According to Laurel Touby, founder of Mediabistro, "Business can be creative and should be creative." This is an obvious example of encouragement for

designers to use their creativity and utilize their skills to start a business or simply seize whatever constructive opportunity may lie before them (Nussbaum, 2012).

As a designer, creating new things is a part of life. Helping to improve the process of everyday tasks can be very exciting as well as beneficial to society. Most that are in the field of design have a great love and passion for what they do, a passion which leads to creating things from scratch, a small idea in the mind to a physical object that people can experience and appreciate. This creativity can be used in the same way when building a business. A survey of 1500 chief executives conducted by IBM's Institute for Business Value showed that CEOs identified "creativity" as the most important leadership competency for the successful enterprise of the future (Choi, 2011).

In the words of Bruce Nussbaum (2012), "a growing desire among designers to bring their user focus, strategic vision, iterative methodologies, and propositional thinking to the still

geeky, tech/engineering-centric world of startups promises to be transformative and explosive."

The entrepreneurial spirit exists with great strength. The contributions made by small businesses in America are impressive. According to the U.S. Small Business Administration (2014), over 99 percent of U.S. businesses are considered small, defined as having fewer than 500 employees, and those small businesses employ 52 percent of the United States workforce. Such skills combined with such passion with nurturing and encouragement in the education realm can output boundless ambition and desire to change the world as we know it (Weisz, 2008).

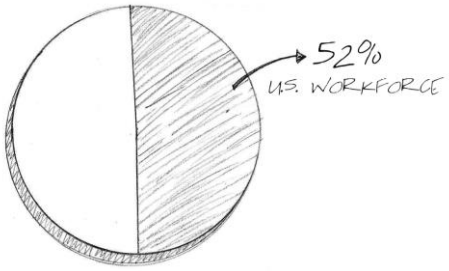


Illustration 3: U.S. Workforce.

Educational guidance for a better understanding of business methods and how to be entrepreneurial with a complete understanding of the possibilities of design and business combined can produce minimal limitations. According to Bruce Nussbaum (2012) of *Business Week*, the dynamic expansion of the scale, range, and power of traditional design can capture the imagination and energy of a new generation of young designers/creators, and perhaps even regenerate western capitalism. Most importantly this creative turn to the entrepreneurial is hopeful.

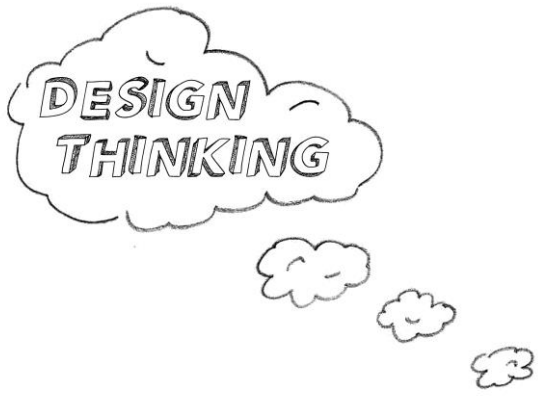
There are many more aspects of business and entrepreneurship than what is apparent in these examples. Although this research emphasizes how beneficial design methodology is to business, designers must not let such discussions swell their ego. This research is intended to encourage designers to utilize their skills in different ways. With education and experience using the design approach, designers should expand and explore the conventional approach, not to

change their own methods but for a more complete understanding of both methods and the relationships between them. Though we are encouraging designers to start businesses and statistics show that design is a successful tool in business, designers must know that they should never underestimate all that is required in starting and operating a business. Adding to the education model for young designers to open doors for more opportunities is optimistic. In order to find a successful method of teaching these multidisciplinary skills, there must first be full understanding of the methods and educational teachings of each involved field as well as possibilities for collaboration of participants in a studio classroom.

Chapter 3: Literature Review

The following chapter will be divided into multiple sections exploring design thinking and the design approach as well as business thinking and the conventional approach. The techniques designers utilize during a project will be examined and compared to the formulas and methods of business professionals. By clearing the misunderstandings many have about design thinking and the process of designers, we can thoroughly examine how their techniques are beneficial to business. There will also be a review of documentation on well-designed businesses and their success with design thinking for factual evidence on what aspects of the design approach aided in their success. In knowing what makes the use of design methods successful, the chapter will be concluded by referring back to the business startup process and consideration of how it relates to the design approach, for a clear understanding of how design thinking can be used throughout the duration of a business and not just integration late in the process.

Section 1: Design Thinking



The concept of "Design Thinking" has been slowly evolving and coalescing over the past decade. Though successful in many ways, there has also been substantial misuse of the term, which leads to failed attempts to improve business. One popular definition is that design thinking means thinking as a designer would, which is about as circular as a definition can be. For a business to adapt this concept of thinking without fully understanding it, a middle manager is superficially forced to deal with flighty, exuberant "creative types," who seem to regard prevailing wisdom as a mere trifle and deadlines as an inconvenience. The admonition to "be like a designer" is equivalent to

saying, "be less productive, less efficient, more subversive, and more flaky," which is not an attractive proposition (Martin, 2009). There is a lack of understanding, which brings fear to each professional for different reasons. It should be understood that the same way business people see designers is similar to how designers see business.

Many people believe that design thinking is merely a methodology or approach for "visual design." Visual Design is the design of working in any media or support of visual communication. This view is also one of many false perceptions (Krigsman, 2011). However, whether it is called design thinking, lateral thinking, right brained thinking, systems thinking, integrative thinking, futures thinking, or as Vanessa Miemis refers to it, "meta-thinking," the concept itself is rooted in the capacity to understand the world and our relationship to it and within it, in a different way (Miemis, 2010).

More concretely, Tim Brown, the CEO and President of IDEO has written that design thinking is "a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (Martin, 2009). Design thinking is about the interaction between feasibility, viability, and desirability, with an emphasis on the user experience (Miemis,

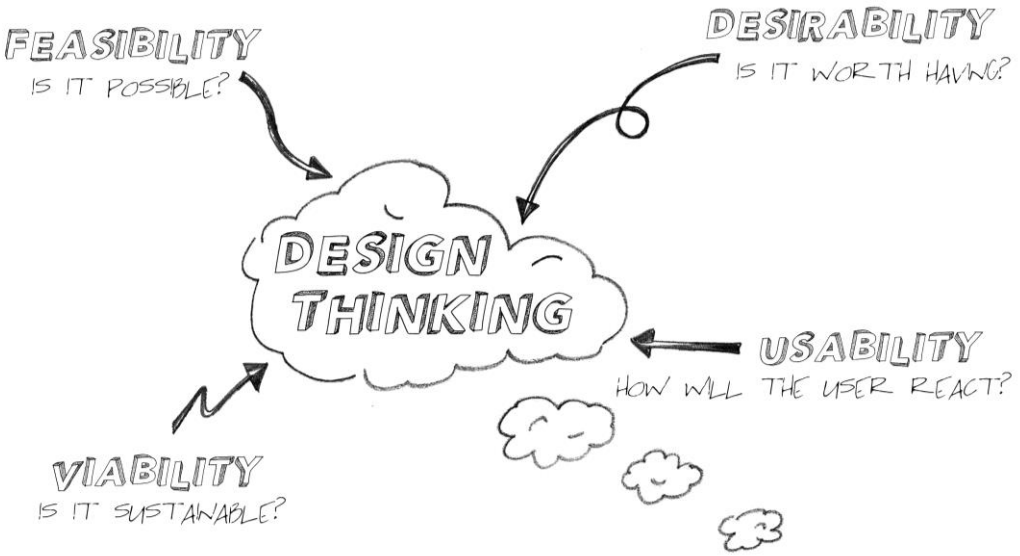


Illustration 4: Interaction in Design Thinking.

2010).

According to Brian Ling (2009) of Design Sojourn, "designers have the ability, through their consumer insights and boundless thinking, to come up with un-tested opportunities where businesses are unable due to the culture and way in which companies are run." Design Thinking has much to offer a business world in which most management ideas and best practices are freely available to be copied and exploited. Leaders now look to innovation as a principle source of differentiation and competitive advantage; they would do well to incorporate design thinking into all phases of the process (Brown, 2008). The business culture, which is focused on common results, thrives on the tried and tested. Business leaders know these are not conducive for the future and the next big product breakthrough. It is the designer's ability to manage and work with the risk of the unknown with concepts, designs, and so forth that is going to help win the day (Ling, 2009).

Design thinking comprises a set of principles one can apply at any stage of the enterprise project lifecycle along with other project management methodologies. This approach is valid for the CEO and executive management all the way to the lowest levels. Design thinking encapsulates a set of guidelines and general principles, recognizing the benefits of using interactive work cycles to pursue customer centric goals. Design thinking can make potential failure a learning tool and not a final outcome (Krigsman, 2011).

Thomas Edison's approach to creating the electric light bulb as well as the system of electric power generation and transmission to make it useful was an early example of what is now called "Design Thinking," a methodology that imbues the full spectrum of innovation activities with a human-centered design culture. Innovation is powered by a thorough understanding, through direct observation of what people want and need in their lives and what

they like or dislike about the way particular products are made, packaged, marketed, sold, and supported (Brown, 2008). None of these examples happened by accident; they were done by design. They create a context that affects the reaction of the person experiencing them. So design is not just about the end product or the service itself, but also the process of the interaction and the emotional response and intrinsic value that it provides (Miemis, 2010).

Edison surrounded himself with gifted tinkerers, improvisers and experimenters and, by doing so, created a team-based approach to innovation with endless rounds of trial and error. Innovation is hard work; Edison made it a profession that blended art, craft, science, business savvy, and an astute understanding of customers and markets (Brown, 2008). According to Chirag Mehta, SAP business developer, coach of design thinking at Stanford D. School, with 15 years' experience in strategy, design, architecture, product management, and product development, there is no one definition of design thinking. It is a mindset and set of values that applies both analytical and creative thinking towards solving problems. Design Thinking is about how you think and not what you know; it is about the journey and not the destination (Krigsman, 2011).

During the latter half of the twentieth century, design became an increasingly valuable competitive asset in, for example, consumer electronics, automotive, and consumer packaged goods industries. But in most others it remained a late-stage add-on. Now, however, rather than asking designers to make an already developed idea more attractive to consumers, companies are asking them to create ideas that better meet consumers' needs and desires. The former role is tactical and results in limited value creation; the latter is strategic, and leads to dramatic new forms of value (Brown, 2008).

Moreover, as economies shift from industrial manufacturing to knowledge work and service delivery, the innovations' terrain is expanding. Its objectives are no longer just physical products; they are new sorts of processes and services, IT-powered interactions, entertainments, and ways of communicating and collaborating, exactly the kinds of human-centered activities in which design thinking can make a decisive difference (Brown, 2008).

So whether design thinking is employed to restructure the culture of an organization or to innovate a new product or service, it is important to remember that it is more than a set of simple tactics that can be implemented overnight. It is more like a new ecology of mind, that takes time to grow, adapt, and evolve. It still requires an adherence to sound business decision making, but also a commitment to challenge one's own beliefs about the way things work, and to keep coming back to a human centered approach by focusing on addressing the people's unspoken and unmet needs (Miemis, 2010).

Now, with the understanding that "Design Thinking" is more than simply thinking as a designer would but using methodologies to bring focus away from the product itself and more focus to the value the product offers to the customer, we will follow with a more in depth exploration of the process and principles involved in Design. We will examine what makes this approach organized and possible to incorporate into business and how it can be broken down and understood. There will be focus on different views of design thinking and the design process, exploration of a standard design process used by industrial designers in concept and product development and analysis of what details make implementing design thinking a sustainable advantage in fields other than design.

Section 2: Design Process as a Discipline

Design is essentially a problem-solving discipline with a useful set of methodologies for challenging conventional thinking, particularly with new concept development. It effectively explores a balance between critical analysis and creative imagination, a wide range of ideation exercises and tools, and a wide range of feasible and infeasible ideas in analyses. It tends to utilize people of different backgrounds, and participants would also be willing to accept more risks and experiments (Choi, 2011).

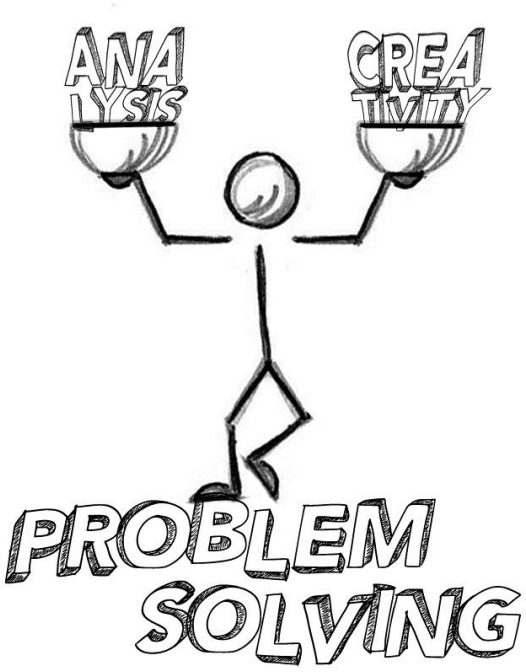


Illustration 5: Problem Solving Balance

Illustration 6 displays what is interpreted by David Choi, along with two business and two design academics, as a good design process. Although designers use different terminologies and techniques, most design approaches tend to include the stages described in the following chart (Choi, 2011). Along with the initial stages put together by Choi, through research, each stage was broken down into further detail to display the methodologies used by designers to complete each stage.

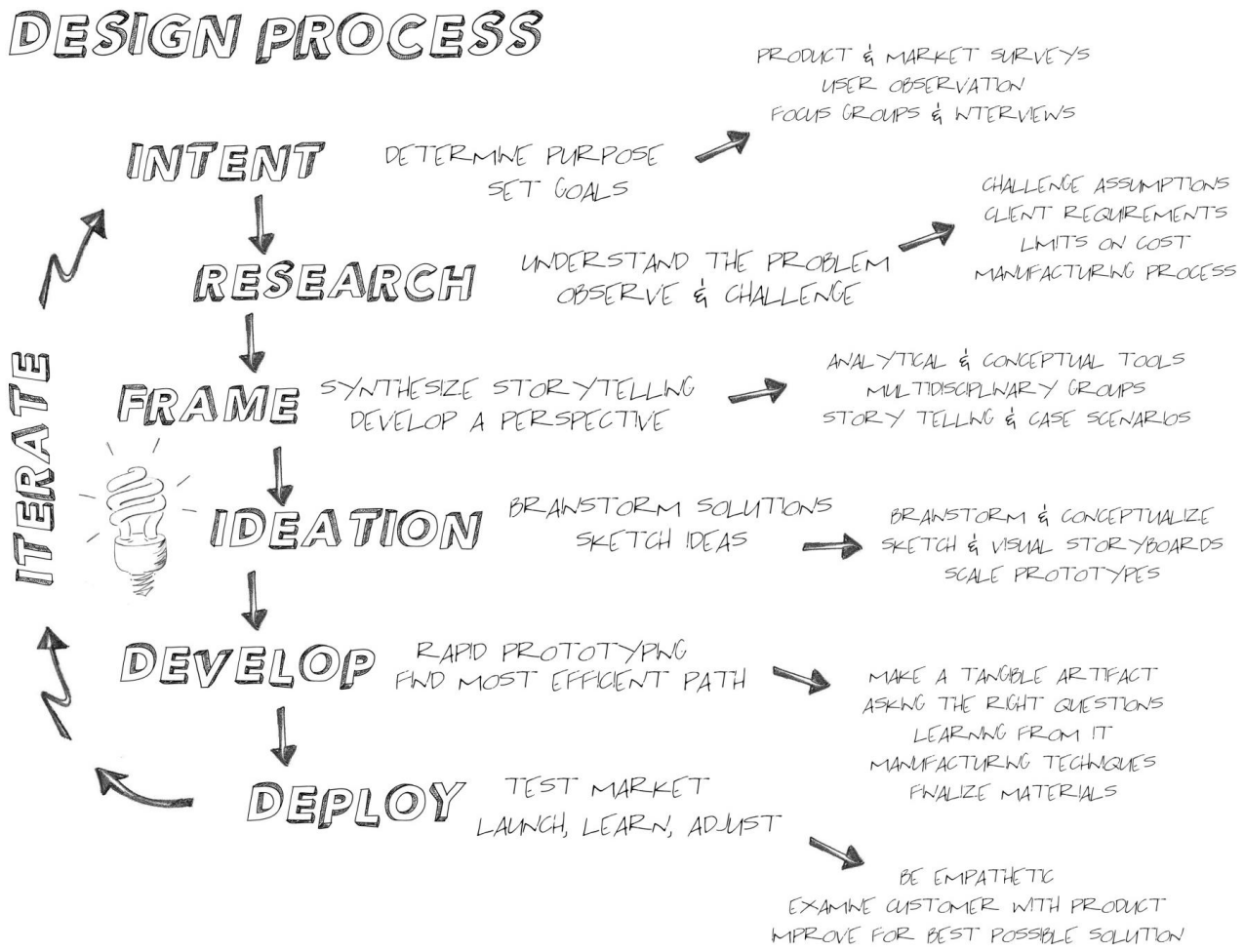


Illustration 6: Design Process. Stages involved and the methods used to complete each stage.

Intent. The very first step stage of the process is when a team comes to define a common objective. Designers generally begin with a simple idea or the search of a problem through observation of life and products that exist. By doing so, they find what is needed and learn how it could be created, or made better and more efficient.

In some cases, clients with requests, suggestions, or complaints define problems for the designer. In others, there may not be a product to improve but an entirely new product to be created to counter a need. Of course when searching for a problem to solve, there is much research involved. This includes product studies, market surveys, user observation, focus groups and interviews, before as well as after a problem is discovered.

Once the problem is acknowledged, the information gathered must then be analyzed to find out what is causing the problem and how it can be changed. As a problem-solving discipline, Design trains its students to continually ask the question "what is the problem we are solving and why?" By constantly asking the question "why?" a good designer will challenge the very nature of the problem that is presented, before any problem solving begins. This encourages finding the root causes of the problem rather than fixing the consequences of the problem as they arise. This also builds confidence that the problem stated is both worth solving and is being attacked at the appropriate level (Choi, 2011).

After the problem is stated, the purpose is determined, and the goals are set, one must prepare a timeline for the project. This also involves the preparation for failure in the beginning, by visualizing all things that could go wrong by imagining that the project has failed. This gives the team an opportunity to proactively look at risks and prepare to prevent and mitigate them throughout the project (Krigsman, 2011).

Research. The second step of the process involves researching and collecting data with the purpose of understanding the problem and defining the strategic opportunities at hand. Design thinking encourages people to stay in the problem as long as possible. This invariably results in ambiguity, which is actually a good thing. Ambiguity fosters abductive thinking, a mindset that allows people to explore what is probable with the limited information on their hands without concerns about proving or concluding that it actually works. It helps people define a problem in many different ways, eventually letting them get to the right problem on which they should focus (Krigsman, 2011).

This step implicates understanding client requirements, business goals, consumer observations, market analysis, and competitive analysis. Designers are often advised not to jump into framing or ideation until sufficient investigation has been completed in the research phase. Those who do can become too attached to early ideas and mistakenly disregard innovative solutions (Choi, 2011).

Solid research challenges the given assumptions and constraints and is fundamental to the design process. Knowing what the limits are on cost, materials, manufacturing processes, and especially client regulations in standards, codes, ethics, and environment are very important. The purpose of challenging what is given is to gain understanding of which constraints are real and which are artificial and sometimes even self-imposed. Understanding such constraints and removing them from further discussion can lead to increased design options and a better final product (Choi, 2011).

Frame. The framing step analyzes the data and utilizes various analytical and conceptual tools to sort them out and develop a perspective. This stage utilizes various methodologies such as multidisciplinary groups, synthesizing, storytelling, case scenarios, and other tools and

frameworks to develop an insight to the problem and identify potential opportunities for creation and ideation (Choi, 2011).

Design thinking emphasizes story telling and shared vision. It strives to connect the members to the larger vision and places empathy towards all contributors involved in the project. Too often, participants focus exclusively on their own individual tasks, which causes them to disconnect from the big picture. In this situation, a project can fail and people may not understand their role, thinking they failed due to someone else's work, and if so they will not try to learn and change. It is important to evaluate what the team did right but also revisit the vision and examine how recent outcomes fit the overall story (Krigsman, 2011).

No one person wants to fail, if responsibility of the failure or success is collectively placed on the shoulders of the team, they will be motivated to think and behave differently and much failure will be alleviated. Multidisciplinary teams champion more aspects of a project in a more comprehensive manner than would otherwise be possible. Such collaboration in brainstorming sessions brings a multitude of views and ideas for discussion and exploration. This is done without judgment on even the most random ideas because sometimes those are the ones, which lead to the best solution.

Constructing a single team that includes multiple participants from different areas produces a single unit that includes multiple perspectives. This approach can ensure the solution is economically viable, technologically feasible and delights the end users. A more balanced team also results in a more human centered approach (Krigsman, 2011).

Ideation. This stage utilizes sketches, visual storyboards, wire frames, case scenarios, and low or high devotion prototypes to derive several potential design solutions. Brainstorming, conceptualizing, and designing bring the ideas and product together in visual form for further

exploration into the possibilities. Being much more strategic in nature usually leads to one or more optional solutions and a development plan. This is also where analysis of constraints mentioned previously would take place in which basic assumptions are put to test (Choi, 2011). In conceptualizing, designers are able to expand on the initial ideas and bring even more ideas to the surface.

> "An early pragmatist, perhaps Charles Sanders Peirce, was fascinated by the origins of new ideas and came to believe that they did not emerge from the conventional forms of declarative logic. In fact, he argued that no new idea could be proved deductively or inductively using past data. Moreover, if new ideas were not the product of the two accepted forms of logic, he reasoned, there must be a third fundamental logical mode. New ideas came into being, Peirce posited, by way of 'logical leaps of the mind.' New ideas arose when a thinker observed data that didn't fit with the existing model or models. The thinker sought to make sense of the observation by making what Peirce called an 'inference to the best explanation.' The true first step of reasoning, he concluded, was not observation but wondering. Peirce named his form of reasoning abductive logic. It is not declarative reasoning; its goal is not to declare a conclusion to be true or false. It is modal reasoning; its goal is to posit what could possibly be true. Whether they realize it or not, designers live in Peirce's world of abduction; they actively look for new data points, challenge accepted explanations, and infer possible new worlds" (Martin, 2009).

Abductive logic stresses thinking outside the box, looking for the not-so-obvious, and exploration of the unknown.

Develop. One of the core characteristics of design thinking is to prototype everything, to make a tangible artifact and learn from it. All designers know that concepts can look fantastic on paper, but when it comes to the next step, ideas can be shattered in a heartbeat. Prototyping and testing will determine how possible an idea truly is. The conceptual designs are fleshed out, real constraints are applied, and manufacturing techniques and materials are finalized. The explorative process of making prototypes makes people think deeply and ask the right kind of questions. It is said, "computers will never give a wrong answer, but it will respond to a wrong question." The prototypes encourage people to focus on what they need to know as opposed to what they want to know. Most people respond better to an artifact rather than to an abstract document. Prototypes also make the conversation product-centric and not person-centric, and also help to get team members on the same page with a shared vision (Krigsman, 2011).

There is a level of uncertainty with all new designs. This is why prototypes must be tested as a product itself as well as further in market and user experience studies for determination of feasibility. The design process attempts to find the most economic path for the solution identified. Designers are trained to find the most efficient and least costly way to deliver the solution to their customer. A design is viewed as "elegant" when it exhibits such proper balance of strength in function and lightness in cost. If problems are found with the new product, they will then be evaluated and revised in the necessary areas before finalization for production. The first five phases are followed by iterative cycles of prototyping, testing, and refinement (Choi, 2011).

Deploy. The last step engages in extensive testing and deals with deployment issues. Design thinking contradicts other methodologies that focus only on success. In design thinking failing is not necessarily a bad idea at all: fail early and fail often and then correct the course. In many projects people chase success without knowing what it looks like or expecting to fail; therefore they do not learn from the process (Krigsman, 2011). This phase gets the product almost ready to hit the market. The phase includes usability testing to fix any critical user issues and also involves evaluating and testing to generate ideas for the next version (Choi, 2011).

Iterate. The research continues as the cycle continues to iterate to improve the design for the best possible solution. Design as a discipline is profoundly focused on the user experience and narrative. Through direct observation, designers examine how the customer learns to use the new product, how that interaction changes over time, how the customer uses that product in connection with another product as well as how the user feels, what can make them more comfortable, and even what color or shape is more relaxing or exciting. Designers are taught to be empathetic, not just analytical. This human-centered design approach leads to the best possible solution, which in turn is the best solution for the business.

Section 3: Design Approach and Conventional Approach

Although represented in the previous section as a product design process, the basic design approach can be relatively flexible and applied to a variety of problem-solving scenarios from developing an innovative product to preparing a new business plan. The fundamental process does not seem discernibly different from that of a conventional approach, initially. However, there are significant differences that may be responsible for different outcomes. Business is

analytical and rational with fear of failure, while Design is intuitive and emotional with a mentality of trial and error (Choi, 2011).

Illustration 7 breaks down the design approach and conventional approach based on information gathered by David Choi. By listing the key aspects required for problem solving whether a design or business problem and displaying how each side considers, gathers information, and responds, the illustration exhibits how each approach is different and how the outcome can change according to methods.

KEY ASPECTS IN BOTH BUSINESS & DESIGN	DESIGN APPROACH	CONVENTIONAL APPROACH
ANALYSIS	QUANTITTATIVE & QUALITATIVE DATA GATHERS & CHALLENGES CONSTRANTS BALANCE BTW ANALYSIS & CREATIVITY "LOGICAL LEAPS OF MNG"	QUANTITTATIVE DATA GATHERS CONSTRANTS DEDUCTIVE LOGIC PROOF
IDEATION	MANY IDEATION TOOLS EXPERIENCED IN IDEATION EXERCISES ENCOURAGES DIVERSITY OF THOUGHT OPEN TO TENSION IN BEGINNING	LIMITED TOOLS & EXPERIENCE ENCOURAGES COMING TO AGREEMENT
STRATEGIC OPTIONS	OPEN TO EXPLORING A WIDE RANGE OF FEASIBLE AND INFEASIBLE IDEAS	TENDS TO EXAMINE A MANAGEABLE NUMBER OF FEASIBLE IDEAS
PARTICIPANTS	A WIDE COLLECTION OF SENIOR & JUNIOR EXECUTIVES INCLUDING SOMEONE TRAINED IN DESIGN	SENIOR MANAGEMENT
RISK TAKING	VIEWED NECCESSARY IN DESIGN INNOVATION	GENERALLY RELUCTANT TO TAKE RISKS
TIMING	CONTINUOUS &/OR AS NEEDED	ONCE A QUARTER TO ONCE A YEAR

Illustration 7: Approach Comparison.

In summation, the conventional approach generally utilizes scheduled, quarterly and biannual meetings among senior management to discuss a manageable number of feasible ideas. Ideas which are gathered based on quantitative data, listed constraints, and deductive logic, and rushed to come to an agreement lead to more compromising than problem solving. The design approach, being part of a problem-solving discipline, meets as needed with a collection of senior and junior executives with varied disciplinary backgrounds, to explore a wide range of feasible and even infeasible ideas. Ideas formed from utilizing a variety of ideation tools in brainstorming sessions and open discussions where diversity of thought is welcome and there is no fear of bringing tension into the room. By challenging constraints, which the conventional approach is reluctant to do, the design approach takes risks which are viewed as necessary for success.

Though there is a clear distinction of the differences between the design and conventional approaches, when incorporating new strategies into a business there must be understanding of the importance of both methods. No matter if one is stated as more successful, there are still aspects of both that are crucial and must be understood by all who are involved. Michael Krigsman (2011), an internationally recognized analyst and strategy advisor states, "Even the best methodology requires organizational commitment to success. For Design thinking to work, in a business atmosphere, it is necessary to address the common organizational issues, which can impede progress and limit successful outcomes."

Analysis. The conventional strategic planning approach focuses more heavily on quantitative data and logical analysis, which is very important and understandable for vital decision-making, especially strategic decisions that need to be justified with data. Executives need documentation for evidence to elicit agreement among competing opinions; however, too much reliance on hard data can cause one to miss context and meaning (Choi, 2011). In the eyes

of business, when it comes to incorporating a design approach, there is a lack of key performance indicators and frameworks. For number-driven leaders, lack of a quantifiable framework to measure and monitor the impact of a new methodology is a challenge (Krigsman, 2011).

Design, like the conventional approach, gathers a considerable amount of market research data and customer requirements, especially in its early phases. A difference is in the methods utilized. Design utilizes tools, many of which are highly qualitative, something that may seem nonstandard to business strategists. For instance, designers may take significant time to "observe" consumers as part of user research and do it at a level of duration and detail that would be unusual for a typical market researcher. Designers tend observe customers for a longer period of time and come to a much deeper and more holistic understanding of the user experience than business professionals (Choi, 2011). One of the problems with traditional project management methodologies is that too much time is spent in executing the solution and not enough time is focused on defining the problem (Krigsman, 2011). As mentioned earlier, the Design approach does not just take notes on the problem itself or the existing constraints; it focuses on why it is a problem and it challenges and removes the self-imposed and artificial constraints from analysis. When causes are discovered and constraints are removed, relaxed or re-prioritized, a wider range of strategic options can become available (Choi, 2011).

The Design approach's important distinction from traditional strategic planning process is the balance between critical analysis and creative imagination. The relatively strong balance in the Design approach might be the result of the field's openness for more qualitative data whereas the business discipline has strong preference for quantitative findings (Choi, 2011). According to Roger Martin, Dean of the Rotman School of Management at the University of Toronto, and senior advisor to CEOs of large global companies, the design thinking organization applies the

designer's most crucial tool to the problems of business. That tool as coined by Charles Sanders Pierce, is abductive reasoning (Martin, 2009). While traditional business strategists demand hard data perfectly laid out in a logical flow, designers are more open to make what Peirce called "logical leaps of mind" even if all the data is not present to justify the "leap" (Choi, 2011).

Ideation. In the design or conceptual phase of the design approach, the designers typically utilize such unconventional tools as wire frames, mind maps, case scenarios, and multidisciplinary brainstorming sessions, which conventional market researchers tend to use only rarely. Most business professionals would be surprised to see the range of ideation exercises and tools on which designers rely. The design discipline has used these tools and exercises to solicit creative ideas from their students and professionals for decades (Choi, 2011). The problem in business is a lack of industry backing. Even though industrial design companies such as IDEO have evangelized this approach, there is still confusion about what design thinking actually means. This makes it difficult to explain to a wider audience. Lead industry figures and organizations need to publicly endorse it (Krigsman, 2011).

Strategic Options. Another key difference is in how the strategic explorations are managed and held. Most traditional business executives do not have the patience or open-mindedness to explore far-fetched ideas as strategic options. In fact, wild ideas would be frowned upon in most organizations. Typically, a few narrow set of options are explored, and time and effort are placed on one or a few good ideas. In contrast, the Design team members commonly explore a wide range of feasible as well as infeasible ideas. They also welcome disagreement and differing viewpoints, which is why there is such emphasis on multidisciplinary gatherings. This process requires team members to be patient, nonjudgmental, and indifferent to organizational hierarchy (Choi, 2011).

Participants. A design approach to business planning would involve people different from those typically involved in corporations. The participants of the process would not be just senior executives but people of various positions and age groups – with the main qualification being their ability to contribute to creative idea generation (Choi, 2011). Executive Management must approve this process by embracing and practicing design thinking with individuals in many different positions of the company. When employees see their leaders practice design thinking they are more likely to embrace and practice it themselves (Krigsman, 2011).

Designers tend to collaborate with each other, other disciplines, and users to generate new ideas, explore alternatives, and create new products, websites, brands, stores, and so forth. The process of design thinking, co-creation, and design as creative collaboration can help companies move beyond their norms and create new markets. Companies like Intuit and Four Seasons have changed their corporate culture and how they compete with other market players by encouraging such collaborative processes (Lockwood, 2011).

Risk Taking. A Design approach would also be willing to accept more risks. In fact, in Design, risk taking is perceived as a necessary component to innovation. Without oversimplifying the issue, corporations are generally less excited about taking risks than designers (Choi, 2011). In business there is much resistance to change. People in any organization are usually fundamentally against change, even if it is a good thing, because they do not want to get out of their comfort zone (Krigsman, 2011). Of course, one could argue that it is easier for a designer to take risks than a corporation, because the consequences would be less significant. However, most designers would disagree: In their situation, the outcomes are more "personal" and therefore more consequential than for an "organization" (Choi, 2011).

Desired Outcome. Another unique aspect of the Design approach is its long-established convention of experimenting with new ideas at small scale. The Design approach is accustomed to making prototypes, refining them, and incorporating learning into the next version and/or prior to full-scale launch. In contrast, often the outcome of a conventional strategic planning process of a large company is a detailed business plan with direction for large and bold corporate investments. Consequently, conventional strategic plans are formulated periodically, once a year or when a new CEO comes in. Designers tend to work on refining and enhancing their solutions on an ongoing basis (Choi, 2011).

Illustration 8: Design Mix.

According to Thomas Lockwood (2011), president and founding partner of Lockwood Resource, an international recruiting firm specializing in design and innovation leadership, and former president of the Design Management Institute, investing in the design process can be a sustainable business advantage, because it tends to lead to five things: creative collaboration, innovation, differentiation, simplification, and customer experience.

In 1953, Neil Borden, the president of the American Marketing Association, helped define the value of marketing by coining the term "Marketing Mix," which subsequently led to the famous four P's of marketing (product, price, place, and promotion). In 2011, Lockwood, proposed that collaborate, innovate, differentiate, simplify, and customer experience become the "Design Mix." He believed this was the talk in terms of real business value. This style of

thinking is organized and made more productive with the use of the "Design Mix" and more successful with full understanding of the process and principles involved (Lockwood, 2011). It is time for the professional design community to promote the evident value of design. This value of design is why the topic of the current research is significant. Promoting the value of design in business as well as educating and encouraging students to enhance and market their value appropriately is imperative for their future successes.

Section 4: Well-Designed Businesses

Good design is generally a complex mixture of different qualities, including what the design does and what it looks like. This combination of form and function is also accompanied by other important factors. Good designs must also be well made, emotionally resonant, durable, socially beneficial, beautiful and affordable, to name a few criteria. Nothing should be arbitrary or left to chance. Care and accuracy in the design process show respect towards the consumer (Choi, 2011).

The focus of this section is to look at design problems at the business model level. For instance, the computer company Apple is a good example of a well-designed company, not because of how visually appealing its products are, but because of the way the company has developed new innovative business models for music distribution and communication. FedEx's central hub system is a similar kind of commendable breakthrough in operational design. The concept seemed outrageous until it was seen in action (Choi, 2011).

Illustration 9 displays companies which are all described as "well-designed". By using methods coined by design thinking, such as innovation through constraint analysis, user

experience, removing inefficiencies, and adding value, they have created more successful businesses (Choi, 2011).

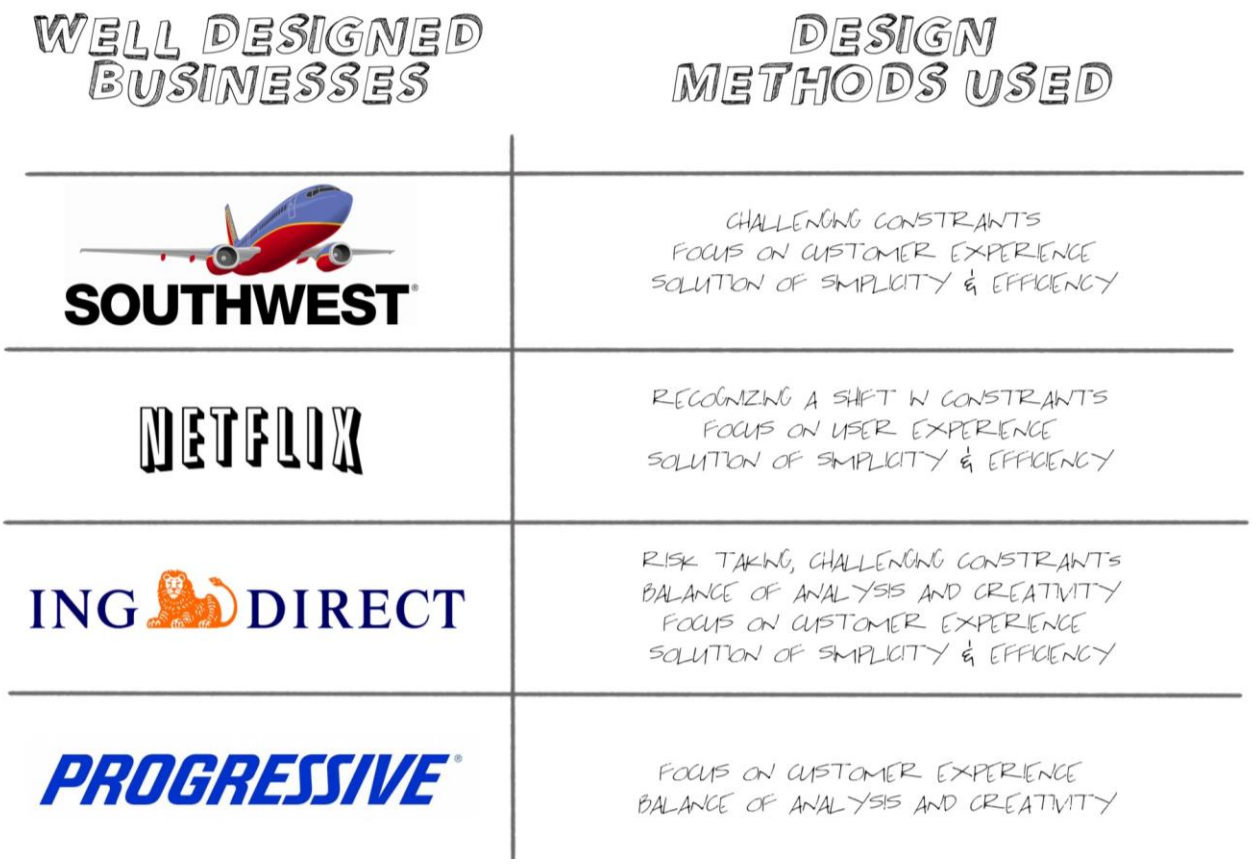


Illustration 9: Well-Designed Businesses.

Southwest Airline. Here we will examine Southwest Airlines, a company that has been around for years and is considered "superbly" designed. Southwest's strategy was to solve the problems other airlines seemed to have, reconsider all the constraints that airlines believed they were subject to, challenge all the given assumptions, and place focus on their customer needs, creating a solution of simplicity and efficiency.

By focusing on the customers' needs, Southwest found that what short haul business and leisure travelers care about is having an inexpensive plane ride that takes off and lands on time. They are not interested in complicated flight arrangements with connections to other flights and layovers. This is inconvenient for the customers who desire to travel point to point. Complicated connections are time consuming and slow down operation. By challenging the assumption that all airlines must have a hub, Southwest claimed their famous "fifteen minute turnaround."

Reevaluating constraints such as the airline reservation system through travel agents, Southwest decided to allow customers to make reservations direct over an 800 number as well as over the internet. This idea cut out the middleman as well as millions of dollars a year in fees, therefore lowering the ticket price for customers. Southwest decided not to offer meals on the vessel, which made it easier to clean quickly for the next flight and saved the company the expenses of cleaning crews, because flight attendants took charge of cleaning. Also the company used only one model air vessel, which simplified maintenance operations and pilot scheduling.

Because Southwest thought outside of the box and challenged the conventional ideas of what an airline is supposed to do, a radically innovative business model was built. With Southwest's efforts in designing their business, they have been able to offer a reliable service so efficiently that its costs are dramatically lower than those of its competitors. In a tough industry marked by rising fuel prices, unionized workers, and large capital investments, Southwest has

been profitable every year since its beginning (Choi, 2011).

Netflix. By recognizing a shift in constraints and challenging Blockbuster's most fundamental assumptions and with its user centric business model, Netflix managed to take down the unparalleled giant of the video industry single handedly. Blockbuster's model depended upon the rapid circulation of a limited number of physical media thus necessitating late fees, making the experience of the customers an unpleasant one. Netflix embraced the idea of user experience analysis informed by design thinking and discovered tools that were truly valuable.

Because Netflix negotiated distribution methods that did not rely on limited copies of physical media, thereby solving the demand problems, it did not need to charge late fees. Allowing the user experience to direct the business model and by pioneering social networking techniques such as providing tools for sharing lists with online friends and making recommendations, naturally resulted in domination over Blockbuster. Offering their service online and bringing the service into the customers' home added significant value to the business while removing the gross inefficiencies of brick and mortar storefronts (Choi, 2011).

ING Direct. Like Netflix, ING Direct realized they did not need to build a brick and mortar retail branch network to service its customers. As a new division of Dutch owned ING Bank, they took the opportunity in coming to the United States to design its retail banking service strategy from scratch. By offering basic banking and financial products online they were able to reach a vast number of customers as well as add convenience and value. This change did not come with complete exclusion of a physical presence. The new design opportunity led to perhaps one of the most innovative retail formats for retail banking, the "ING Direct Café."

Placing this café within some of its key target markets, including New York, Philadelphia, and Los Angeles, the store layout and atmosphere was a beautifully and elegantly designed

coffee shop comparable to some of the best coffee retail stores such as Starbucks and Coffee Beans.

The employees are bank associates well versed in everything from savings accounts to coffee, eager to take an order for mocha or a mutual fund. Though ING took a great risk in changing the traditional way of banking, with a balance of analysis and creativity and the customer experience in mind, ING created a low-pressure environment for attracting customers and presenting them with dramatically different way of receiving banking services (Choi, 2011).

Progressive Insurance. With customers in mind, Progressive was the first insurance company to let consumers compare its premiums with other companies' on its own website more than 10 years ago. Now it has again radically designed its business, by allowing customers to dictate the premium they can afford to pay for which the insurance company designs a policy.

They have created a virtual store not just on their website but also on television. The company's on-air advertising is brilliant. It is taking products like banking and insurance, which are complicated and abstract, and turning them into consumer commodities and experiences. This is more than marketing; it is a complete redesign, from the customer experience perspective.

The narrative of the pure all-white, no-walls store lined with boxes of insurance policies has the paradoxical effect of substantiating a financial product and constructs a metaphorical shopping experience that the customer carries to the website. A strictly online financial product is materialized through television advertising, creating a completely fictional narrative in one medium to enhance the perceived value of an abstract product for sale in another medium.

Progressive characterizes a new kind of design that is not about objects or architecture but recognizes that in a world where much of our experience is provided through electronic media that media design is the new architecture. The designers at Progressive seem to appreciate

that in our new media world, all design is ultimately the design of experiences (Choi, 2011).

By reviewing the examination of each of these companies by David Choi (2011), we see that even though they may not have stated or even realized they were using a design approach, there is much value and success that comes with using these methods. Managers looking to build design thinking throughout the organization can learn valuable lessons from the companies previously reviewed as well as other companies such as GE Healthcare, Procter & Gamble, and Philips Electronics. In addition to hiring design thinkers from schools, they have developed in-house programs to bring people from all functions of the organization to think through this design perspective. Elevating design has boosted innovation and the bottom line at these and other companies. According a 2003 report by the Danish Design Center, increasing design activity boosted a company's revenue on average by 40% more than other companies over a five-year period (Wong, 2009).

Procter & Gamble (P&G) measures the performance of design-thinking inspired ideas and products, says Cynthia Tripp, Marketing Director for global design at P&G. In those terms, "We're beating our success criteria. Quantitative measures show we're doing very well." The focus on design-led innovation helped Philips Lighting to transform itself over the past decade from a company that simply pushed products into the market into one that designs them with customer desires in mind, says CEO Rudy Provoost. The business is no longer just about light bulbs, but about designing ambience for consumers. Certainly, design thinking is not the only mechanism these corporations use to achieve growth. But for now, says GE's Schwartz, "if there's a box of crayons, we're a favorite color" (Wong, 2009).

When these companies began to think outside the box, become problem solvers, challenged constraints and assumptions, and placed focus on the customers, they began to utilize

the methods of designers. By applying the approaches and tools of design to the traditional business startup process, Idiom, a design /innovation consultancy in India, successfully launched 80 companies out of 100 attempts over the past six years, increasing their success rate from 10 percent to 80 percent (Nussbaum, 2012). Through consideration of what aspects of the design approach have been successful for these companies, the following chapter will express how these aspects are taught in design education, how they can be used in business planning, and how designers can utilize their education and skills in the business world.

Chapter 4: Analysis

In the first two sections of this chapter there will be discussion of a leading design management curriculum and examination of design management with the details of project planning, and discussion of the leading business curriculum and examination of business fundamentals along with the details of business planning. Each section will discuss the required steps and information needed for thorough documentation. The third section will be an evaluation of the two and express how project planning and business planning relate with an exploration of how the Basics of Business can be incorporated into the education of an Industrial Designer with a plan of study and proposed curriculum for business in design education.

Section 1: Design Management and Detailed Project Plans

Design management is very significant in the education and profession of an Industrial Designer. A number of leading international educational institutions have established design management as a valued course of study and research. Institutions who have adopted these objectives range from Illinois Institute of Technology Institute of Design, Parsons School of Design, Pratt Institute, Suffolk University, and the University of Kansas, in the United States, to Brunel University, De Montfort University, Lancaster University, University of Salford, and the University of Manchester Institute for Science and Technology, in the United Kingdom to INHOLLAND University in the Netherlands, KAIST of South Korea, and Politecnico di Milano in Italy (DMI, 2014).

Bloomberg BusinessWeek recognized the Design Management program at Pratt Institute as one of the world's best design programs. It is a two-year program created to bridge the disciplines of design and business management. The curriculum is designed to develop strategic

management skills in six study areas related to design management: operations management; financial management; marketing management; organization and human resource management; management of innovation and change; and management of local, regional, and global suppliers, distributors, and markets. The courses provide participants with an integrated focus on the role of design in the creation and management of strategic and sustainable advantage. The program leads to an accredited academic degree, the Masters of Professional Studies in Design Management (Design, 2014).

Though Pratt Institute has a desirable and effective curriculum that develops skills such as leadership, teambuilding, strategy, finance, marketing, and operations for those looking to manage design firms or design teams, it like many of the schools listed in the first paragraph, only offer such courses to graduate students. If a design management course is offered to undergraduate students, it is listed as an extended program under another degree. What is needed is a course for basic business sophistication for undergraduates in design without overextending the requirements.

At the Auburn University (2014) College of Architecture Design and Construction, a Professional Practice course is offered in the Undergraduate Industrial Design Curriculum Model. This course touches on design management and provides the basic business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing. However, the Design Management course is only offered in the graduate program. Here, there will be investigation of what design management entails including detailed project planning and evaluation of how it can be expanded upon in the undergraduate program at Auburn University.

Design Management is a discipline that uses project management, design, strategy, and supply chain techniques to control a creative process, support a culture of creativity, and builds a structure and organization for design. The objective of design management is to develop and maintain an environment in which a group can achieve its strategic and mission goals through design, and by establishing and managing an efficient and effective system. Simply put, design management is the business side of design. It encompasses the ongoing processes, business decisions, and strategies that enable innovation and create effectively designed products, services, communications, environments, and brands that enhance our quality of life and provide organizational success (DMI, 2014).

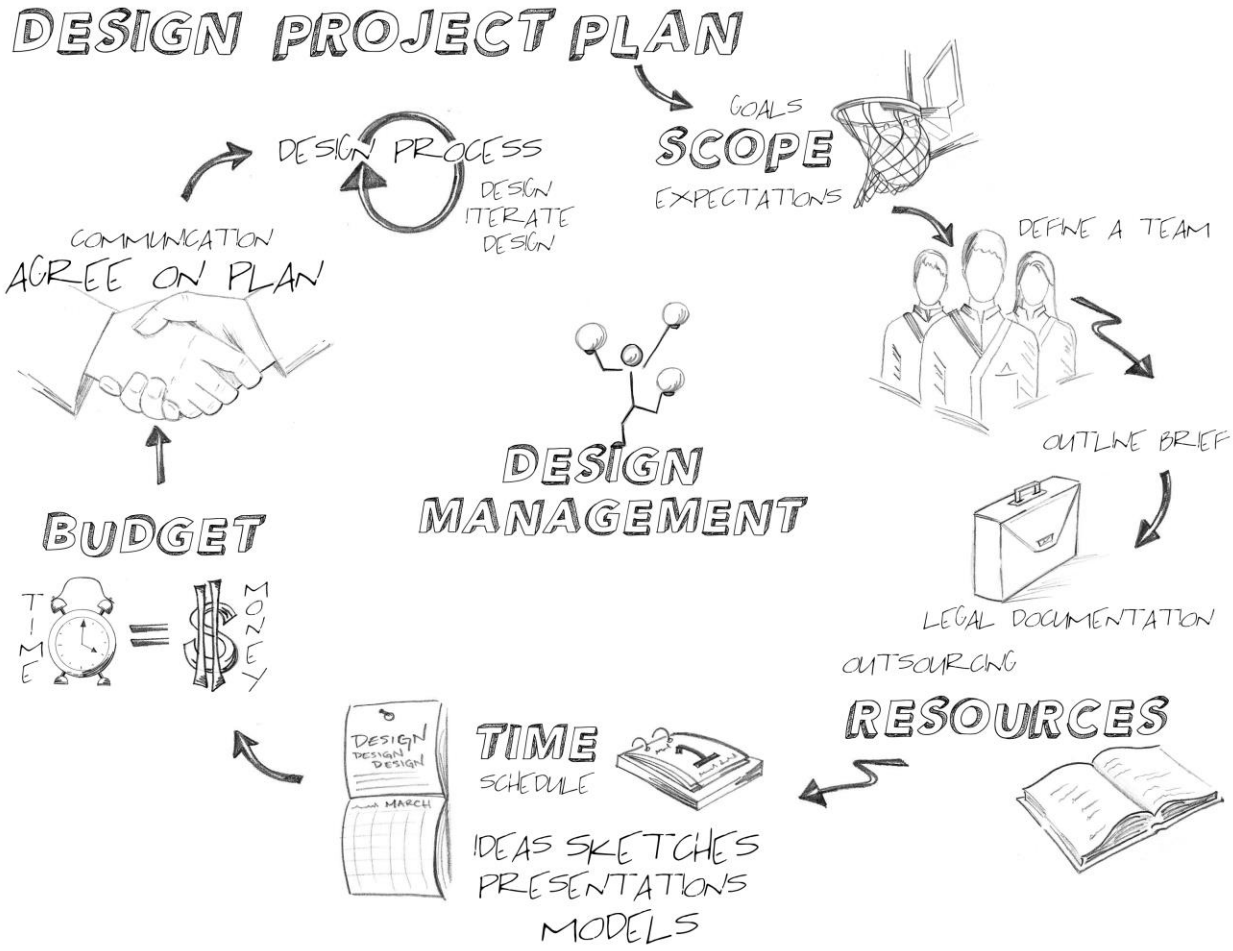


Illustration 10: Design Project Plan

Design Management requires detailed project planning. For a Design Manager to be successful, there are four basic elements of a project that must be well planned out and managed simultaneously: resources, time, money, and most importantly, scope. All these elements are interconnected. Each must be managed effectively. All must be managed together if the project, and the project manager, is to be a success. Most literature on project management speaks of the need to manage and balance three elements: people, time, and money. However, the fourth element, scope, is the most important and it is the first and last task for a successful project manager (Reh, 2009).

The project scope is the definition of what the project is supposed to accomplish and the budget of time and money that is required to achieve these objectives. First, design management teams establish and agree the aims of the project, large or small. Aims must be defined and agreed with the executive budget-holder and if appropriate with all other stakeholders. Then team members determine the level of innovation required: basic or high innovation, or something in between. This depends on aims and required outcomes. Following that, an outline brief or specification must be written, a detailed brief comes later and should ensure that interested and affected people are aware of project requirements and are in agreement (Chapman, 2006).

It is absolutely imperative that any changes to the scope of the project have a matching change in budget, time or resources. Usually, scope changes occur in the form of "scope creep." Scope creep is the piling up of small changes that alone are manageable, but in collection are significant. Thus the team members must make sure any requested change, no matter how small, is accompanied by approval for a change in budget or schedule. Time and money cannot be effectively managed in a project unless there is active management of the project scope. When

the project scope is clearly identified and associated with the timeline and budget, management of the project resources can begin.

Resources include the people, equipment, and material needed to complete the project (Reh, 2009). Define a team or supplier specification, for example, if not with the company, what sort of team agency will be best for this job. There must also be a clear idea of the qualities, scale, and style of the agency and/or creative people that will be suitable for the project. Then the team must be selected and well defined responsibilities as appropriate must be agreed on. The strengths, styles, and preferences of different team members must be considered. Some creative people are passive or introverts and need to be given guidance and management; others are proactive and/or extraverts, and will be happy to instigate and use their initiative. Expectations must be clear and commitment of the team members must be sought.

What tools and information systems that will be utilized must be considered and chosen. For small projects there is no need to change mind about this, but for large projects there needs to be assurance that the chosen tools and systems interface with those of the selected team, so for larger projects the options should be kept open; the designers might have better suggestions, and will certainly want to use their own systems for managing the creative activities and progress at their end. For large projects, use of proper legal documentation and processes must be guaranteed and in place, for example, non-disclosure agreements, clear contracts about the use of ideas, intellectual property and copyright ownership. Areas of doubt and potential misunderstanding must be clarified. Creative agencies commonly view things differently than commercial business managers. Misunderstandings develop easily; therefore, all of these issues must be out in the open and guaranteed that they are fully understood and approved on all sides (Chapman, 2006).

When the resources are all in place, the schedule can then be put into order. The Design Manager must be aware of the different stages of the design process. There will be presentations, ideas, models, art-work, and so forth; everything applicable for the project. For certain design projects, for example, the design of new products, there will be a presentation of generated ideas, drawings, mock-ups, models and various stages of prototypes. For design projects that involve a production phase, as many will do, the design process should interface with aspects of production and implementation. Ensure that the connections between design and production enable a seamless transition from one to the other. This transition varies greatly depending on the type of design project and must involve the needs of all departments, divisions, and organizations that have an interest in the production of the design. The more the agency understands about the production issues, the better able it is to incorporate those requirements and factors into the design plans.

Communication and agreement of the plans to all involved is vital. At this stage, assuming there is appropriate sign-off of the plans, the project is ready to start, and is now into the implementation stage. Clarify and agree the preferred management style and management methods with all other people on the project, so that everyone knows what's expected. This should embrace communications, updates, approvals, break points, amendments, and where possible, anticipate anything that might arise to affect the project. Aim to prevent surprises on either side; transparency and clear open positive communications on both sides are essential. The aim is to manage the team so that they feel good about what they are doing, they know clearly what the 'rules of engagement' are, and they get feedback and regular updates about progress and expectations. Communication, measurement, encouragement and maintaining some

flexibility to accommodate slippage and new opportunities along the way, are vital aspects of managing successful creative projects.

With all of these things in mind and order, a budget must be determined. Decide timescales and chief deliverables required. According to scope, resources, and time, decide what type of budget would make this project the most beneficial. Now is when development of a detailed project plan is necessary and must be agreed upon with the design team. The plan includes the tools you will use for managing and communicating, especially for budgets and approvals. During this process there may be a change in scope, so there must be a connecting change within the budget (Chapman, 2006).

According to the Standish Reports, projects slipped behind in time, went overboard on budget, or were unable to deliver the full functionality, due to the following reasons: One, the user inputs were inadequate. Passive users got the chance to comment only after the project was handed over to them, already finished. Two, project specifications were incomplete. There seemed to be an inordinate rush to jump from requirements analysis to design stage. Three, specifications kept on changing over the period of the project execution. Planning was a casualty. The project's scope had become outdated due to change in business environment. Four, the project manager kept incorporating the changed specifications into the system, in order to appease stakeholders. Five, executive management showed little or no interest in putting out any fires that flared up during the time the project was underway (Database, 2009).

Managers must evoke the principles of planning, communication; control and working towards clear agreed aims and accountabilities will help in managing the design process, and will keep disasters from happening. These principles are relevant to a lesser or greater extent when working with creative people and providers of all sorts, from design and advertising agencies,

product designers, branding and image consultants, to creative people providing design services (Chapman, 2006). According to the Design Database, the key reasons of why many projects succeed are good planning, clear responsibility and accountability, and schedule control. There will be higher the chances of success with more forward, future-oriented and detailed planning. All team members must have a clear understanding of their roles and duties and project managers must be constantly on their toes, recording time elapsed, milestones reached, change in people and task allotments (Database, 2009).

With a clear understanding of what Design Management involves, we see that detailed project planning, schedule control, and communication are key to success. Auburn University's INDD 3210, six credit hour, Product Design course utilizes design methodology from proposal to working pre-prototype, including planning, research, development, model making, manufacturing and documentation. INDD 4210, six credit hour, Industrial Design Thesis offers product design projects involving all design phases, including planning, research, development, finalization, specification, and documentation. These courses offer product design under successful current business sponsors which offer actual experiences working with business and team projects, requiring project planning, time management, and clear communication among team members. By emphasizing design management and adding required detailed documentation, there will follow a more clear understanding of design management from an educational and professional standpoint.

Section 2: Fundamentals of Business and Detailed Business Planning

Based on detailed analysis, conducted by authors of *Rethinking the MBA*, of the 2006-2007 curricula of eleven leading MBA programs, Carnegie Mellon (Temper), Chicago (Booth), Dartmouth (Tuck), Harvard, INSEAD, MIT (Sloan), NYU (Stern), Northwestern (Kellogg), Stanford, Wharton, and Yale, in the core curriculum, the schools offered the same basic mix of requirements. Most core courses focused on "the basics" and feature the same well-accepted concepts, frameworks, tools, and techniques. At most of the schools, students are required to take the same eight courses: financial accounting, finance with a capital markets emphasis, microeconomics, strategy, organizational behavior or leadership, operations, marketing, and decision sciences or statistics. With the exception of Harvard not requiring microeconomics or decision sciences and MIT not requiring strategy or operations, by and large the schools have the same foundational requirements. All eleven schools require students to take courses in leadership and organizational behavior and in many of the programs multiple courses are involved. Overall, the picture that emerged from the analysis of the schools' course offerings is one of considerable commonality in key topics (Datar, 2010).

According to Steve Wyrostek, a successful entrepreneur, with an MBA in Management, three of the most important building blocks of a long-lasting career in business are Finance, Marketing, and Management. These three key topics encompass all eight of the courses required by the eleven leading MBA programs. As an author, writer, and consultant for businesses all over the world, Wyrostek (2014) states that, "Success in business depends on a variety of factors. Even the most brilliant business ideas can flounder without the right support behind them. This support is built on the fundamentals of business." When considering these building blocks of business and the skills or knowledge that are required, though these are essential for business

sophistication, the most vital factor in actually starting and running a business is the business plan (Beesley, 2012). With writing a business plan, one brings all the key fundamentals of business into view for clear understanding and focus.

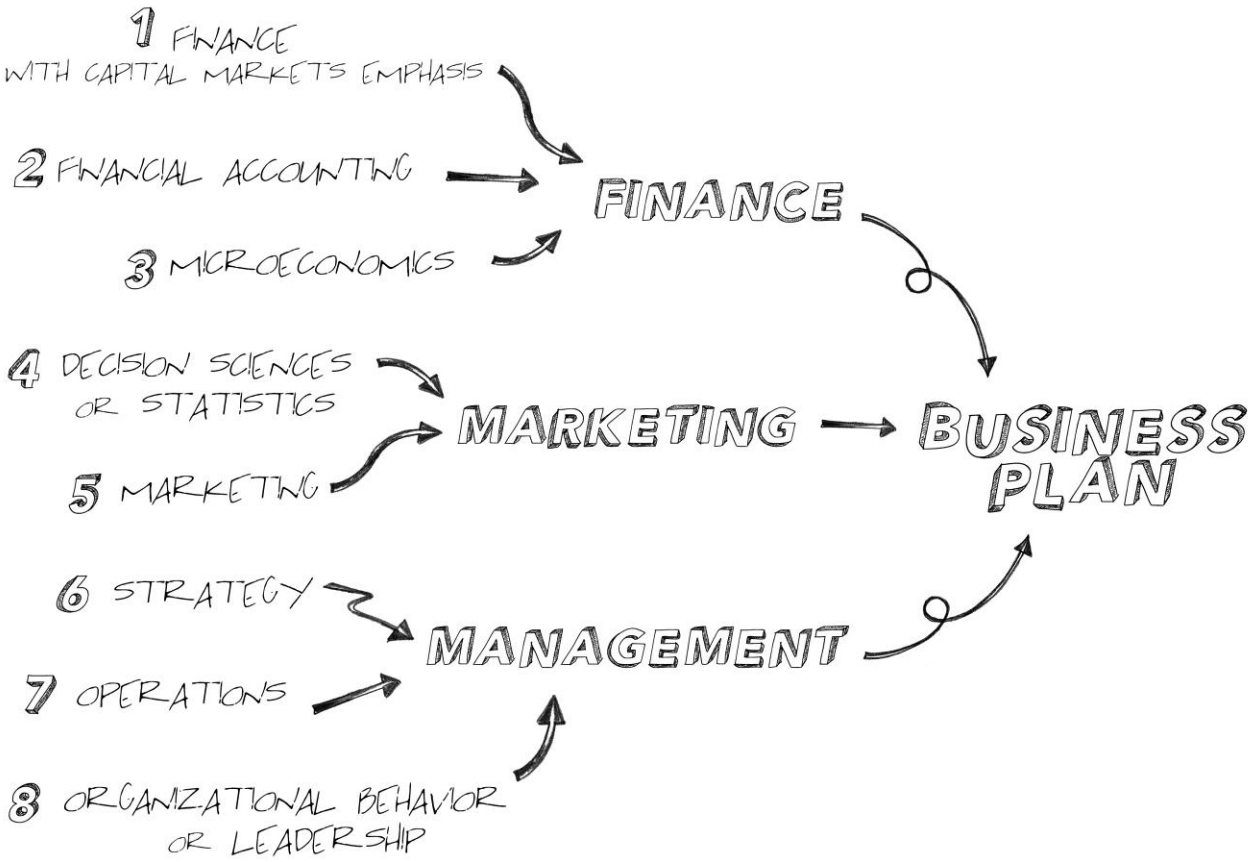


Illustration 11: Fundamentals of Business.

Starting a new business requires detailed business planning just as running a business often requires that one becomes a jack-of-all-trades. It is therefore important to know early if one has the skills required to be successful. Many factors that are essential to business success depend upon the plan, such as outside funding, credit from suppliers, management of the operation and finances, promotion and marketing of the business, products and services that will

be provided, what it will cost to produce such products and how much revenue is expected in the coming months and years to achieve goals and objectives. The goals of a business plan are to describe the fundamentals of the business idea and to provide financial calculations to show what it will take to generate an acceptable profit. Having goals of the business written down enables reference to them at any time, which will help ensure that sight of the original focus will not be lost once the business is started (Beesley, 2012).

Many companies do not make it past the first year because they fail to plan. Developing a solid business plan cannot be overemphasized. The Small Business Administration estimates that 50% of business start-ups do not last five years. According to a study by the New York Times, some of the top reasons for failure relate to inadequate up-front planning. Putting together a business plan can considerably increase the chances of success, even if there is only one person who will ever see it. It forces objective thinking about the business and can aid in the understanding of many key business elements. It will present a more realistic idea about the necessary items to get started and what resources are needed to expand, as well as the requirements and time it will take to make a profit. It should also illustrate what information potential customers, vendors, and investors will need to know in order to market the business effectively (Halpenny, 2011).

Writing a plan serves as a map for the endeavor, bringing all the key elements of the business into one document and putting into perspective where the business is intended to go and how it will get there. Though most business plans have comparable structures and include similar information, a new business plan will be set apart from the others by the characteristics that are unique to the business. The process of putting a business plan into writing can even spark creativity and bring forth new business strategies that may not have been considered beforehand

and will also allow for alterations to be made in order to maximize the business potential (Beesley, 2012).

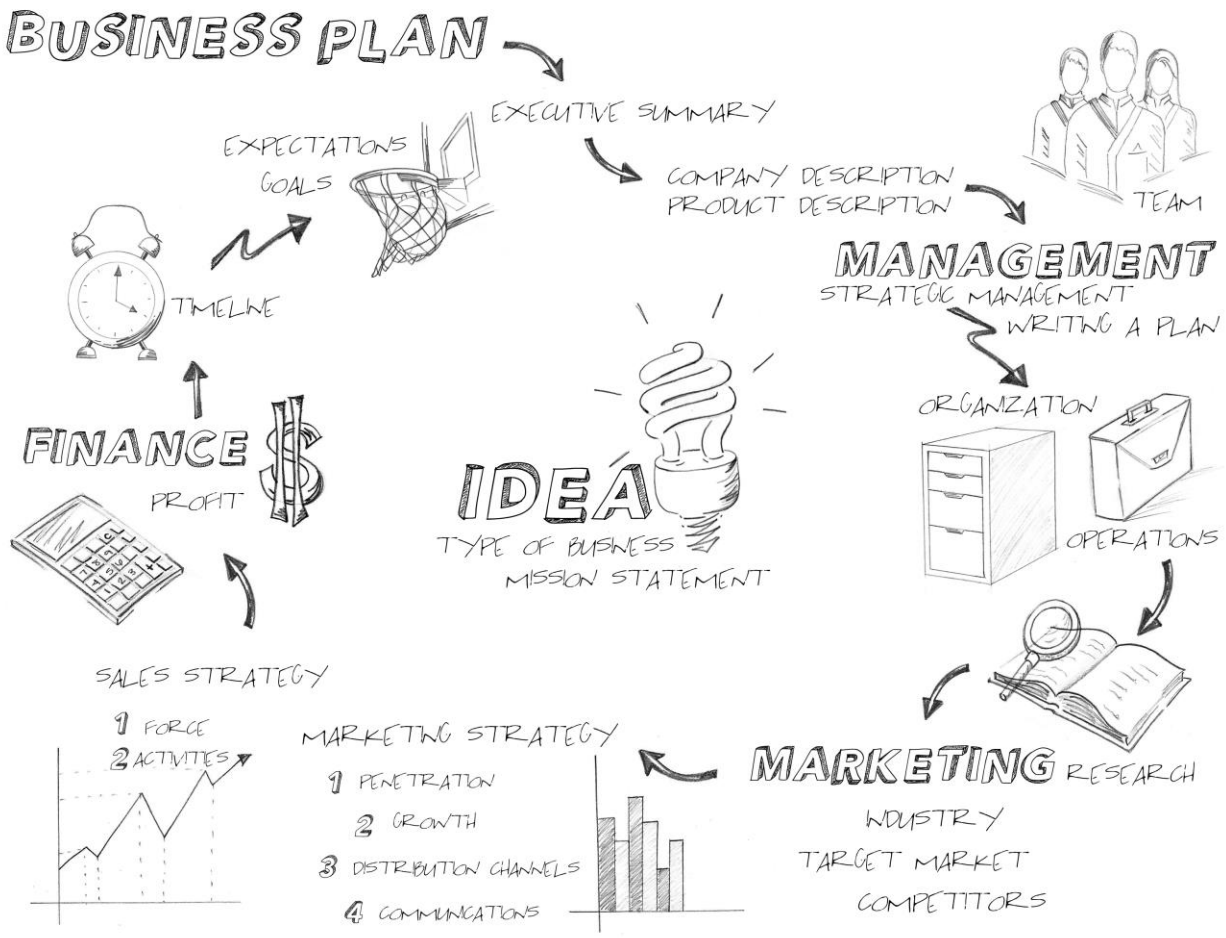


Illustration 12: Business Plan.

Though illustrated in the order it should be displayed in a formal business plan, it should be pursued in a different way. The first step in putting together a business plan is evaluation of goals and expectations for not only the business but the individual. The same process would certainly apply to someone starting a design business. While a designer's perspective will be unique, he or she should evaluate the decision to pursue being their own boss, whether the goals

are for independence, personal fulfillment, a lifestyle change, or simply more money. Even if the reason is not financially driven, the business should have a solid chance at profitability. Starting a venture that takes advantage of a designer's skills and strengths will help with financial success, as one who has a passion in what they design and provide for customers will be very recognizable to the customers through the design. It should always be remembered that the potential customer would exchange their money only for the conviction that they are getting their money's worth.

Once the overall goals are established the type of business must be determined. Before the decision is made there are many opportunities that need to be explored, from home-based and online businesses to franchises and high growth businesses, from sole proprietorship, partnership, or a limited liability company. This will depend on what types of products and services that are being provided by the business. A new business must establish what products and or services will be provided, the products lifecycle and how it is desirable and beneficial to the potential customer.

This section of the business plan should include a description of the product or service, information about the specific benefits from the customers' perspective, and its ability to meet their needs. It should also display any advantages the product has over that of the competition and the current development stage of the product. The entrepreneur should include where the product or service is in its life cycle, as well as any factors that may influence its cycle in the future. If there is any existing, pending, or any anticipated copyright or patent filings, they should be listed here. Also disclose whether any key aspects of a product may be classified as trade secrets. Last, any information pertaining to existing legal agreements, such as nondisclosure or non-competitive agreements, must be disclosed and included. Any research and

development activities that you are involved in or are planning should be outlined as well as the results that are expected (Beesley, 2012).

Write a company description that would provide information on what the company will do, how it will be distinguished from other businesses and what markets the businesses will serve. This portion of the plan provides a high-level review of the different elements of the business. This is similar to an extended elevator pitch and can help readers and potential investors quickly understand the goal of the business and its unique proposition. Describe the nature of the business and list the marketplace needs that are being attempted to satisfy. Explain how the products and services meet these needs. List the specific consumers, organizations or businesses that the company will serve. Explain the competitive advantages that are believed to make the business a success such as location, expert personnel, efficient operations, or ability to bring value to the customers.

Then write an executive summary, which will provide a quick glimpse of the business plan as a whole and touches on the company profile and goals. This section is often considered the most important of a business plan. It briefly tells the reader where the company is, the desired destination, and why the business idea will be successful. If seeking financial support, the executive summary is the first opportunity to grab a potential investor's interest. It should highlight the strengths of the overall plan and therefore be the last section written although usually appears first in the business plan document.

Be sure to include a mission statement that explains what the business is all about, a short statement that covers company information such as when the business was or will be formed, the names of the founders and their roles, the number of employees, and the business location. Briefly describe the products or services that will be provided, and if seeking financing, include

any information about the current bank and investors. With the exception of the mission statement, all of the information in the executive summary should be covered in a concise fashion and should be kept to one page. The executive summary is the first part of the business plan many people will see, so each word should count.

The business plan will also incorporate the three important building blocks of business as identified previously by Wyrostek, starting with management. Strategic management is significant and has much to do with actually writing a business plan. Creating a strategic blueprint for the business and making sure to keep to it is key. Most thriving businesses do not happen by accident. Forethought and planning go into every aspect.

Every business is structured differently. As a new owner, the best organization and management structure for the business must be learned. This section of the business plan should include the company's organizational structure, details about the ownership of the company, profiles of the management team, and qualifications of the board of directors: essentially who does what within the business, what their credentials are, and why they have been brought into the company as board members or employees, as well as how they will be kept there, incentives, salaries, and possible promotions. These may seem like unnecessary details for a one or two person organization, but the people reading the business plan want to know who is in charge. It is therefore essential to give them a detailed description of each division or department and its function. Also, an organizational chart with a narrative description must be created. This will prove that nothing is left to chance, showing that exactly who is doing what has been thoroughly thought out, and there is someone in charge of every function of the company. Nothing will fall through the cracks, and nothing will be done three or four times over. To a potential investor or employee, that is very important (Beesley, 2012).

Management is essentially the art of delegating. It encompasses many areas of the business. Almost everyone thinks they can do it, but good managers possess finesse in key areas. They know how to create achievable target goals and how to motivate the staff. In addition, there is fair evaluation of employee performances and pinpointing of areas for improvement (Wyrostek, 2014). There is skill and knowledge in managing people and executing good communication.

Operations Management organizes the selection and involvement of suppliers. Here, one must be prepared to get creative. Sometimes the most efficient and cost-effective plan is not the most obvious. For example, there may not be a need for hiring traditional employees, and instead, outsourcing some of the work to other companies or freelancers will be preferable. According to a survey published by the Human Capital Institute, 90 percent of US companies outsource at least part of their work (Wyrostek, 2014).

Before launching a new business, it is crucial to research the business industry, market and competitors through market analysis. Though it is very important to have desire and confidence in their products and/or services, designers must not forget the precept that for their business to be successful there must be a demand for their product. A common problem that occurs for many individuals starting a business is that they fall so much in love with their idea, they become convinced that it “can’t fail,” and they skip the feasibility analysis stage. For a designer, utilizing their ability and education in asking “why” and finding the right questions to ask is very important and will better inform them of the potential demand for the product, who the consumer will be, and what the market conditions will be like, thereby having a much greater chance at the business being appealing and successful (Strauss, 2004).

The market analysis section of a business plan should illustrate the industry and market

knowledge as well as research findings and conclusions. Here the industry, which is being entered, must be described including its current size and historic growth rate as well as other trends and characteristics such as life cycle stage and projected growth rate. Next, the major customer groups within the industry should be listed.

The target market must also be narrowed to a manageable size. Many businesses make the mistake of trying to appeal to too many target markets. There needs to be research of the critical needs of potential customers and if those needs will be met, the demographics of the group, their location, and any seasonal or cyclical purchasing trends that may impact the business. The intended pricing structure, gross margin levels, and any discounts that are planned for use must be defined.

In addition to the size of the target market, any data about the annual purchases the market makes in the industry and the forecasted market growth should be included. Attempt to calculate and explain the market share percentage and number of customers that are expected in a defined geographic area. When including information about any of the market tests or research studies completed, be sure to focus only on the results of these tests. Any other details should be included in the appendix.

A competitive analysis is essential to identify the competition by product line or service and market segment. Characteristics of the competitive landscape such as market share, strengths and weaknesses, the importance of the target market to the competitors, possible barriers that may hinder entrance to the market, the window of opportunity to enter the market, and any indirect competitors who may influence success should be assessed.

Any customer or governmental regulatory requirements that could affect the business should be included as well as methods of conforming. Also, it is important to mention any operational or cost impact the compliance process may have on the business (Beesley, 2012).

Every business must have a solid marketing plan and sales strategy. Once the market analysis is completed, the next step in the business plan should focus on the marketing and sales management strategy for the business. The emphasis on marketing is only increasing in this ever-more linked-in world. Marketing is the process of creating customers, and customers are the lifeblood of any business. The idea behind marketing is simple enough: find and retain consumers for the product or service provided. Completing a sale and looking after the customers is important (Wyrostek, 2014). There is no single way to approach a marketing strategy; it should be part of an ongoing business-evaluation process and unique to the company. However, there are common steps that can be followed which will help in thinking through the direction and tactics used to drive sales and sustain customer loyalty (Beesley, 2012). Knowing how to reach the target market is crucial. In fact, finding new ways to broadcast the company's message can mean the difference between a winning and losing business (Wyrostek, 2014).

Today's top marketers are not just keyed in to the traditional channels of reaching consumers. Instead, they are interacting with customers regularly via social media, finding new ways to get their product or service out to the public, and uncovering innovative methods of creating a brand strategy and delivery for their brand message (Wyrostek, 2014).

An overall marketing strategy should include four different strategies: a market penetration strategy, a growth strategy, channels of distribution strategy, and a communication strategy. After development of a comprehensive marketing strategy, the sales strategy must be defined. The overall sales strategy should include two primary elements: one, a sales force

strategy with internal or independent representatives, including mention of how they will be trained and compensated, and two, sales activities.

When defining the sales strategy, it is important to break it down into activities. For instance, there must be identification of the prospects and arrangement of the contacts for selection of the leads with the highest potential to buy first. Next, the number of sales calls over a certain period of time should be recorded to determine the average number of calls needed per sale, the average dollar size per sale, and the average dollar size per vendor (Beesley, 2012).

The financial projections section should be developed after the market has been analyzed and clear objectives have been set. That is when resources can be allocated efficiently. If funding is needed for a new business, it is critical to provide financial projections to back up the request (Beesley, 2012).

The importance of finance should never be underestimated. After all, success or failure of most ventures is determined objectively by profit. It is not surprising then, that whether working in a corporation, managing a small business or being an entrepreneur, there must be an understanding of how finance works (Wyrostek, 2014). It is basic accounting, familiarity with which records to keep, how to keep them, how to file them, where to find financing, and how to manage it once it has been obtained. For example, an owner of a hair salon in the Chicago area could not understand why she was not making any money. A quick look at her books indicated that she was spending $20,000 per month and taking in only $10,000. The main question in business is, "How will I make money?" The answer lies in finance. Learning how to calculate fixed and variable costs, project revenue, develop a profit margin and budget effectively will lead to success (Wyrostek, 2014).

Financial statements are essential to include in a business plan packet. If purchasing an established business, there will be a request to supply historical data related to the company's performance. Most creditors request data for the last three to five years, depending on the length of time the business has been operating. The historical financial data to include are income statements, balance sheets, and cash flow statements for each year. Often, creditors are also interested in any collateral that could be used to ensure a loan, regardless of the stage of the business.

All businesses whether startup or growing, will be required to supply prospective financial data. Most of the time, creditors will want to see what is expected of the company within the next five years. Each year's documents should include forecasted income statements, balance sheets, cash flow statements, and capital expenditure budgets. For the first year, one should supply monthly or quarterly projections. After that, it is recommended to stretch it to quarterly or yearly projections for years two through five.

Projections should unquestionably match the funding requests; creditors will be on the lookout for inconsistencies. It is much better to catch mistakes before they do. If assumptions have been made in the projections, it is important to summarize them. This way, the reader will not be left guessing. Finally, a short analysis of the financial information should be incorporated. A ratio and trend analysis needs to be integrated for all financial statements. Since pictures speak louder than words, adding graphs of the trend analysis would be beneficial especially if they are positive (Beesley, 2012).

Last but not least, it would be wise to lay out a timeline and establish dates to meet the individual expectations as well as business goals listed. Goals must be set in order to meet them.

By formally writing those out, they will be easy to review and if they are not met by a certain time then one will know something needs to change in order to keep on a successful path.

With the comprehensive break down of writing a business plan and considering the importance it carries with keeping the three key fundamentals for business success, it is determined that for basic business sophistication and clear understanding of what a business involves, the inclusion of writing a business plan as part of course requirements would be vital.

Section 3: A Proposed Course for Change

Traditionally, the Design discipline has been applied to the design of things, such as buildings, clothes, and consumer products, perhaps for over a thousand years. Over the last several decades, the field of Design has matured as a formal academic discipline taught in many of the leading academic institutions (for about 100 years at Otis). Design management, as a part of design discipline, was also seen as limited to the management of design projects, but has evolved as well, to include other aspects of an organization at the functional and strategic level. This is shown in section one, with the balanced detail associated with project planning within today's design management education (Choi, 2011).

Design management is a comprehensive activity at all levels of business from operational to strategic, and discovery to execution. It seeks to link design, innovation, technology, management and customers to provide competitive advantage across economic, social, and environmental factors. It is the art and science of empowering design to enhance collaboration

and synergy between "design" and "business" to improve design effectiveness (DMI, 2014).

Industrial Design students at Auburn University (2014) are taught in a collaborative atmosphere, designing for clients, business sponsors, and team members. This provides the students with guidance in the corporate business place and working with professionals, but without knowledge of how the business itself truly operates. The professional practice course gives students a feel for how to succeed with projects and dealing with clients, which is a passable base for learning how to manage a business, and handling customers, but there is a need for incorporating more training from the business perspective.

In the six credit hour product design studio courses at Auburn, there are instances where the option of an open project arises that provides the chance for a student to design anything desired. In this case, the time can be utilized in explaining the potential of having such an opportunity to design a product that could expand into a business. Using this circumstance to incorporate writing a business plan and educating the students about business while designing products for that business, or giving them the opportunity to design a business, would be beneficial in enhancing their knowledge of the subject.

Only a few design schools actually teach designers about business and how to be an entrepreneur. Steven Heller's (2002) book, *The Education of a Design Entrepreneur*, encourages students to apply their formal training and aesthetic instincts towards self-generated products, and promotes the development of academic standards so that entrepreneurialism is a component of the curriculum on the undergraduate and graduate levels. This does not mean that every design student is meant to be an entrepreneur, but it means that the option is available for those who have the capabilities and offers knowledge for those who prefer to start their own or navigate existing businesses. This book proves that design entrepreneurialism is a feasible activity

through the editor's interviews with many designers who have transformed themselves from full-time designers into full-time cottage industries and beyond.

At the University of Minnesota (2014), a course has been developed called "New Product Design and Business Development." This is a Graduate level course, which brings together teams of students, faculty, and company representatives to work together over two semesters to develop a working prototype and a business plan for the sponsoring company. This is a distinguished example for building a new course, which incorporates design and business.

	UNIVERSITY OF MINNESOTA EXISTING COURSE	AUBURN UNIVERSITY COURSE FOR CHANGE
COURSE	NEW PRODUCT DESIGN & BUSINESS DEVELOPMENT ME 8221-8222, BMEN 8481-8482, ENTR 6841-6842	PRODUCT DESIGN & INDUSTRIAL DESIGN THESIS IDD 3210, IDD 4110, IDD 4210
LEVEL	GRADUATE ONLY	UNDERGRADUATE
COLLABORATION	COLLEGE OF DESIGN · CARLSON SCHOOL OF MANAGEMENT · COLLEGE OF Science & Engineering SPONSORING COMPANIES	id industrial design · COLLEGE OF ARCHITECTURE, DESIGN AND CONSTRUCTION SPONSORING COMPANIES
TIME FRAME	2 SEMESTERS - 3 CREDIT HOUR BOTH REQUIRED	1 SEMESTER - 6 CREDIT HOUR
OBJECTIVES	ABILITY TO WORK IN TEAMS DEFINE & ACHIEVE BUSINESS GOALS UNDERSTANDING OF PRODUCT DEVELOPMENT DIFFERENCE BTW PLAN AND REALITY	ABILITY TO WORK IN TEAMS PROBLEM SOLVING TOOLS & METHODS UNDERSTANDING OF PRODUCT DEVELOPMENT IMPORTANCE OF PROJECT PLANNING
DELIVERABLES	THOROUGH DOCUMENTATION PROJECT MANAGEMENT PLAN & BUSINESS PLAN RESEARCH, ANALYSIS & DEVELOPMENT PRODUCT PROTOTYPES PROJECT WEBSITE	PROJECT PLAN (FLOW CHART) TESTING, ANALYSIS & DEVELOPMENT FINAL TECHNICAL DRAWINGS PRODUCT PROTOTYPES PACKAGING & GRAPHICS

Illustration 13: Course Comparison

By analyzing this course layout, it was determined that there are countless benefits in such a course for students. This course provides the students experience in business and teaches them the requirements and basic sophistication necessary in starting a new and successful business. Though this is an exceptional course plan for students in teaching them about both design and business, it is highlighted, "this is a two semester course and students cannot enroll for one semester only." The goal of this research document is to bring business education into an existing one-semester, six credit hour course in the Industrial Design program at Auburn University. The INDD 4210 course which includes product design projects involving all the design phases (shown in illustration 6) including project planning (shown in illustration 10).The benefits of this is to utilize the INDD 4210 sponsored or open product design studio course layout of Industrial Design for one semester, highlight and emphasize aspects of design management and business already in the course, and make any necessary changes to incorporate the writing of a detailed business plan. By doing so, this new course will successfully enhance the comprehension of business and add to the assurance of students graduating and moving on to the corporate world, without overextending the requirements of the curriculum or requiring extra courses outside of the major of study. Creating such a course can open the eyes of students to more opportunities than previously possible. Design is a wide field, which is shown in the success of design thinking in business, and is used for many projects aside from the products and services initially taught. Such changes in one course could even give a positive entrepreneurial mindset needed for new graduates to start and successfully run their own business. Offering this as an undergraduate course for basic business education can be very beneficial for students in the fourth year preparing to enter into the business world. An extension of the course can be offered in the Graduate program for those who want to expand their education.

An interview conducted by Steven Heller (2002), Ellen Shapiro, current board member and communications chair, AIGA/Metro-North, and faculty in communication design and typography at Pratt Institute, Parsons School of Design, School of Visual Arts, Purchase College, SUNY, discusses how to teach students about entrepreneurialism. She encouraged the M.F.A. Design students at New York's school of Visual Arts to develop their own prototype products and create business plans with which to sell them (Heller, 2002).

According to Shapiro, "Each project starts about the same way: The student makes an oral presentation to the class, then week by week the student works through the process of refining the product, defining the market, determining how to reach buyers – and putting all this into a document that will clearly communicate to a potential investor or partner what the product will do, why it is a good idea, and how it can be profitable. This kind of teaching takes a lot of one-on-one consultation" (Heller, 2002)

The one-on-one consultation mentioned by Shapiro is one of the reasons an Industrial Design, six credit hour, product design studio course was chosen. The hours required for this course provides the time needed for professors to provide the one-on-one interaction needed for success. When comparing the schedules of the existing two-semester course used at the University of Minnesota, to that of a one-semester design studio, the overall time spent in the classroom or studio is the same and would be an appropriate base in forming a new single semester business and design studio without cutting any important criteria.

Chapter 5: Sample Course Itinerary

The next few pages are formatted to display a sample syllabus with a calendar and detailed learning schedule for the proposed course of study. The syllabus is designed to be a complete teaching module for instructor and includes all that is needed to understand the course including a day-by-day schedule and a list of deliverables for each day.

INDD 4210 Business for Design Thinkers
Course Syllabus

Course Summary
This course is designed to teach both graduate and undergraduate design students the principles of product and business development. The syllabus is designed to be a complete teaching module for instructors and includes the following materials:

- Course Description
- Course Objectives
- Teaching Objectives
- Learning Outcomes
- Recommended Books
- Deliverables

This course has been structured for a 15-week semester, as a team or individual project that encapsulates and stimulates learning through experience and prototyping, encompassing both business planning and product design.

Course Description
"Business for Design Thinkers" is a contemporary approach to design that recognizes the possibilities of business start-up using the product design process. By allowing an open studio, and teaching basic business sophistication, the impact and possibilities the student can create is brought into vision for the student and encouraged for the betterment of society, allowing each student to see his or her own true potential and teaching them how to use it.

These goals represent the opportunity for better performance and more desire-driven designs. We are allowing students to design for their own desires as well as for society. This course orients students to the full spectrum of product design and business design. It introduces tools for students to better understand the context of their challenges and create more opportunities for their future.

Design Processes and Techniques as well as Business Processes and Techniques will be studied in readings and presentations. They will also be put into practice through projects included in the course. Students will be required to present articulate product and business concepts verbally as well as visually at a high professional level finish, including but not limited to drawings, sketch models, finish models marketing materials, business strategies, and documentation. Design has a long history of sustainability and social justice, and any design project should reflect these requirements and regulations regardless of the type of product.

"If a designer wants to make a genuine impact on the world they would do well to learn business traits and start new businesses to create better products, better services, as well as additional jobs. They would also do well to simply learn how to navigate big companies and figure out how to articulate their value to the people who run them." – Helen Walters

Course Objectives, Core Competencies, and Learning Outcomes:

Along with the course project, students will explore through readings and discussion, guest lectures, and assignments the processes and strategies for creating a business model.

Teaching Objectives:

- To instill the primary concepts and theories underlying the creative process in products and services, and to deliver practical, effective tools for applying design concepts and theories to the development of products and services.
- To integrate and reinforce the core competencies, intuitions, and general trend observations students already have into sound design concepts and business ideas.
- To teach a flexible but reliable process of inquiry that enables students to engage in continual learning and adjustment in the face of changing business environments.
- To support and implement creativity and innovation in an effective team context and build the confidence to present ideas professionally.
- To deepen the understanding about experiences and application of what is learned into design, business, and entrepreneurial activity
- To demonstrate the ability to effectively communicate through oral and written media, as demonstrated by design work, presentations, and documentation.
- To produce a project that demonstrates knowledge, experience, and originality in a portfolio.

Learning Outcomes:

- Students will learn to analyze existing products and businesses from a variety of trend criteria and attain a beginning level of familiarity with the marketing, management, and financial structures that are pertinent to business practice.
- Students will conduct a systematic design process by using appropriate design methods in analyzing problems, developing concepts and ideas, and evaluation of assigned design projects.
- Students are required to demonstrate the capability of carrying out a design project from beginning to finish with final models, documentation with a detailed project report and a business plan.
- Students will expand their design process knowledge from product design to business design with documentation that reflects user analysis, marketing strategies, financial feasibility, manufacturing details, and leadership goals.
- Students will develop professional communication and management skills within the context of the class projects. All students will prepare presentations, reports, documentation, and other deliverables to cultivate confidence in their knowledge and abilities.
- Class projects will require innovative research skills to find and develop new solutions. These skills will apply to business startup and marketing strategies as well as design, materials, manufacturing, and product life cycle.
- The course is designed for both individual and team based projects. However, by creating team-based projects, extensive interaction in accommodating various personality differences and managing the range of creative confidences is required.
- Readings, projects, reports, and feedback focus on design and development processes as well as experience, entrepreneurial activity, and business process providing the students with multidisciplinary sophistication.
- Project solutions will be graded not only on their innovation, design, and prototype craftsmanship but also on their market and business validity as well as meaning to their intended customers and audiences.

Secondary Learning Outcomes:

- Improving on skills already acquired throughout the students design education, such as problem-solving, sketching, rendering, computer and sketch model building, prototyping, communication and presentation.

Recommended Textbooks and Readings:

Pressman, *Patent it Yourself*
– Excellent description of Patents, how to do a search and write a patent.

Crawford, *New Products Management*
– Popular Textbook on new product development. Describes the project innovation charter and the stage gate process.

Urban and Hauser, *Design and Marketing of New Products*
– Popular new products textbook. Good coverage of lead users and VOC.

Siegel, *The Ernst and Young Business Plan Guide*
– Basics of writing a business plan.

Holtzblatt, Wendell and Wood, *Rapid Contextual Design*
– Excellent guide for doing observation-based market research.

Deliverables:

The primary deliverables for the course are a working product prototype and a business plan. Other intermediate deliverables and presentations are also required. For specifics see the course schedule. All deliverables are relevant to the project development efforts and should help the decision-making as the project proceeds. It is up to the students to scope out all of the deliverables and to have a good management process in place to ensure all deliverables are complete by the due date. It is also expected that edited deliverables would be used as content for the mid-project and final project reports. Unless otherwise stated in the deliverables description, "completion" constitutes delivering one hard copy and one electronic version to the faculty by 8:00am on the due date.

Spring Semester Calendar 2014						
Sun	**Monday**	**Tue**	**Wednesday**	**Thu**	**Friday**	**Sat**
			1/1	1/2	1/3	1/4
1/5	1/6	1/7	1/8 Classes Begin	1/9	1/10 Class Introduction	1/11
1/12	1/13 Project 1 Briefing Product Development	1/14	1/15 Project 2 Briefing Business Planning	1/16	1/17 Work Day Preliminary Research	1/18
1/19	1/20 MLK Jr. Day	1/21	1/22 Work Day Preliminary Research	1/23	1/24 First Presentation 5 Concepts	1/25
1/26	1/27 Business Plan Outline Deadline	1/28	1/29 First Report Last Day to Withdraw	1/30	1/31 5 Sketches 2 Mock-ups	2/1
2/2	2/3 Work Day	2/4	2/5 Work Day	2/6	2/7 5 Sketches 2 Mock-ups	2/8
2/9	2/10 Market Research Deadline	2/11	2/12 Work Day	2/13	2/14 Second Presentation All Concepts	2/15
2/16	2/17 Company & Product Description Deadline	2/18	2/19 Second Report	2/20	2/21 5 Sketches 2 Mock-ups	2/22
2/23	2/24 Work Day	2/25	2/26 Refined Concepts	2/27	2/28 Third Presentation Final Pick	3/1
3/2	3/3 Financial Feasibility Deadline	3/4	3/5 Work Day	3/6 Mid.	3/7 Preliminary Control Drawings	3/8
3/9	3/10	3/11	3/12 SPRING BREAK	3/13	3/14	3/15
3/16	3/17 Work Day	3/18	3/19 Work Day	3/20	3/21 Fourth Presentation Test Model	3/22
3/23	3/24 TimeLine & Goals Deadline	3/25	3/26 Work Day	3/27	3/28 Engineering Drawings	3/29
3/30	3/31 Mission Statement & Executive Summary Deadline	4/1	4/2 Work Day	4/3	4/4 3 Poster Layout Concepts	4/5
4/6	4/7 Work Day	4/8	4/9 Work Day	4/10	4/11 Work Day	4/12
4/13	4/14 Final Business Plan Deadline	4/15	4/16 Work Day	4/17	4/18 Final Model, Poster. And Powerpoint	4/19
4/20	4/21 Final Presentation Final Presentation	4/22	4/23 Final Presentation Final Presentation	4/24	4/25 Final Report and CD Classes End	4/26
4/27	4/28 Final Exam Period	4/29	5/30	5/1	5/2	5/3

Detailed Schedule:

1/8 – Wednesday – **Classes Begin**

1/10 – Friday – **Class Introduction –** Schedule and Syllabus will be handed out and discussed as a class. Agreements will be signed if necessary.
Recommendations: NYCreative Interns "Start Something – Why Every Creative Needs to be an Entrepreneur" (Refer to Page 4-5 or Chapter 2 as a whole)

1/13 – Monday – **Project 1 Briefing –** Product Design and Development Project will be discussed in detail. All questions will be answered for full understanding of the project followed by brainstorming and discussion.

1/15 – Wednesday – **Project 2 Briefing – Business Planning**
Discussion: Business Start-up Project and why thorough documentation and writing of a Business Plan is important will be discussed in detail. (Refer to Chapter 4: Section 2, Page 42-45) Questions will be answered for full understanding of the project, followed by ideation and discussion.
Assignment: Business Plan Outline. Each student will be expected to put together an initial outline of their business plan with a brief statement in each section explaining what will be put in the section after research. For example, in the market section there should be a brief statement telling which market will be researched. This will serve as a template to be filled out as the course progresses.
Recommendations: Display Illustration 12 or print for handout (Refer to Page 45)

1/17 – Friday – **Work Day - Preliminary Research –** Students will be expected to research their ideas for the product design project in detail and document their findings for future reference.

1/22 – Wednesday – **Work Day - Preliminary Research –** Students will be expected to research business and business start-up in detail, document their findings and prepare for writing the initial business plan outline, which is the next assignment due.

1/24 – Friday – **First Presentation with 5 Concepts –** All students will be expected to present their findings and ideas for their new product design and supply at least 5 design concepts to discuss.

1/27 – Monday – **Initial Business Plan Outline Deadline**
Discussion: Market, Industry, and Competitor Research (Refer to Page 48) will be discussed in detail. Questions will be answered for full understanding of the assignment.
Assignment: Market, Industry, and Competitor Research. Each student will be expected to describe the industry being entered, list the major groups within the industry. Narrow the target market to a manageable size. Include the needs of the potential customers and if those needs will be met. Research the demographic and location. Define pricing structure, gross margin levels, and planned discounts. Identify the competition by product line, service, and market strengths and weaknesses.
Recommendations: SWOT Analysis.
Strengths: characteristics of the business or project that give it an advantage over others.
Weaknesses: characteristics that place the business or project at a disadvantage relative to others.
Opportunities: elements that the project could exploit to its advantage.
Threats: elements in the environment that could cause trouble for the business or project

1/29– Wednesday – **Last Day to Withdraw** - **First Report –** First section of documented research and design due.

1/31 – Friday – **5 Sketches and 2 Mock-up Models –** All students must supply 5 new design concepts as well as refined concepts from first presentation with 2 sketch model mock-ups to discuss with the class.

2/3 – Monday – **Work Day –** All students are required to be present.

2/5 – Wednesday – **Work Day –** All students are required to be present.

2/7 – Friday – **5 Sketches and 2 Mock-up Models –** All students must supply 5 new design concepts as well as refined concepts from the last two presentations with 2 new sketch model mock-ups to show your progress and discuss with the class.

2/10 – Monday – **Market Research Deadline**
Discussion: Strategic Management (Refer to Page 47), Company and Product Description (Refer to Page 45-46) will be discussed in detail. Questions will be answered for full understanding of the assignment.
Assignments: Management Organizational Chart which includes the companies organizational structure, details about ownership, profiles of the management team, qualifications and essentially who does what in the business. Create an organizational chart with a detailed description to prove everything has been thoroughly thought out and there is someone in charge of every function of the company.
Company and Product Description that will tell what the company will do, how it will be distinguished from others, what markets it is intended to serve. List the marketplace needs and how the products and/or services will meet the needs. Explain the competitive advantages that are believed to make the business a success including location, personnel, efficient operations, and the ability to bring value to the customers. Describe the essential characteristics of the product. Including materials, how and where it will be manufactured, the manufacturing costs, as well as the end user price.

2/12 – Wednesday – **Work Day –** All students are required to be present.

2/14 – Friday – **Second Presentation with All Concepts –** All students will be expected to present their ideas and concepts for their product design to show how they have progressed for discussion and refinement.

2/17 – Monday – **Organizational Chart, Company and Product Description Deadline**
Discussion: Business and Financial Feasibility (Refer to Page 51) will be discussed in detail. Questions will be answered for full understanding of the assignment.
Assignment: Business and Financial Feasibility. If documents cannot be acquired, each student will be required to make a list of what records to keep with a description of each. Students must calculate the fixed and variable costs, project revenue, develop a profit margin and budget effectively. They will be expected to include a short analysis of financial information and graphs.

2/19 – Wednesday – **Second Report –** Second section due.

2/21 – Friday – **5 Sketches and 2 Mock-up Models –** Refer back if questionable.

2/24 – Monday – **Work Day –** All students are required to be present.

2/26 – Wednesday – **Refined Concepts –** Final Concepts due.

2/28 – Friday – **Third Presentations with Final Pick –** All students will be expected to present their final concepts. Refined and Rendered for discussion and final choice for development.

3/3 – Monday – **Financial Feasibility Deadline**
Discussion: Timeline, Goals, and Business Expectations (Refer to Page 53-54) will be discussed in detail. Questions will be answered for full understanding of the assignment.
Assignment: Timeline, Goals, and Business Expectations. Each student will be expected to lay out a timeline with a list of all individual as well as business goals and expectations. Each goal should have deadline for future review to be sure if goals are being met.

3/5 – Wednesday – **Work Day –** All students are required to be present.

3/7 – Friday – **Preliminary Control Drawings –** After Final Decision is made on sketches it is required for each student to prepare the preliminary control drawings for a test model.

3/17 – Monday – **Work Day –** All students are required to be present.

3/19 – Wednesday – **Work Day –** All students are required to be present.

3/21 – Friday – **Fourth Presentation with Test Model –** All students will be expected to present their final concept with test model for discussion, refinement, and preparation for final model.

3/24 – Monday – **Timeline and Goals Deadline**
Discussion: Mission Statement and Executive Summary (Refer to Page 47) will be discussed in detail. Questions will be answered for full understanding of the assignment.
Assignment: Mission Statement and Executive Summary. This section will tell the reader where the company is, its desired destination, and why it will be successful. It should highlight the strengths of the overall plan and include a mission statement explaining what the business is all about, who the founders are and what their roles are in the business.

3/26 – Wednesday – **Work Day –** All students are required to be present.

3/28 – Friday – **Engineering Drawings –** After Discussion and refinement through test model and drawings, each student must prepare accurate engineering drawings for use in building the final prototype.

3/31 – Monday – **Mission Statement and Executive Summary Deadline**
Discussion: Finalizing and putting the Plan in order (Refer to Illustration on Page 45)
Assignment: First Draft. All students will be expected to turn in a draft of their business plan which consists of all the information gathered for previous presentations and assignments for final review.

4/2 – Wednesday – **Work Day –** All students are required to be present.

4/4 – Friday – **3 Poster Layout Concepts –** A Final poster must be designed to display project in the Hallway of Wallace. Each student is required to design three for discussion and final choice.

4/7 – Monday – **Work Day –** All students are required to be present.

4/9 – Wednesday – **Work Day –** All students are required to be present.

4/11 – Friday – **Work Day –** All students are required to be present.

4/14 – Monday – **Final Business Plan (Printed and Bound) Deadline –** All students will be expected to turn in the final copy of their business plan, printed and bound in a professional format. Appearance of business plan will be graded as strictly as content.

4/16 – Wednesday – **Work Day –** All students are required to be present.

4/18 – Friday – **Final Model, Final Poster, and Power-point Presentation –** Finalize all details and Prepare for Final Presentation.

4/21 – Monday – **Final Presentations** – **Final Presentations -** All students will be expected give a final presentation of their business plan as well as their product design.

4/23 – Wednesday – **Final Presentations** – **Final Presentations -** All students will be expected give a final presentation of their business plan as well as their product design.

4/25 – Friday – **Classes End** – **Final Report, Documentation, and CD –** All documentation must be turned in on this day.

Chapter 6: Research Conclusion

The intention of this research was to create a useful set of guidelines and course work for incorporating the fundamentals of business education into an Industrial Design curriculum. The result was a sample syllabus with a calendar and detailed schedule for a course with product design and business plan development as deliverables. The main purpose of this research was to bring basic business sophistication to the undergraduate design student in order to expand their knowledge and provide more opportunities after graduation.

The syllabus was formed based on analysis of existing design and business education programs. With discovery of the most fundamental factors of business knowledge and breakdown of the most important elements of business startup, assignments for basic educational coursework were narrowed. With exploration of the design methods and the teaching of project planning in a product design class, an applicable method of bringing the business assignments into a design course was revealed.

The course syllabus is designed as a complete teaching model with discussions, assignments, and recommendations for activities listed on a day to day schedule. There are recommended books and readings as well as reference page numbers for discussions. The next step for research would be to test the use of the provided syllabus in the Industrial Design education program and collect the results.

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