THE 21st BRAIN FOR THE PROJECT LEADER

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What could be the ideal skill set that today's Project Leaders need to create "STEAM"?

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ABSTRACT

Over the last few centuries the arts and the sciences have become separated, leading to basic underlying misunderstandings between the disciplines. Project leaders are increasingly left with a need to combine the two primary attributes of the strategic planning of the left-brain (science) and the creative vision of the right brain (art). The world of science faces a continuing struggle with finding creative thinkers and businesses find themselves desperately needing designers and visionaries.

A research question is therefore laid out asking how creativity will become part of organizational DNA and what skill sets are required for a project leader in order to meet the challenges of the 21st century. In this paper the author seeks to both interpret and contribute to the current discussion of how organizations and businesses can more easily develop an understanding of the marriage of art and science. To illuminate the connection between art and science various concepts related to design and leadership are explained and the current deployment of professions is displayed in a Maturity Model. The objective is to locate similarities as well as to find out what skills could bridge the gap between industry and creativity.

The key findings suggest that today's project leaders need to add creativity to their toolbox to be able to produce breakthrough innovations and gain a competitive advantage. A suggestion for the combination of skills needed for the future is illustrated in "The new brain for the Creative Project Leader."

Key words: Creative Leadership, Design Thinking, Human-Centered Design, Creative Project Leadership and Design Leadership.

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1. INTRODUCTION: THE CHALLENGE

How can we bridge the gap between industry and creativity?

"Principles for the Development of a Complete Mind: Study the science of art. Study the art of science. Develop your senses - especially learn how to see. Realize that everything connects to everything else."
— Leonardo da Vinci (Vinci, 2013).

Leonardo da Vinci's drawing, "The Vitruvian Man," not only provides the perfect example of Leonardo's keen interest in proportion, but also demonstrates the seamless blend of art and science that was commonplace during the Renaissance period. In addition, it represents a cornerstone of Leonardo's attempts to relate man to nature.
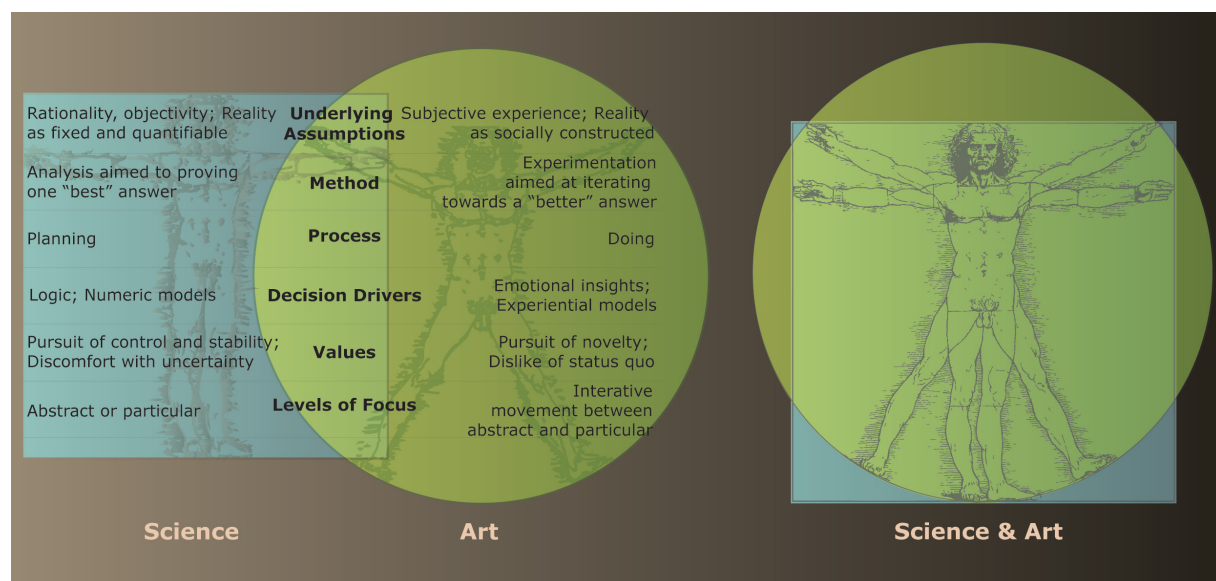

Table (Puccio, Mance, & Murdock, 2011)– Artwork: "The Vitruvian Man" c.1490 Leonardo da Vinci (Stemp, 2012)

Over the last few centuries, art and science have become separated, leading to basic underlying misunderstandings between the disciplines. Today, more than ever before, there is a need for a broad understanding of both disciplines, both separately, and where and how they overlap. In a fast changing world new problems arise in our environment for which we need creative solutions in order to adapt. There is a growing need to find innovative ways forward for business enterprises. Companies need to attract fresh talent into teams like never before. Increasing project complexity and changing social structures now require project leaders to serve as centralized controllers of these changes.

Project Leaders are increasingly left with a need to combine the two primary attributes of the strategic planning of the left-brain (science) and the creative vision of the right-brain (art). They must serve both as managers and visionaries for teams and businesses. They have to be creative leaders focusing on project-based innovation work and simultaneously managerial leaders focusing on the people creating the work. The Project Leader toolbox includes the ability to manage the time, scope and budget of a Project, to serve as team leader, to demonstrate empathy, to be a problem solver, a communications genius, and, if many recent reports are to be believed, to demonstrate

creativity - which is considered to be one of the most important tools in the box when taking on the fast-changing challenges of the 21st century.

Leaders, in the context of the organization, must value organizational capabilities and individual competencies to push systems, processes and people to achieve a new level of understanding and behavior around complex challenges in innovation. We as consumers take products and services, both intangible and tangible, for granted. Today's projects demand the consideration of sustainability, environment, quality, innovation and design; we expect these attributes to be present in all things and to be everywhere in the environment around us. Projects are only getting more complicated and their DNA harder to trace.

Science, **T**echnology, **E**ngineering and **M**ath are often combined as subjects and called **"STEM".** According to BBC News, educational experts now want to include **A**rt to make **"STEAM"** (O'Brien & Danzico, 2013*).* New courses in leading education models converging art and science across disciplines are being developed to better prepare students for the complex challenges of the 21st century. Now that art is being said to shape the science and technology of our future, a better understanding of the language between these disciplines is needed. Is it possible to prepare businesses, industry and educators for the rapid changes ahead? There will always be difficulties in encouraging organizations to adapt to the holistic approach that is now needed. However, if businesses are at least open to other ways of thinking it can make a difference, and even lead to systemic change (O'Brien. & Danzico. 2013*).*

In this paper the author seeks to both interpret and contribute to the current discussion on how organizations and businesses can more easily develop an understanding of the marriage of art and science. The urgent need for design-led innovation in business, industry and education requires the full use of both sides of the brain – the organizational left and the creative right. The missing factor in the growth equation is often thought to be the addition of new knowledge harvested from scientific discovery and technological progress. Tomorrow's design playground will blend the knowledge and scope of both art and science.

1.1 The research challenge is twofold:

Challenge one: Bridging the gap

Stage one of this research paper compares recent articles and reports about the need for innovative approaches in businesses and organizations with designers' way of thinking and project leadership in a context of the "design ladder" (The Design Ladder, 2007). The objective is to see where similarities lie and what skills could bridge the gap between industry and creativity.

Challenge two: Applying the findings

Stage two involves a case study in the form of a 6-week course for third year BA Design students from the Icelandic Academy of Arts. Students were introduced to a mix of tools from different toolboxes of design, business, and project management. The objective for the course was to improve the students' 21st century skills necessary for future employability and to create a new playground for creative problem solving to work with the strategic approach of project management and leadership.

The results of the research will be presented in a manner that reflects the subject itself; that is, a mix of logic and play. Entertaining information graphics will be used in

lieu of tables to explain concepts in a creative, dynamic way. This paper is not intended to be hard scientific research, nor does it claim to answer fully all the questions it raises. In order to achieve a comprehensive coverage of these ideas, a much deeper and broader study over a long period of time with cooperation across disciplines will be needed.

2. LITERATURE REVIEW: The theory and *WHAT* experts are saying

Countless books have been published about project management in recent decades addressing a wide range of approaches to the management of projects and theory, processes and methods. In the last decade the rise of the role of the project manager as a team leader has resulted in yet more books being published on project leadership, the newest incarnation of the project management family (Brinner, Gedds & Hastings, 1997; Kotter, 1996). Contributing to the growing toolbox for today's project leader, many books suggest that managing creativity (Torr, 2008) and mastering the skills of entrepreneurship (Ries, 2011) are essential tools for the future to change the way teams are managed and to deal with the shifting creative demands of tomorrow. Very little has been written about future forecasts of the profession. However, many reports have been written about the creative industries, innovations and the urgent need for new approaches in business and how these fields will shape the economy today and in the future.

For the purpose of this paper various relevant books, reports, articles and papers were reviewed. The attendance of a lecture on Creative Leadership in Helsinki also aided the research (SMART DESIGN, SMART PROCESS SEMINAR 31.10.2012), where the topics of multidisciplinary design, management, leadership, innovation, creativity and design-led innovation in organizations were discussed.

From this material research information was gathered and mapped out. Despite this broad and comprehensive approach, it is possible that the conclusions drawn might boil down to simple intuition. Seemingly endless seminars are now held where the main topics relate to the new challenges facing industry such as creative leadership, managing complexity, managing experiences, social innovation, service design and design-led innovation. All of this merely demonstrates the urgent need for better understanding between the arts and the sciences. Now is the time to continue debating and listening in order to be able to create new tools appropriate for future challenges.

2.1 WHO are project managers? According to the Project Management Institute (Project Management Institute – PMI, 2013) they are organized, passionate and goal-oriented people who understand what projects have in common, and their strategic role in how organizations succeed, learn and change. Management, by definition, is a process that focuses on using standard procedures to sustain the present situation. Project management knowledge draws from nine areas according to the Project Management Institute (PMI). Those areas are the following: Integration, Cost, Human resources, Scope, Quality, Communications, Time, Procurement and Risk management. The process falls into five groups, a specific set of operations: Initiating, Planning, Executing, Monitoring/controlling and Closing. Management is an application of skills, knowledge and techniques to execute projects effectively and efficiently. It is a strategic competency for organizations.

Project managers make project goals their own, act like agents of change and use their skills and expertise to inspire a sense of shared purpose within the project team. They work well under pressure and should be able to look at the big picture as well as

the details, knowing when to concentrate on each. Project management is the application of skills, tools, techniques and knowledge to project activities in order to complete the project objectives (Project Management Institute – PMI, 2013).

Qualities that employers might look for in a project manager include knowledge of finance, planning and product development abilities, leadership skills, problem solving and analytical skills, being able to facilitate outcomes, the ability to cope with complexity, staff management skills and the ability to execute projects on time and budget.

THE project leader is, however, different. A project leader is expected to take it one step further – to set directions, align people, motivate and inspire. They should be able to cope well with change and have an understanding of the individuals that make up teams, their personalities and what makes them tick. There is no simple strategy for a project leader; he or she simply has to be able to understand people and demonstrate true leadership (Jordan, 2009).

2.2 HOW do designers work and think? Design is a profession and a way of thinking. Professional design grew out of a need for skilled individuals who could plan products and environments that would appeal to customers. It could be said that a designer is a critical thinker and professional innovator. An important part of design is the preparation of plans and instructions to communicate accurate production of the design by others, a necessity if the designer is not also performing the production task.

Designers are both technical and creative. Design is a planning process that embodies the full range of problem solving skills using both sides of the brain to balance those requirements and visual language skills to express it. Design is a strategic tool, is user-centered and uses systematic processes to ensure that solutions are thought through using the best criteria for human values, business viability and technical feasibilities. The journey of a designer's process is holistic, interdisciplinary and borderless, and includes chapters of research, ideation and execution. Design is a conversation and designers help to build bridges between the technical aspects of production and the marketing of the product. Being able to work both with intuition and logic makes designers great employers for services, organizations and businesses if they want to achieve a competitive advantage (Design Institute of Australia, 2013).

Qualities that employers might be looking for in a designer include passionate curiosity, imagination, various computer skills for accurate communication, effective storytelling, objectivity and being able to understand the basics of business and technical environments (Brown, 2008).

WHY design thinking? In the book *"Design for Growth"* the author attempts to demystify design thinking by translating design from an abstract idea into a practical everyday day tool for managers from which they or their organizations can profit. There the design-thinking tools are the marriage of the design approach to traditional business thinking in a way that enhances opportunities for businesses to grow and profit (Liedtka & Ogilvie, 2011).

To be able to nurture growth one has to acknowledge the difference between what scientists do and what designers and growth leaders do. Scientists investigate today to uncover explanations for what already is; designers invent and create something for the future that is different from the past (Liedtka & Ogilvie, 2011).

Design thinking is a methodology that uses the full spectrum of innovation activities with human-centered design principles. Innovation is powered by a thorough understanding through direct observation of people's needs and/or behavior. *"Design thinking put simply … is a discipline that uses the designer's sensibility and methods to match people's need with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity"* (Brown, 2008).

Qualities that employers might look out for in a design thinker are: empathy, integrative thinking, optimism, experimentalism and collaboration (Brown, 2008).

WHAT is the "Design Ladder"? The Design Ladder enables companies and organizations to identify where they are on the scale of design competence ranging from "no design" to "design as a strategy" (The Design Ladder, 2007). It was created by the National Agency for Enterprise in Copenhagen 2003 to clarify the economic effects of design. The four steps of the ladder are:

- **Unconscious design/Non-design:** Design plays no role in product/service development. There is complete ignorance in using, creating, discussing, developing, implementing or selling design.
- **Design as styling:** Design is seen solely as relating to the final physical form of a product and is only an artistic expression of creativity for product aesthetics, physical form or styling.
- **Design as a process:** Design is not a result but a method that is integrated early on in the development process.
- **Design as a strategy:** Design is an integrated part of the business strategy and is the key strategic means of encouraging innovation" *(*Design for Growth and Prosperity, 2012*).*

WHAT experts say about design and design thinking:

"Design is intrinsically linked to a company's ability to meet its business goals and achieve its missions. Done well, design can become a strategic resource to produce the kind of innovative customer experience that strengthens global brands. Yet design remains the most underutilized and misunderstood of all the essential resources to achieve innovation and brand leadership" (Lawrence, 2008).

In The Harvard Business Review Tim Brown, CEO of IDEO, writes about design and design thinking. He describes the design process metaphorically as a system of spaces rather than a predefined series of orderly steps. Those spaces demarcate different sorts of related activities that together form the continuum of innovation. He also writes that leaders today are now looking at innovation as the principal source of differentiation and competitive advantage and advises to incorporate design thinking into all phases of the projects for future success (Brown, 2008)*.* Using design thinking has provided value in innovation and has proven to be successful in delivering creative solutions to many organizations. However the talk today regarding design thinking and business thinking is that one cannot survive without the other; innovation cannot happen until and unless there is an equal input from both (Tjendra, 2013).

About the need for design-led innovation

Recent books like the New York Times best seller *"The Lean Start-up"* (Ries, 2011) have enjoyed considerable success thanks to the growing need for innovation and entrepreneurship and for new tools and approaches. In the book the authors mix the

strategic lean approach with the language of design. More and more publications focusing on this combination of strategic and creative ways of thinking are seeing the light of day.

The Report and Recommendation of the European Design Leadership Board, Design for Growth and Prosperity states:

 *"Traditionally, the European innovation system has been based largely on technology-led development that has contributed profoundly to the growth and competitiveness of the European economy. Now, however, the emerging competitors of Europe are rapidly closing the technology gap and European growth can no longer depend on technology-led innovation, low production cost or the proximity of markets. Furthermore, the significant reduction of available funding drives the urgent need for innovative solutions based upon Europe's broader expertise." (*Design for Growth and Prosperity, 2012, p. 19)*. This report also states 3 key challenges:

1. Positioning European design innovation on the global stage.
2. Embedding design in Europe's innovation system for the benefit of society and the public sector.
3. Developing Europe's design competencies and knowledge for the 21st century

In a complex global economy shaped by rapidly evolving standards for production and management, leaders must exhibit flexibility and a capacity for innovation. Today, senior executives and HR managers recognize project management as a strategic competence that is indispensable to business success. The report quotes the words of Robert Verganti the author of the book "*Design-Driven Innovation"* (Verganti, 2009) where he writes that in times of crisis we should reduce the cost but not the meaning and changing the rules of competition by radically innovating the meaning of things (Design for Growth and Prosperity, 2012).

WHO are Design Leaders? According to David Sherwin, (*Sherwin, 2010)* CEO of Frog, his provisional definition is that design leaders guide organizations in planning and fulfilling desired outcomes for their clients - growing their designers in the process. They guide organizations and know how to push, coax, cajole, and otherwise conjure a high level of work out of themselves and their team. Design leadership is categorically not the same as design management; design leadership is a combination of strategic planning of the left-brain and the creative vision of the right-brain whereas design management is involving more of the strategic planning of the left-brain.

Qualities that employers might seek in a design leader include: a creative secret sauce; *"the tendency to be brave, a willingness to take risks, the ability to apply steady, constant pressure and to foster project ownership among peers and clients, the capacity to communicate up, down, and sideways, the readiness to always try to answer the question "Why?" the ability to see from miles to microns, an understanding of his/her own creative disposition and those of his/her teammates, behavioral psychology skills, and the ability to enjoy working with designers and clients — as people* (*Sherwin, 2010).

2.3 WHAT is Creativity?

Einstein has been quoted in Creativity, Design and Business Performance as saying: *"Creativity is seeing what everyone else has seen, and thinking what no one else has thought"* (Trautmann, 2011). Defining creativity is no simple task; it is something that is hard to measure, or to put your finger on. It can be said that creativity is two interlinked actions, thinking and doing. It involves processes from imagination to innovation.

Imagination is where the creativity is in a state of play, where ideas are born in the thinking process, and innovation is where the idea is developed in no prescribed order (The Creative Process, 2013).

Qualities needed in a creative person include the ability to apply thinking skills to develop multiple options, to recognize and differentiate between a challenge, a problem, and an opportunity, the ability to be collaborative, and to work toward achieving the best solution.

What experts say about creativity: Torr (2008) says a crucial distinction must be made between creativity and creative problem solving. Being a Creative Problem Solver (CPS) is to work within a broad and effective system built on our natural creative processes. A Creative Problem Solver deliberately ignites creative thinking and, as a result, generates creative solutions and change.

The CPS process has a dual function: thinking and doing, a mix of divergent and convergent. Although when described they could be mistaken for one and the same thing, Torr (2008) explains that in his view they are two entirely different, mutually exclusive modes of thought and behavior, and that we have to consider the popularization of creativity as an essential ingredient of social and business success. Believing that everyone has the capacity to be as creative as the next person is a ludicrous as believing that everyone has the capacity to be just as intelligent as the next person, yet it has become almost universally accepted as a truism. To measure creativity or the size and shape of creative talent is tricky. The value of ideas can not be measured until after they have been realized and the value of someone coming up with a good idea cannot be measured at all. In the book *"Creative Intelligence"* (Nussbaum, 2013), David Kelly founder of IDEO said about creativity that it was like a foreign language and that you need two abilities to be competent in the world today. You need analytical ability and the tools that go with it and you need creativity and the tools that go with it.

WHAT is creative leadership? In the book "*Creative Leadership, Skills that drive change*" the authors explain what it means to be a creative leader (Puccio, Mance, & Murdock, 2011). Taken separately, the two elements of the role elicit vastly different levels of comprehension. While many people find the characteristics of creativity hard to define, the majority clearly understands what a leader is and the set of skills needed for leadership potential. The qualities of a creative leader are less understood and the definition of creative leadership is still being laid out. To be able to drive innovative solutions and teams – that is, to be a creative leader - one has to be able to create a culture that fosters ideas, drive and design-led innovation, and to make sure that the climate and culture they operate in will encourage growth. Being a creative leader is not about having the idea yourself, but rather being able to shift and merge the skill sets of others in order to better meet the challenges of today's constantly changing environment. creative leadership is built on the idea that everyone at every level in the organization is a leader; that leaders must know themselves, and be alert to their failings and graces in order to better serve the organization; and that only by mastering complexity – both human and organizational – will leaders be able to achieve alignment. Successful leadership today relies heavily on an individual's ability to effectively respond to and proactively drive change — in short, to be creative.

"Creative leadership is the ability to deliberately engage one's imagination to define and guide a group toward a novel goal – a direction that is new for the group. As a consequence of bringing about this creative change, a creative leader had a profoundly positive influence on his or her context (i.e., workplace, community, school, family), the

individuals in that situation and the environment in which they collaborate." (Puccio, Mance, & Murdock, 2011)

Qualities that employers might look for in a creative leader: Vision (i.e., being able to imagine what is possible in order to then create), the ability to engage the talent, intelligence, and creativity of others, creativity, innovation, intuition, self-awareness, the ability to accept failures and respond to them, a tendency to challenge the status quo, being a creative problem solver, possessing practical and creative intelligence, strong motivation, personality, openness, adaptability and curiosity, and being comfortable with ambiguity and experimentation (Puccio, Mance, & Murdock, 2011).

What experts say about design leadership and creative leadership: According to Sherwin (2010), his provisional definition is: "Design leaders guide organizations in planning and fulfilling desired outcomes for their clients — and growing their designers in the process. We could pile a lot of other things onto this definition, such as organizational development, contributing to the profession through sharing expertise publicly, and so forth. The real definition of design leadership, however, is a bit blunter:

"Design leaders make awesome s@#t happen." (*Sherwin, 2010*)

"Creative leadership is the concept that leaders who exhibit imaginative and inventive qualities are better able to impact individuals who work underneath them or who look to them for guidance. The concept also maintains that more creative leaders are better equipped to find unique solutions to complicated problems. In addition, this style of leadership is often driven by the notion that people can become more effective leaders if they are able to think and perform in original and innovative ways." (Delich, 2013)

What experts say about creativity in businesses and industry: In a recent study titled "Capitalizing on Complexity: Insights from the Global Chief Executive Officer Study, IBM Institute"(IBM, 2013), which was based on face-to-face conversations with more than 1,500 chief executive officers worldwide, the top 3 findings were:

1. The world's private and public sector leaders believe that a rapid escalation of complexity is the biggest challenge confronting them. They expect it to continue — indeed, to accelerate — in the coming years.
2. They are equally clear that their enterprises today are not equipped to cope effectively with this complexity in the global environment.
3. Finally, they identify creativity as the single most important leadership competency for enterprises seeking a path through this complexity.

Historically, business models have changed from time to time. But now these changes are occurring in rapid-fire succession. According to Capitalizing on Complexity one Industrial Products CEO in Japan was quoted as saying a *business model is not absolute, but must adapt to environmental change."* To better understand creative leadership the study looked more closely at CEOs who selected creativity as one of three top leadership qualities. The findings show that those CEOs are 10 to 20 percent more likely to be able to pursue innovation through business model change. They operate more effectively in a volatile environment and, acting as creative leaders, they encourage and experiment with all types of innovative business models. CEOs must be able to test, tweak and redesign their core activities continually. Today, partnerships, revenue models and a host of core business decisions require modification in light of the fast-changing forces impacting their organizations (IBM Capilizing on Complexity, 2010).

2.4 WHAT is T-SHAPED management? Tim Brown, CEO of IDEO design consultancy, presented a new approach to résumé assessment as a method to build interdisciplinary work teams for the creative process in an interview for the web Chiefexecutive.net. He calls it T-Shaped management. It relies on a new kind of executive, one who breaks out of the traditional corporate hierarchy to share knowledge freely across the organization (the horizontal part of the "T") while remaining fiercely committed to individual business unit performance (the vertical part). A successful T-shaped manager must learn to live with, and ultimately thrive within, the tension created by these dual responsibilities. The concept of T-shaped skills or T-shaped people is used as a metaphor in job recruitment to describe the abilities of people in the workforce. The vertical bar on the T represents the depth of their related skills and expertise in a single field, while the horizontal bar is their ability to collaborate across disciplines with experts in other areas and to apply knowledge in areas of expertise other than one's own (Hansen, 2010).

Qualities sought in T-shaped people include the capability to be an active listener, the possession of depth in at least one skill that they can contribute to a team, a broad understanding of other skills, empathy, the willingness to collaborate, and a demonstration of interest in working with other people (Hansen, 2010).

What experts say about T-shaped people and polymaths: In a blog on Project Management (Gopalan, 2012) it is suggested that if you are a T-type, your mindset is already open to the idea of continued learning and growth, making you an ideal candidate to become a polymath. Few people recognize or can master this concept. Insecure managers often have difficulty hiring smarter talent because they feel threatened, while smart managers embrace talent to challenge the status quo in their otherwise or soon to be mediocre organization. This is particularly important for product managers, in order to prevent them from becoming what's known as a "hyphenated project manager," or a project manager versed in only one skill who is unable to effectively contribute to a team dynamic. Product management is a strategic T-shaped role. Product managers that collect tasks around the room, track status or relay information amongst product development teams will perish if they don't have deep domain skills or broad cross-domain skills. If you are a hyphenated type, it is time to spend the time learning and practicing a craft (Gopalan, 2012).

WHAT is happening in education?

According to Parsons School of Design strategies that leading schools in education have started to teach in Strategic Design and Management courses respond to the major restructuring of developed and emerging economies worldwide. The new education model, which combines business, management, and leadership coursework with design-centered studio work, prepares students to confidently create, manage, and lead process–driven design and to develop new business models and organizational structures. These classes provide hands on experience in designing, managing, and improving design-intensive and creative firms, and help students develop their capacity to inspire and lead creative teams. These programs present themselves as the products of leading urban universities known for strengths in design thinking, organizational management, nonprofit management, sustainability management, leadership, and entrepreneurship, design innovation, and design research (Parsons, 2013).
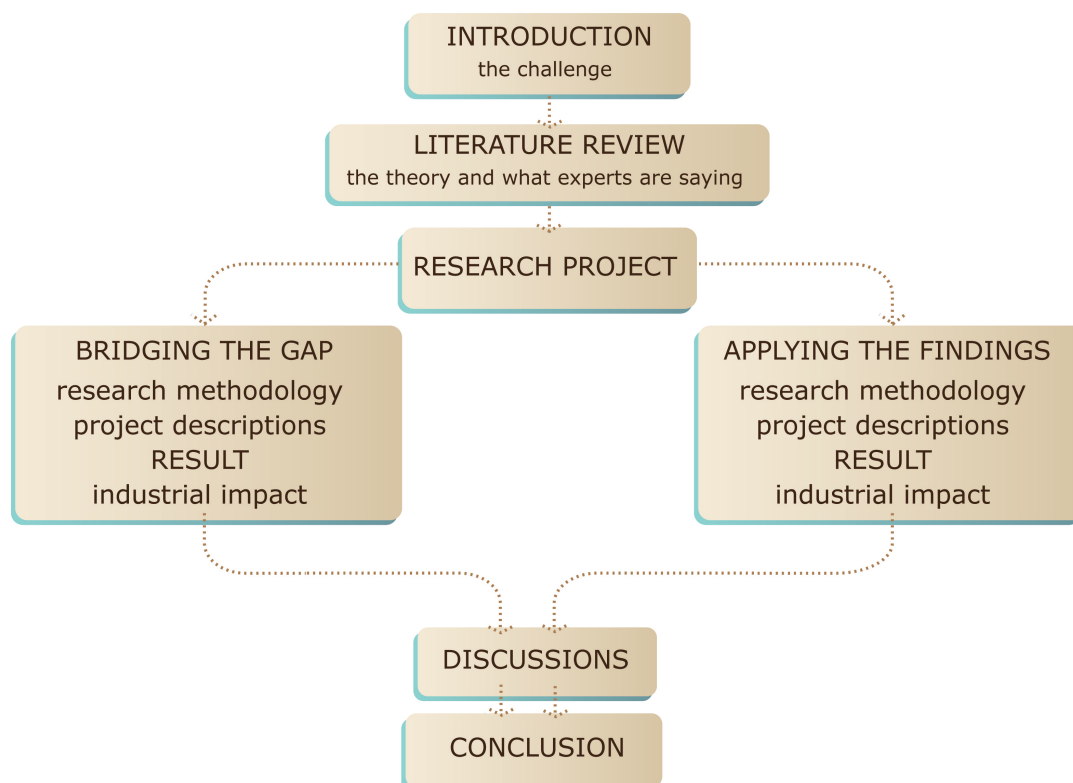
According to the 2010 AMA Critical Skills Survey Today's employees need to think critically, solve problems, innovate, collaborate, and communicate more effectively — at every level within the organization (AMA 2010 Critical Skills Survey, 2010).

A polymath is a person with a wide range of knowledge or learning. In this digital age it has never been easier to learn if you have the desire to do so - even for free when utilizing programs such as edX (Edx, 2013) and Khan Academy (Khan Academy 2013), online education platforms that offer college courses without participation fees. The question to ask now is "why aren't there more of us polymaths?" Modern workplaces desperately need people with the ability to see big picture solutions and polymathism is a largely untapped force in business practice, and is also the future of problem-solving (Wiens, 2012).

3.- 4. RESEARCH PROJECT

The research presented here is twofold, and broken into two separate challenges. In both cases qualitative research was used. In challenge one: bridging the gap - comparison of different professions is done through reading and mapping out similarities to get a holistic overview of the situation today.

For challenge two: applying the findings, results are based on answers from a survey given to students of the Icelandic Academy of Arts after they finished a pilot course designed to maximize their T-shape ability. Both challenges were done in parallel to be able to get a holistic view of the situation today within industry and in education. First the research and research results of bridging the gap is explained. Thereafter the research and research results of applying the findings is explained.

INTRODUCTION
the challenge

LITERATURE REVIEW
the theory and what experts are saying

RESEARCH PROJECT

BRIDGING THE GAP
research methodology
project descriptions
RESULT
industrial impact

APPLYING THE FINDINGS
research methodology
project descriptions
RESULT
industrial impact

DISCUSSIONS

CONCLUSION

3. BRIDGING THE GAP

3.1 Project description and objectives. This research paper compares recent articles and reports about the need for innovative approaches in business and organizations with designers' way of thinking and project leadership in the context of the Design Ladder (The Design Ladder, 2007).

The objective is to map out information gathered to gain a holistic view and see where there are similarities or what skills could bridge the gap between industry and creativity.

3.3 Research methodology.

The purpose of this research is to compare and contrast project management, project leadership, design management, design leadership, creative leadership and design thinking, in the context of the Design Ladder (The Design Ladder, 2007) and see where there are similarities in order to map where the broader design discussion is heading. The theoretical definitions of the separate entities mentioned above have already been covered in previous chapters, and provide the basis for comparison. A maturity model will put the results in perspective and show where there are parallels and similarities. The maturity model will also indicate where it is necessary to bridge the skill gap within industry and the creative domain. Rather than being a definitive summary of the current situation, or providing concrete answers and solutions, the purpose of the maturity model is to indicate where there are alignments and connections, and to point out where there are gaps. This will indicate the direction for further research outside the relatively limited scope of this paper.

3.4 Research results

The results of this investigation are shown in the Maturity Model designed by the author of this paper. While it provides no final, definitive truth, the Maturity Model demonstrates an intuitive representation of the parallels between different approaches. The goal with this model is to point out that there are similarities from top to bottom and that from left to right the value of design and leadership grows leading to transformational innovation.
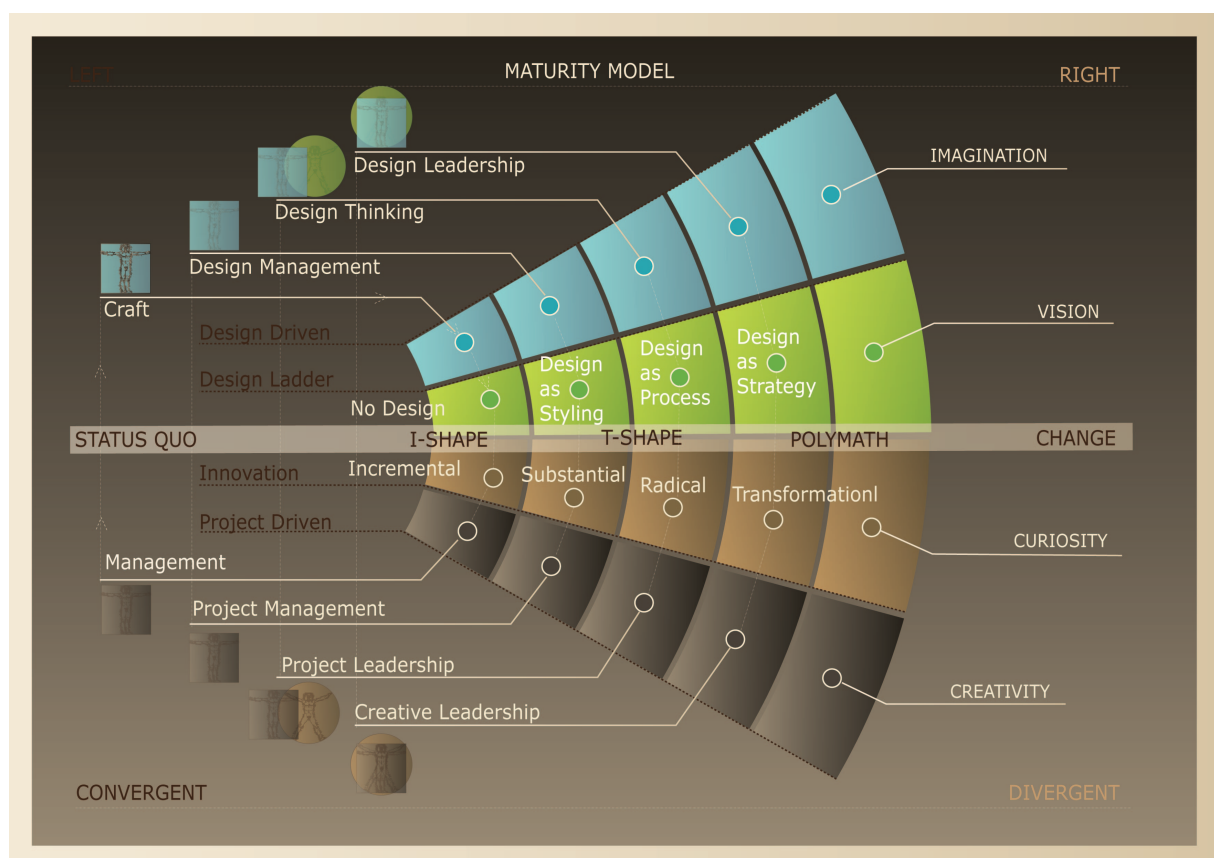

Illustration of the Maturity model of creative advantage from left to right**.**

3.5 Industrial impact

This maturity model could certainly have an impact on the design industry and design education in Iceland, affecting how students, teachers and practitioners understand the different languages between disciplines. However, it should be noted that this is just one person's attempt to try to see where disciplines cross and the outcomes of the paper provide only speculative results gained from a mixture of intuition and the digestion of relevant literary material as well as further research. To really understand the full meaning and possible impact of this branch of study, future research would have to take place.

4. APPLYING THE FINDINGS

4.1 Project description and objectives

The second challenge was to design and implement a six-week course for design students in order to give the students a broader understanding of different disciplines. The course lifespan was carried out in three stages:

a. Inspiration/research: Students were asked to use design thinking with a human-centered approach to search for a problem, need or opportunity in order to bring in new solutions. Students were instructed to place emphasis on teamwork, a communication plan, and the examination of customers' needs, dreams and behaviors. Students were required to estimate the project scope, make a project plan and a time schedule.

b. Ideation: Students were requested to make sense of their findings and suggest three ideas for each group, creating prototypes and conducting small tests as a proof of concept. In this stage playfulness came to the fore, with the best resulting idea being taken to the next stage. Next in the process was an investigation of how to approach the market research.

c. Implementation: The basics of Project Management were combined with strategies of design thinking to make ideas more visible, viable and desirable for possible markets or investors. For the final presentation students were asked to visualize their ideas, make a cost and production plan, devise a marketing strategy, make prototypes, and explain future intentions and possibilities with a roadmap.

The objective of the course was to improve students' 21st century skills necessary for their future employability and to make a clear playground for creative solutions with the combined strategic approach of project management and leadership. To achieve this, students were encouraged to integrate design (creativity), technology, business and services by taking an interdisciplinary approach. Or in other words, to think and behave like T-shaped persons. Students were introduced to a mix of different toolboxes. The purpose of this course was also to see where students' (creatives') performance got better when using different set of tools from a holistic approach in order to get the most effective outcome of each project. The criteria for new products were: to have a human-centered design focus, to be technically feasible, viable for business and desirable for users.

4.2 Research methodology

A survey was given to the students after the completion of the course. The questions were devised to differentiate between the different roles of the project manager and the design thinker when leading a team, controlling scope, time, budget, and when

generating new ideas and possibilities. This part of the research presented an unavoidable shortcoming in the relatively small number of design students in Iceland available to participate; inevitably this study can only be a small attempt to see whether the mixed toolbox strategy can work for students. Students performed in teams based on their background and knowledge, strengths and weaknesses. Teams were encouraged to work across disciplines. Below are the types of questions asked in the survey and a description of the information sought regarding interdisciplinary approaches, the design playground, teamwork, project management, design thinking with a human-centered approach, and learning outcome.

Interdisciplinary approach

Questions asked: The language of design, technical aspects and business strategies were the main concerns for this part.

Results of survey: If design students were taught a little about engineering and business they would communicate their work better between disciplines (Brown, 2008).

Playground

Questions asked: The questions were about how well the students understood the concept and experienced the interaction within a predetermined "playground".

Results of survey: Giving students clear methods to utilize resulted in the acquisition of new analytical skills, helping them to quickly develop design-thinking and empathy skills to allow them to learn about working within the different cultures and disciplines. (Brown, 2008)

Teamwork

Questions asked: The emphasis was on experience in teamwork and the setting up of communications channels.

Results of survey: Team performance, use of strengths and weaknesses, and the willingness of future involvement in teamwork.

Project Management

Questions asked: The focus was on how well students understood the basics of Project Management.

Results of survey: Seeing if students were capable of making plans, and following them with a critical eye but without losing the freedom to be creative.

Design Thinking with a human-centered approach

Questions asked: Here the questions focused on "ways of thinking" towards customer needs and sustainable approaches to solving problems (Brown, 2008).

Results of survey: Students reported a better overall experience as a result of thinking holistically in seeking design solutions for the user.

Learning outcome

Questions asked: This part was about lessons learned.

Results of survey: If students could see this approach to be useful for other projects and teamwork in the future.

4.3 Research results

Of the 9 students who participated in the survey, the findings indicated that when met with an early expectation of the clarity of the playground, individuals and teams find it easier to work and overcome both creative and real world challenges in industrial and technical aspects of projects.

The point of this investigation was to make it clear to ambitious designers that they can also be strategists, as long as they know what level they are playing on, and have the necessary partners and tools to do so. By defining a clear playground comprised of design thinking with a human-centered design, and with rules that apply to Project Management, the students felt more secure about what to expect. In a discussion with the students one important concern was addressed: that being, whether they would lose their playful space and if creativity would still be a part of the process. With a clear explanation of the playground and knowing that it would include the creative process, they felt more secure taking a strategic approach.
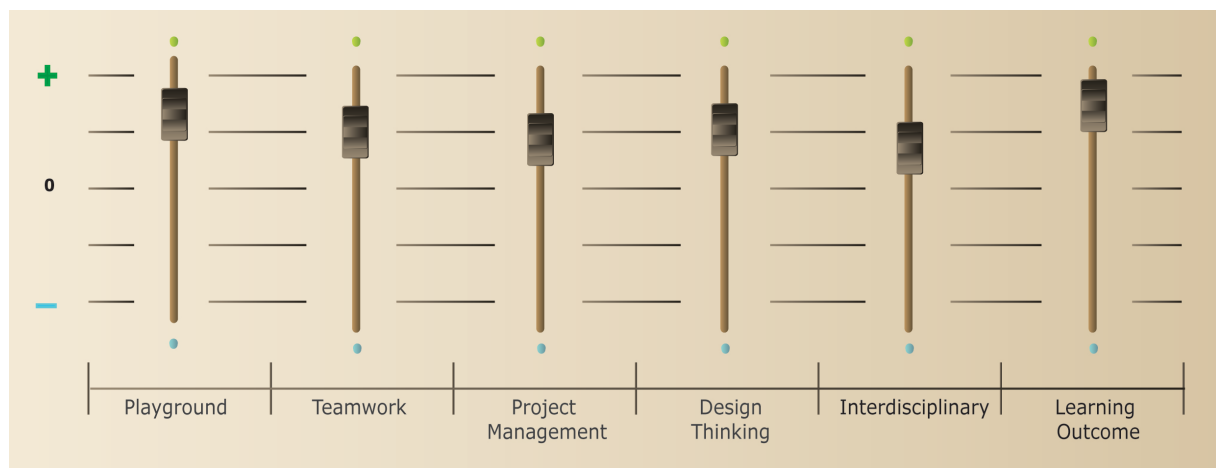
The results of the students' performance and understanding are displayed in a scale from lowest (bad) to highest (good). The results of the survey are represented by a metaphorical synthesizer to emphasize the need to find new measurements, and to highlight the fact that a fine tuned result would require a greater number of participants in the survey, both in Iceland and abroad.

4.4 Industrial impact

If you are not prepared then you cannot interact. According to the AMA survey the need for students who are better prepared for 21st Century challenges is out there. The preparation and design of new education systems need to be discussed and executed. It is important for students and managers to learn the critical thinking skills to be able to bring solutions for more sustainable future (AMA 2010 Critical Skills Survey, 2010).

4.5 Implementation and exploitation

These results, both from bridging the gap and applying the findings contribute to the ongoing discussion in the design world today showing rather than providing solid answers. Presenting a final solution for implementation or exploitation is neither the purpose nor the reason for asking those questions. If reading this paper raises more questions,

provides material for further discussion, or offers a broader understanding, then its purpose has been met to some extent.

5. DISCUSSION FOR THE PRESENT AND TOWARDS THE FUTURE

As material for further discussion and relative to action taken in the very near future some questions crossed the author's mind while researching and writing this paper.

Need for new language

Are boundaries between professions disappearing? Is the problem that we have to learn to work in inter-, cross- or trans-disciplinary ways? Maybe the problem is that we are too accepting of the borders and obstacles between disciplines that should not be there in the first place. Is there an emerging need to take down those walls to arrive at a better understanding between disciplines in order for a holistic approach to be applied? Could a new language of understanding between the different working cultures of Science and Art be developed?

Need for new education

Could professional language barriers within industry, business, and the creative sphere be broken down by introducing the basics of different working cultures and ways of thinking earlier in the education process? Could it be that if today's project managers ignore the rapidly changing framework underpinning their profession, they will become part of a dying or a stagnant occupation? Is the case that project managers/leaders are learning their craft but are still not being taught how to think in terms of creativity? Will new teaching models have to be developed to educate the future project managers or reeducate the ones already out there? Is a skill gap beginning to emerge? Considering these industry-wide concerns, it is arguably both relevant and wise for any leader within an organization, business or the broader community to have an eye on improving their leadership skills by shifting their thinking more towards the creative process.

Need for Project Leadership in Creative Industries

If creativity is becoming the important factor for growth and prosperity in industry and the need for project management and leadership roles to merge with the creative industries is growing, how will project management and leadership roles develop? Will it become commonly understood that creative thinking can help solve complex challenges in business and industry? Are Design Leaders the future project leaders? Could Design Leadership become known as Creative Project Leadership?

Need for Creative Leadership

If fostering innovation (creativity) in business is the next industry-wide challenge, what will be the impact on companies who fail to grasp design and design strategy? How can industry best outline the mindset and prepare the soil (ground condition) for effective Creative Leadership? What atmosphere in a company's culture will be the best catalyst for change? Could strategic designers, who are both creative and problem solvers, be the best catalysts for change within organizations?

Need for new tools and measurements

What is the best mix of tools, methods and processes for the new mindset of project leaders? How will project leaders of today add creativity to their toolbox to become the innovation leaders of tomorrow? How do the players in the project management and

leadership game intend to address this issue? Will new tools be developed to adapt to this new way of thinking? Is there a need to establish meaningful new techniques that define the objectives, measures and criteria for the creative process within business and industry?

Need for action

How can creativity become a part of companies' DNA? The purpose of both challenges is also to investigate skills urgently needed within industry and organizations, and to determine whether T-shape persons would better provide creative solutions to industry or the whole-brained polymath approach for leadership talent is the answer for future organizations and industry work forces. If you're going to talk the talk, you've got to walk the walk.

For further discussion and a broader understanding of what combinations of skills are needed the author of this paper illustrates the findings regarding the embodiment of creative leadership in a proposal for the 21st Century brain for the Creative Leader. The diagram could be seen as a tool for a holistic view of the input for the brain in order to process the best output. It explains the knowledge field a creative project leader should be proficient in to create **"STEAM"**.
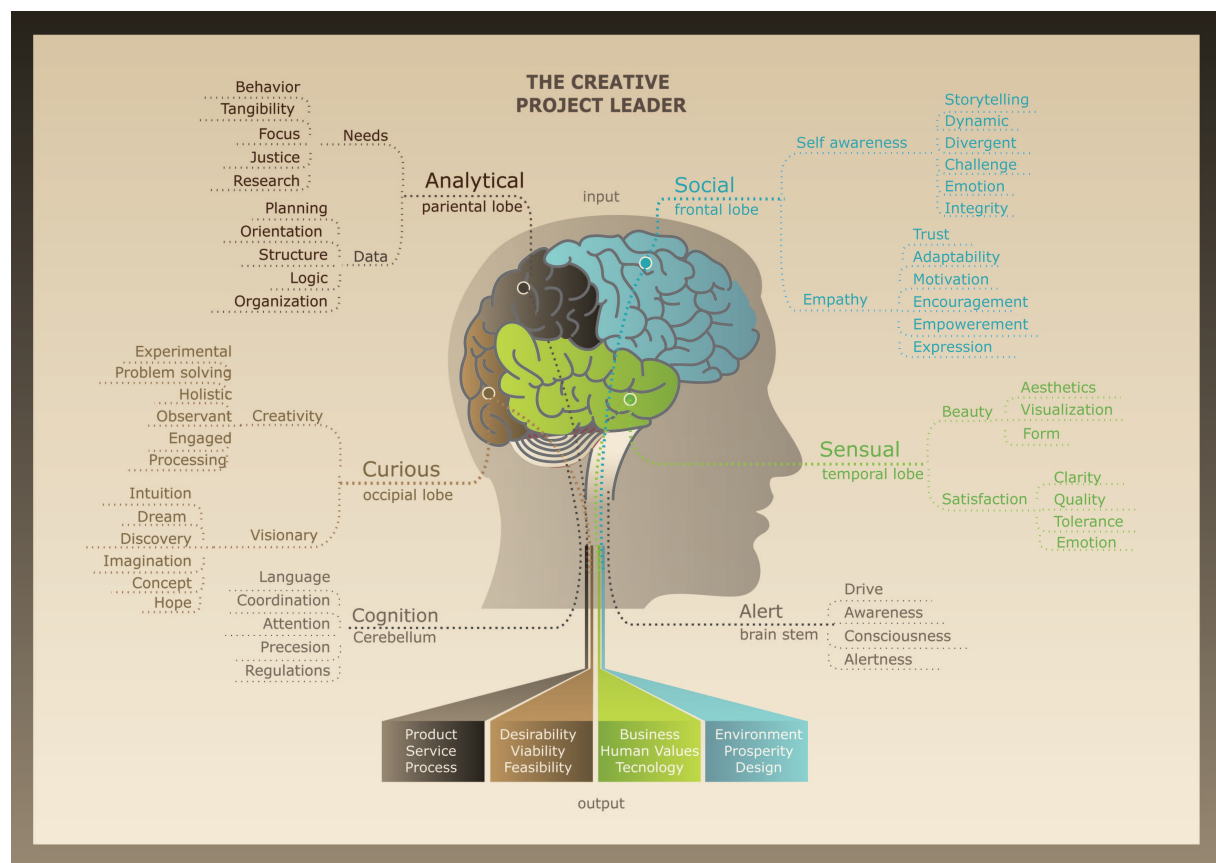

Illustration: Knowledge field of the creative project leader.

6. CONCLUSIONS: THE WAY FORWARD

"It had long since come to my attention that people of accomplishment rarely sat back and let things happen to them. They went out and happened to things."
— Leonardo da Vinci (Vinci, 2013).

Upon completion of this paper, the author has become increasingly certain that creative skills are crucial to successful leadership. Although the author has endeavored to generate a discussion, it is important to note that the analysis here can only be somewhat superficial. In such few pages it is impossible to research and discuss all the relevant aspects to paint a clear picture. This can be seen as an attempt to zoom in on what is out there and how it can benefit the world of project management for the future. Even more questions will need to be answered than are posed in this paper.

It would be very interesting to examine further how and why creativity trumps other leadership characteristics. Can the rigid world of science be at ease in the chaos of the creative world? Can the unfettered creative ever feel truly comfortable having to play by rules of industry?

In the book *"Creative Leadership"* the authors note that we have to take care to create the right environment to foster those solutions. A leader often acts as a catalyst for change, while creative thinking is a process that leads to change. It is an individual person who wants change to happen and is in a position to work with a group to make it happen (Puccio, Mance, & Murdock, 2011).

A shift is taking place – from the rote skill of traditional project leadership to a new way of thinking that fills the "missing" element in project leadership. With ongoing experiments of mixing tools like Agile & Experience Design and Lean & Design Thinking maybe the Creative Project Leader will soon be born. Dealing with fast moving technologies requires problem-solving skills that the design world has in spades. Business is beginning to understand these skills too. Therefore we need this understanding to be reflected in our education system as well. If we don't put seeds in the ground today there will be little to harvest in creative graduates to sustain the future needs in industry and organizations.

Art and science have always informed and inspired each other. Innovators in both spheres require imagination, curiosity, creativity, and the ability to observe, question traditions, and make connections from diverse grounds. By learning a whole brain approach, both fields of Art and Science could benefit. My hope is that the connection between Science and Art will rejoin the links of the DNA that organization, business or education needs for the future.

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