Mastering Creative Problem Solving Within Teams

Executive Summary

Science Parks face several ongoing trends. Some of these include:

1. Agreement that creativity is the #1 competency needed by CEOs.
2. Innovation is a driver of productivity and economic growth.
3. There is a renaissance of robotics.
4. Science parks face increasing competition for the recruitment and retention of (STEM) science, technology, engineering, and math candidates.
5. Science parks must find unique solutions for many significant global problems.

Where does a science park find the necessary resources to become more creative and innovative? You will find the needed creative thinking resources and processes outlined here.

Through the new and systemized creative approaches of RobotLab's Innovation Simulation Challenges, scientists will achieve a significant shift in mindset. This shift will enable them to create unique insights and visions for their organizations to deal with global challenges that do not appear to be solvable.

Introduction

Competency in creative leadership leads the list for standout CEOs according to the IBM 2010 Global CEO Study[1]. The survey included over 1,500 Chief Executive Officers from 60 countries and 33 industries.

> *"Creativity is more important than rigor management discipline, integrity or vision. Creativity is identified as the leading competency. Our world is becoming incredibly complex and dealing with ambiguity in this complex world requires creativity[2]."*

When creativity is implemented within an organization it gains the necessary competency to deal with some of the massive shifts taking place in the composite scenery of interaction. This includes new government regulations, changes in global economic power centers, accelerated industry transformation, growing volumes of data, and rapidly evolving customer preferences.[3]

Clearly creativity is the new leadership differentiator for standout companies. We must ask ourselves, what tools can we provide organizations to unleash the creativity of employees?

Creative Problem Solving in Teams

RobotLab's Innovation Simulations is a creativity tool that unleashes the creativity of your employees by utilizing Creative Problem Solving.

Mastering Creative Problem Solving is one of the cornerstones for successful innovation. Mastering Creative Problem Solving at an individual level is hard but often possible. It is when trying to master Creative Problem Solving *in teams* that the exercise becomes a real challenge. It demands all team

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1 "Capitalizing on Complexity, Insights from the 2010 IBM Global CEO Study" http://www-935.ibm.com/services/us/ceo/ceostudy2010/index.html (Dec. 2010).

[2] Ibid., p.23.

[3]Augusto López-Claros. "The Innovation for Development Report *2010-2011* Papers" http://www.innovationfordevelopmentreport.org/papers/101_LopezClaros_Mata.pdf

members to understand the process of Creative Problem Solving. From analyzing and understanding the core of the problem through idea generation to implementing, evaluation, managing and testing solutions.

In addition it also demands that team members understand their role within the team. They must become aware of each team member's contribution to the entire process. To understand how to optimize each individual contribution to the team, each team member should be aware of their own as well as the thinking preferences of other team members. When you understand everyone's role and thinking preferences in the team and how everyone collaborates, communicates and is managed, you are better endowed for succeeding in Creative Problem Solving.

RobotLab has developed a workshop where participants will experience the creative process that occurs when multiple teams of three people get the same assignment but come up with different solutions.

The attendees will work together and develop a LEGO® MINDSTORMS® NXT robot. After completing the robots, the attendees will compete to solve predefined assignments. Success will be evaluated against predefined criteria.

Target audience: Executives and professionals in the fields of engineering, science, business or technology. No prior knowledge of robotics or software programming is required.

Hands-on: The attendees will be given a tricky but straightforward assignment. They must analyze and solve the assignment while using the robots.

Learning by doing: These robots must accomplish predefined missions where there are a multitude of possible solutions. This entails that the attendees be challenged in their ability to be creative, analytic and co-operative.

Selecting LEGO MINDSTORMS NXT: For learning creativity this is an obvious and deliberate choice. The tool is certainly useful for the process of 'learning by doing' principle.

This allows the participants to learn from their mistakes while experiencing an iterative (repeating) learning process. They have the opportunity to experience a "failing fast - learning quickly"- process.

This means the participants learn quickly by actually *doing* and this allows them to develop a better understanding. This happens because they learn by hands-on experience building a prototype instead of simply listening to a lecture.

They are immediately able to receive feedback as to whether their solutions work and make the needed adjustments. By making mistakes and adjustments to their solutions, they are able to draw upon lessons learned to create even more/better solutions.

Another reason for selecting LEGO MINDSTORMS NXT is that it does not require any prerequisites - neither technical nor programming skills.

The creative approach: The most important thing in the creative approach is to accept all ideas even when they do not seem likely to provide a useful/proper solution. The challenge is to be open to all ideas, even if they seem absurd at first.

Another challenge occurs when you believe you have found a solution. When this is accomplished one tends to settle for that without even trying to see if improvement is possible. Those who do try to improve their solution tend to improve so little that it is not much of an improvement. Real innovation

is when one dares to skip a good solution, start over and then – with the good solution in mind – try to rethink the whole idea again.

If team members are not willing to dare to give up everything; they will start seeing only incremental improvements and not realize radical novel solutions. Through training in a simulation, RobotLab creates an environment to motivate people to contribute ideas.

The human brain does not by default break thought patterns (mindset); therefore, we must take active steps to change them. The workshop model with use of LEGO Mindstorms robots provides a unique setup where "Fail fast-learn quickly" is natural and logical for each participant. They are forced to be aware of - or even break - their individual mindset.

RobotLab incorporates all elements outlined in Harvard Business Review, *Cognitive Fitness* by Roderick Gilkey and Clint Kilts, November 2007. These are:

- Use experiences to grow your brain
- Work hard at play
- Search for patterns
- Seek novelty

Thus far we have:
*** Stated the importance of creativity and innovation.**
*** Introduced the RobotLab Innovation Simulation.**

RobotLab Innovation Simulation Objectives:

- Gain an understanding of thinking patterns. Why do we have them and how can we change them?
- Gain insight into your perceived abilities (the abilities that you think you have) and your fuller potential
- Practice existing problem solving skills
- Develop forming a team, independent of outside direction or intervention
- Experience working together as a team to accomplish specified and tangible tasks within a given deadline
- Getting the satisfaction that their creative ideas can be implemented
- Experience success by going from an attitude of: *Nothing is possible* to: *Everything is possible!*

BENEFITS AND TRAINING OUTCOMES:

- Develop an understanding of leadership effectiveness
- Develop insight and understand the value of each team member's contribution to team effectiveness and performance
- Develop and maximize time and team management skills
- Develop an understanding of the dynamics involved when wanting to create and perform more effectively as a team

CASES:

- KAUST, Saudi Arabia
- Scion DTU, Denmark
- ECCIX (The 10TH European Conference on Creativity and Innovation)
- American Creativity Association, Singapore
- Ju-nJu Creativity Cup, Germany, http://www.ju-nju.com

Case: Developing creativity at (KAUST) King Abdullah's University of Science and Technology

You may see RobotLab developing creativity as a competency at King Abdullah's University of Science and Technology with this YouTube video taken at the event.

http://www.youtube.com/watch?v=QEaghayNAdE&feature=related

Whom do you hire when you have a $10 billion dollar budget and your mission is to take the Kingdom of Saudi Arabia to the next level of civilization and modernization? Who has the capability to train the best minds in science and technology?

When you can hire the best, how do you determine who is the best? This is the challenge recently faced by (KAUST) the ambitious King Abdullah University of Science and Technology when it opened its doors to the world for the first time.

They found their answer with Lars Ringe (founder and CEO of RobotLab) and 5 other partners. Lars Ringe is a creative thinking expert who works as an innovation consultant. Four hundred students from around the world were assembled for a major innovation seminar, 2009 KDS Global Gathering, at KAUST University and what they experienced was what it takes to create an efficient team.

At the research institute, KAUST, students study side by side with their counterparts from all around the world. Their mission is to make new discoveries and achieve advanced scientific research and collaboration with the world's leading academic institutions. They learned how to maximize their ability to collaborate and significantly increase their team's performance.

KAUST is projected to be one of the best internationally-distinguished centers of scientific research and invention. It is intended to play a leading role in research and training on energy and the environment, bioengineering, materials research, engineering, mathematics as well as information technology. It brings together researchers and specialists from major universities in the U.S., Europe and Asia.

There is no doubt that sparking innovation is one of the most sought after qualities during these tumultuous economic times. Whether we are talking about the economic meltdown or climate change, the solution lies in developing radically different thought processes and business models. RobotLab is now prepared to bring "Innovation Simulation Challenges" to the worldwide network of science parks and to replicate his success with sparking innovation for the scientific, technology, and business community.

Creative Thinking Case: SCION (DTU) Danish Technical University

RobotLab presented its first workshop for professors from the Danish Technical University during Oct. 2006. The feedback from 15 professors, associated professors and PhD's validated that RobotLab teaches creativity theory and that it's practical application teaches what it is meant to teach.

RobotLab's clients include Scion DTU which is Denmark's largest university-based science park. Scion DTU's integration of research and business life has long been established.

Creative Thinking Case: American Creativity Association, Singapore

Singapore is the acknowledged world leader in innovation and competitiveness[4].

RobotLab was selected to be a keynote presenter at the business technology sector at the American Creativity Association conference in Singapore. Presenters are the leading thought leaders on creativity and innovation in the world.

Creative Thinking Case: ECCIX (The 10th European Conference on Creativity and Innovation) 2007

RobotLab was the largest presenter at ECCIX (The 10TH European Conference on Creativity and Innovation) 2007. It took place in Denmark and was attended by 400 innovators, creative thought leaders and trendsetters from around the globe.

Creative Thinking Case: The Frankfort Economic Forum 2009

Creativity Cup Challenge with 3000 attendees from 400 companies in cooperation with
The Frankfort Economic Forum 2009

[4]The European-American Business Council, the Information Technology and Innovation Foundation "The Atlantic Century: Benchmarking EU and U.S. Innovation and Competitiveness" http://www.itif.org/files/2009-atlantic-century.pdf (February 2009)

[Photo from: Ju-nJu Creativity Cup Challenge in Germany.]

Trend #1: Agreement that creativity is the #1 competency needed by CEOs.

How do leaders of science parks increase creativity and innovation? Where do you find the resources? It is now time to create the environment and creative tension that supports creativity and innovation by creating an Innovation Simulation Challenge. Imagine an Innovation Simulation Challenge within your own individual science park and also between science parks. The result will be to create a public and lively debate around the issues that need to be solved in order for science parks to improve and refine their common creative challenges. There will be an increased focus on the training needed to be innovative.

Is it possible to learn how to be creative?

Creativity is about coming up with new ideas. Creativity is the front end of innovation. Before you can begin to innovate, you must come up with a great new idea.

Although we often think of fine arts when we think of creativity, there is another side to creativity. Our focus is on the practical application of creative thinking to solve problems and create new opportunities for science parks.

How do you come up with new ideas for business, science, technology, engineering, new products, or sales for your science park? You must and can stimulate your brain by using a systematic approach to creative thinking.

***Creativity is a skill that can be taught and learned*.**

David Tanner, Ph.D., author of Total Creativity in Business and Industry, outlines six dimensions to consider for the development of creative thinking.[5] They include:

1. Provide tools, processes, and frameworks
2. Value diversity in styles and preferences
3. Evaluate your organizational systems and structures
4. Engage your organization
5. Create champions and supports
6. Bring ideas to market

To create new value as a science park you must develop creativity as an essential skill within your organization. You must provide creativity education in a timely and orderly manner. There are many tools, processes, and frameworks available that nurture creativity and innovation.

The more diverse your team is the more creative and innovative they will become. Diversity goes far beyond the traditional perceptions of physical appearance. There is diversity in thinking preferences styles, as well as behavior patterns. There are tools available that can measure your team's creativity and problem solving skills.[6]

As you contemplate how science parks might create the best environment for creativity and innovation, your teams will appreciate this short story about a virtuoso violinist, Joshua Bell, who played his $3.5 million violin in an environment that did not support and value his talent.

"In a curious experiment initiated by *Washington Post* columnist Gene Weingarten, Bell donned a baseball cap and played as an incognito street busker at the Metro subway station L'Enfant Plaza in Washington, D.C. on January 12, 2007. The experiment was videotaped on hidden camera; among 1,097 people who passed by, only seven stopped to listen to him, and only one recognized him. For his nearly 45-minute performance, Bell collected $32.17 from 27 passersby (excluding $20 from the passerby who recognized him). Weingarten won the 2008 Pulitzer Prize for feature writing for his article on the experiment." [7]

This clearly demonstrates the significance and importance of creating the appropriate organizational systems and structures needed for creativity to be valued and to flourish. When Mr. Bell plays his Stradivarius violin in a symphony hall, his talent is valued at $1,000 a minute.

Dr. David Tanner is a superb example of a creative champion who introduced creativity into DuPont. He was the Director, DuPont Center for Creativity & Innovation. He also held many other management positions in the DuPont Company in his over 30 years of service. As a creativity champion he inspired hundreds of employees by bringing in subject matter experts in the field of creativity and innovation. These employees were then able to claim their creative potential and apply it in a multitude of ways adding significant value to DuPont.

[5] David Tanner, PhD, Total Creativity in Business & Industry, (Des Moines, IA: Advanced Practical Thinking Training, Inc., 1997) p. 1.
[6] Ibid. p. 59.
[7] Wikipedia, "Joshua Bell" http://en.wikipedia.org/wiki/Joshua_Bell#cite_note-9 (April 8, 2007)

"He was a strong proponent of innovation-fostering methodology which expanded beyond the technical groups in the marketing, manufacturing, and business functions." DuPont had extraordinary results as documented in Dr. David Tanner's first book, ***Total Creativity in Business & Industry***. [8]

It is possible for science parks to engage their teams to value creativity. You can begin by identifying key employees throughout your organizations who have a passion for learning and deploying creativity. This is one way to find your creative champions. Creativity must become enmeshed within the daily life of a science park. For creativity to be accepted and deployed successfully, the teams within a science park must become emotionally involved.

To bring new ideas to market and create value, science parks must look to the future and think about *what is possible* rather than simply measuring *what is* which focuses on what has been successful in the past. Creativity gives you the ability to see and anticipate options for *what is possible* as science parks move rapidly towards the future and the unknowns associated with that future. Creativity gives your science park teams the skill set they need to find unique solutions and innovate for this unknown future.

Trend #2: Innovation is a driver of productivity and economic growth[9]

What is the connection between creativity and innovation? "Innovation is aided by a supportive environment for creative thinking, educating employees in the skills of creative thinking, practical application of these skills in igniting new innovations, and maintaining momentum in the program[10].

"An essential ingredient in implementing a creativity and innovation effort in an organization is to create a supportive environment reinforced with structures and systems. This engages the organization, encourages ongoing learning, and enables people to "dance with their ideas" in tackling difficult issues."[11]

Having access to a skilled workforce makes a country innovative. CEOs in the IBM Global Survey have named creativity as the #1 competency needed. You must ask yourself, how can your science park create an environment that supports creativity?

RobotLab is unique because Lars Ringe has been able to take the theoretical and systemized processes of creativity and apply them to strategic world challenges with an outcome of generating practical solutions.

What is the primary engine of creativity and innovation? Steven Johnson, author of ***Where Good Ideas Come From, The Natural History of Innovation*** responds, "The great driver of scientific innovation and technological innovation has been the historic increase in connectivity and our ability to reach out and exchange ideas with other people and to borrow other people's hunches and combine them with our hunches and turn them into something new."[12]

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[8] David Tanner, PhD, Igniting Innovation: Through the Power of Creative Thinking, (West Des Moines, IA: Myers House LLC, 2008) p. i.
[9] Augusto López-Claros. "The Innovation for Development Report *2010-2011* Papers" http://www.innovationfordevelopmentreport.org/papers/101_LopezClaros_Mata.pdf
[10] Op. cit., Tanner, p. 6.
[11] David Tanner, PhD, Total Creativity in Business & Industry, (Des Moines, IA: Advanced Practical Thinking Training, Inc., 1997) p. 2.
[12] Steven Johnson, "Where Good Ideas Come From" http://fora.tv/2010/10/11/Steven_Johnson_Where_Good_Ideas_Come_From (Oct. 11, 2010)

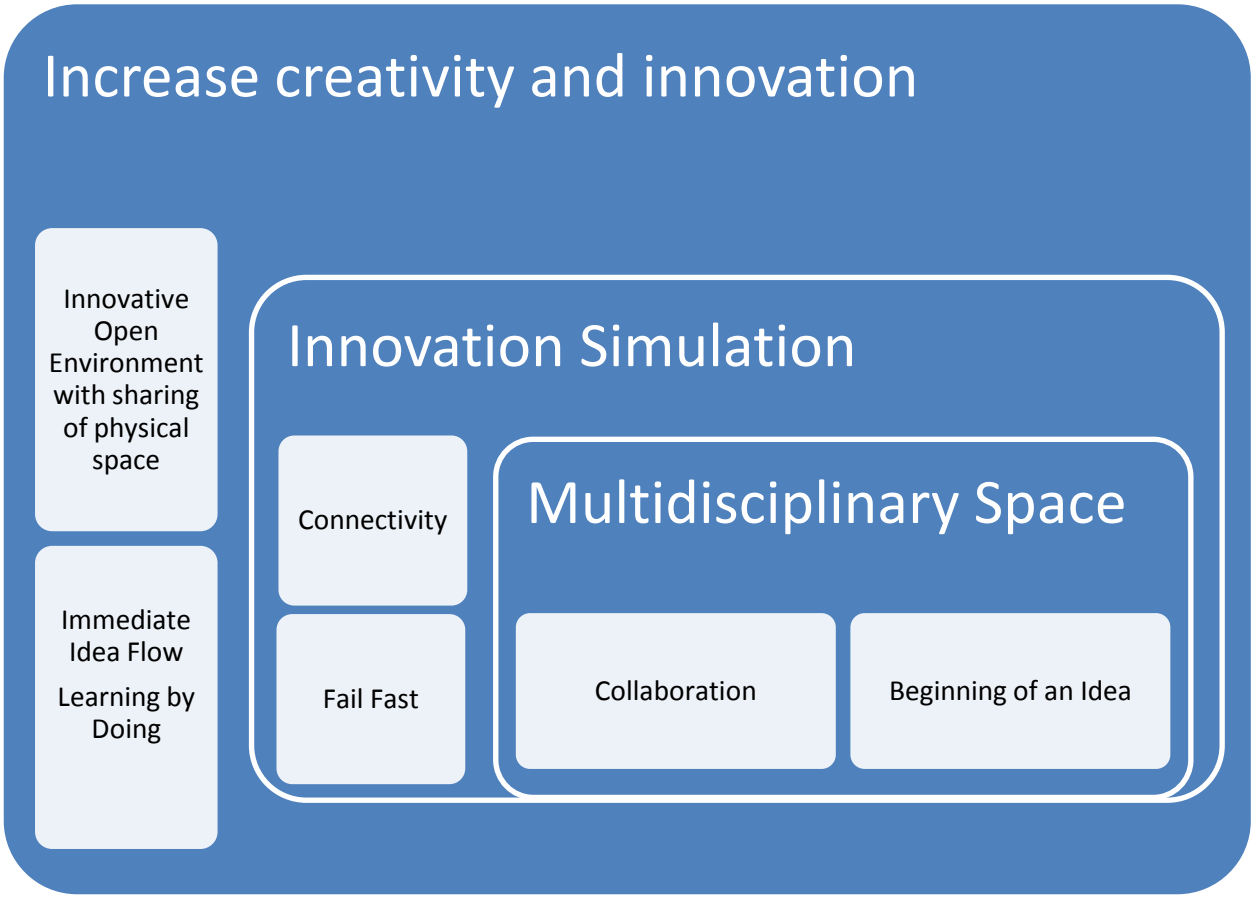
Science parks are better served by connecting ideas rather than by protecting them. Think about your various departments and disciplines. It is from a multidisciplinary approach, when diverse teams are brought together, that ideas build upon other ideas and the result is a multiplier effect supporting true innovation.

How can science parks create liquid networks where information can easily flow along multiple unpredictable paths? RobotLab has an ingenious system to do this by creating a meeting place where science and technology intersect. This is a place to share hunches and to collaborate across multiple disciplines.

Through participation in the Innovation Simulation process you will learn to make mistakes. Mistakes are part of the journey leading towards innovation. Your teams are placed in an environment where you are free to make errors and to rid yourself of your own assumptions. Once you realize the error of your ways, your mind is then open and willing to explore new possibilities. Insight is now possible.

The Innovation Simulation Challenges creates a system that allows the germs of ideas by scientists as well as technology professionals, and executives to come together and grow. This creates the spaces that lead to unusual rates of creativity and innovation.

Your management teams at science parks learn by doing when you build prototypes and then send them out to solve missions that address global issues. Innovation Simulation provides an open platform for an ideal innovation environment.



"Chance favors the connected mind," according to Steven Johnson, author of ***Where Good Ideas Come From, The Natural History of Innovation***.[13]

Within the multidisciplinary space you encourage collaboration and provide those with the beginning of an idea to encounter others from different fields of expertise. Watch the creative sparks fly when your science park professionals are placed in this shared physical and intellectual space. Innovation Simulation Challenges provide this physical and intellectual space. Instead of being on separate islands, located in labs or cubicles behind locked doors, your teams will be out in an open area engaged with each other over tables and consulting with each other around global themes.

Mr. Steven Johnson finds a significant pattern when he analysed innovations from 1800 to the present and found that the majority of breakthrough ideas in modern history emerge in collaborative environments.[14]

Innovation Simulation Challenges provide collaborative environments. In open environments, patterns of innovation can easily take hold and multiply. Innovation Simulation Challenges allow ideas to freely circulate through this open space. Innovation Simulation Challenges provide a way to bring a miniature world into the hands of science park teams. This miniature world provides a platform for them to apply their newly learned creativity theory to find invaluable solutions to some of our world's most pressing issues.

You must ask yourself, what kind of environment provides a platform to increase creativity and innovation within and between science parks? Innovation Simulation Challenges creates an innovative open environment where connections are valued and creativity and innovation blossoms.

Trend #3: We are undergoing a robot renaissance[15].

According to the Institute for the Future, a robot renaissance is underway. Robotics entered our lives in the 1950s on the factory floor. Robots can be used as a collaboration tool to augment the ability of researchers and scientists at science parks to become more creative.

Robots augment our own skills and abilities. They cause us to reconsider how we see ourselves within our teams. Robots are used to change the nature of our own expectations and to establish new and higher levels of performance.

As you face the challenge of becoming more creative, you extend your own capabilities by building robotic prototypes to address the themes of energy, climate change, and reduction of the CO2 footprint.

These creative tools change us in unexpected ways. You will build these robots to augment your creative abilities. They provide creative challenges to train individual employees at science parks and to enable them to better understand themselves.

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[13] Ibid, http://fora.tv/2010/10/11/Steven_Johnson_Where_Good_Ideas_Come_From

[14] Steven Johnson, Where Good Ideas Come From, The Natural History of Innovation (New York, NY: Riverhead Books, a member of Penguin Group USA Inc., 2010) p. 229.

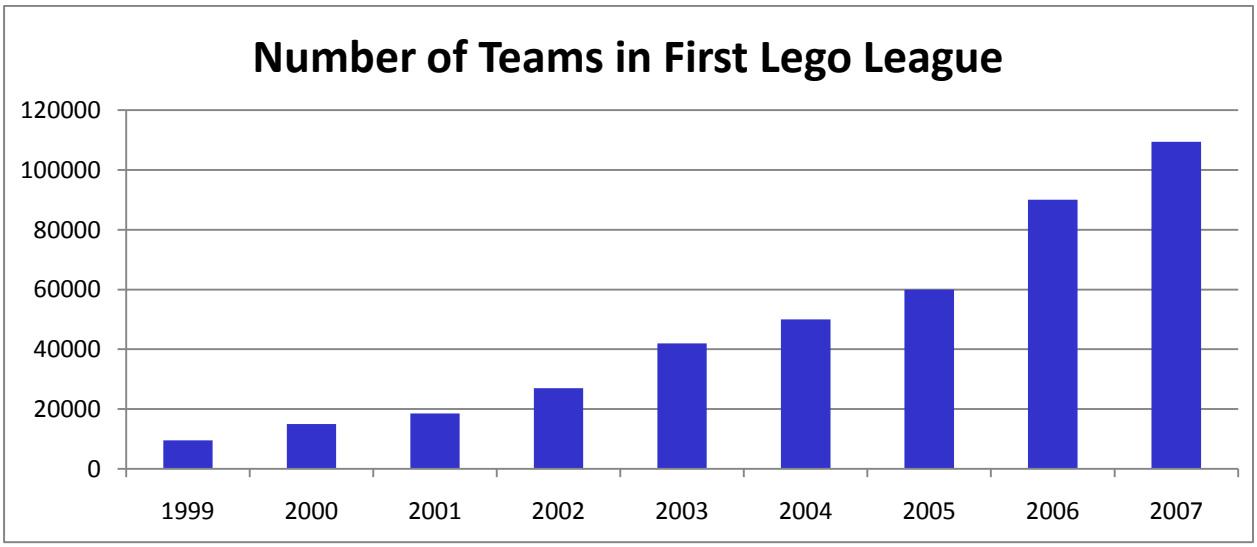
[15] The Institute for the Future, "Explore IFTF's Robot Renaissance: The Future of Human-Machine Interaction Map"
http://www.iftf.org/RobotRenaissance (Nov. 16, 2010).

Creativity as a competency is developed by engaging in a dynamic infrastructure involving creativity theory and LEGOS Mindstorms robots. You enter a miniature world. You must engage in applied creativity challenges to succeed and to improve performance.

Through the new and systemized creative approaches that RobotLab introduces, we are confident scientists as well as other team members within science parks will achieve a significant shift in mindset, enabling them to better generate sound strategic policies for their organizations to create a vision for dealing with many different challenges that do not appear at firsthand to have a solution.

What does this have to do with science parks? What is currently not available to science parks is training in creativity theory and a way to effectively apply creativity to issues that are of paramount importance to the leaders and employees of science parks. RobotLab has demonstrated success in facilitating very large events for adults, using FIRST LEGO League concepts.

RobotLab successfully deployed a creativity cup in Germany in cooperation with Frankfurt Economics. It had over 3000 participants from over 400 companies.



"Every company would just die to have the kind of growth and success we have had." Dean Kamen, founder of First Lego League, entrepreneur, and inventor.[16]

Kamen founded ***FIRST*** (For Inspiration and Recognition of Science and Technology). First Lego League is one of his many robotic programs.

Now imagine applying this type of concept to develop creative thinking within science parks. You can expect the perception of science parks as a cool and sexy place to work to be magnified.

The focus at science parks would be on people and processes. You build the creative thinking of the teams within your science park. You can expect team productivity and innovation to soar.

[16] Dean Kamen, Founder, *FIRST;* President, DEKA Research & Development Corporation http://www.usfirst.org/aboutus/content.aspx?id=48

In addition to learning how to be more creative and more innovative, here are some of the outcomes for the teams within science parks:

1. Develop an understanding of leadership effectiveness.
2. Develop an understanding of the dynamics involved with creating and performing more effectively as a team.
3. Develop and maximize time management skills.
4. Develop insight and understand the value of each team member's contribution to team effectiveness and performance.

Trend #4: Science parks face increasing competition for the recruitment and retention of (STEM) science, technology, engineering, and math candidates.

How do you create a social center where entrepreneurs, engineers, and designers from many disciplines can mingle and network? Think of Innovation Simulation Challenges as high tech coffee houses. They bring together teams from multiple disciplines. Science parks can nurture living, breathing communities where ideas are exchanged. This is in direct contrast to the research silo mentality.

Science parks can create a training base around creativity and innovation for white-collar professionals. Innovation Simulation Challenges would attract creative types from the disciplines of (STEM) science, technology, engineering, and math.

If you want creative types to live, work, and play within your science parks then you must give them something that is quite appealing as well as interactive that will broaden their minds. Give them an Innovation Simulation Challenge and they will thank you for providing the coolest game on the planet while at the same time you are preparing them to learn how to increase their performance to collaborate effectively with other teams and effectively interact across multiple disciplines.

Your science park becomes an acknowledged leader in developing creativity and then applying creativity to solve the world's most pressing issues. Your science park becomes the preferred destination for young creative talent. In addition, you add the element of excitement and enthusiasm to retain your current STEM talent.

Innovation Simulation Challenges create an atmosphere at science parks that make them more attractive to the brightest minds.

Trend #5: Science parks must find unique solutions for many significant global problems.

Science parks are at the forefront of finding emerging solutions to the most pressing global issues. Some of these issues include the economic downturn, concerns over our CO2 footprint, climate change, changes in population, the energy crisis, poverty, and the use of worldwide resources.17

The IASP has the infrastructure in place to focus the best minds in the world on finding solutions to these pressing issues. The question becomes how these brilliant minds might be even more fully inspired and equipped to generate truly novel solutions for the complexity they face.

[17] Bruce M. Haxton and Fred Meade, "21st Century Vision: Developing a Global Sustainable Science and Technology Park Strategy and Creating Economic Development Worldwide." P.1., (2009). http://i2sl.org/elibrary/documents/haxton_meade.pdf

Samuel J. Palmisano, Chairman, President and Chief Executive Officer, IBM Corporation sent a letter to his fellow CEOs. He offered three widely shared perspectives.18

1. The world's private and public sector leaders believe that a rapid escalation of "complexity" is the biggest challenge confronting them. This will continue to accelerate.
2. The CEOs in this survey made it abundantly clear that they are currently not prepared to cope with this complexity in today's global environment.
3. The solution identified by over 1,500 CEOs is to develop and instill creativity as the competency needed.

You must ask yourself if your science park is equipped to cope in an effective manner with this accelerating complexity. It is very likely your science park could benefit with creative thinking tools and processes to learn how to deal with the complexity around global issues.

How does a science park find the best path through this accelerating complexity? A solid grounding in the development of creativity provides science parks with the leadership power and creativity competency needed to explore what might be possible. Developing your science park's competency in creativity and innovation is how you find the best path through the complexity surrounding these significant global issues.

RobotLab's Innovation Simulations uses themes around global issues. An energy theme using electric cars and wind power was deployed during the Creativity Cup Challenge with 3000 attendees from 400 companies in cooperation with The Frankfort Economic Forum 2009.

ROI for Science Parks

Return on Innovation

If you are looking for some good news today, you will find it when you invest in developing creative thinking for your science park. Currently your focus is likely on cost cutting and survival. Science parks need creativity to succeed especially during an economic downturn.

Bringing creative thinking to your science park provides you with a focused thinking framework to generate solutions. An investment in creative thinking allows your science park to reduce costs, increase your team's productivity, and increase revenue.

Creative thinking requires a mind shift on your part. First, you must understand the nature of creativity. Creativity means maximizing the potential of your brain. By deliberately using structured creative thinking systems, processes, and techniques, you can learn to generate many, many ideas in just a few minutes and hundreds of ideas in a few hours.

Our focus is on developing team creativity for science parks. You must come up with a new idea before you can innovate. Innovation then is the implementation of a good idea that is successfully brought to market.

[18]Samuel J. Palmisano "*Capitalizing* on Complexity, *Insights from the Global Chief Executive Officer Study*, A note to fellow CEOs."
ftp://public.dhe.ibm.com/common/ssi/ecm/en/gbe03297usen/GBE03297USEN.PDF

For most science parks the entire focus seems to be on cost cutting. Certainly you can cut costs and still be profitable by investing in creativity development for your organization.

However, imagine shifting your focus to revenue stimulation. How does creativity development support increasing your revenue?

One way to increase revenue is to increase your team's productivity by identifying your employee's thinking styles. By a better understanding of how our brain works, you can align teams to enhance their collaboration and therefore increase their productivity. By taking specific and deliberate steps to increase productivity through the diversity of thinking preferences, it has been scientifically proven that a team's productivity can increase from 20% to 50%.[19]

In addition effective team collaborations will lead to breakthrough technologies where companies are born through a better understanding of the creative and scientific mind.

Science park leaders are currently challenged with solving significant global issues as well as important business, functional, and process issues with no easy or obvious solutions. The solution is to invest in creativity development. Creative thinking generates the ideas for strategic science park success by developing the thinking infrastructure needed to spark bottom-line innovations for thriving in today's new environment.

One of RobotLab's key objectives is to help scientists and science park teams, across multiple disciplines, to develop their strategic skill sets through a systemized approach to creativity learning theory, innovation, and international team collaboration.

RobotLab owns a knowledge-based and systemized process. It incorporates creativity, problem solving, innovative technology, collaboration, prototyping and testing of innovative solutions. Innovation Simulation Challenges achieve this by the deployment and use of LEGO Mindstorms robots and by creating a simulated learning environment for innovation.

In Harvard Business Review, *Creativity and the Role of the Leader* by Teresa Amabile and Mukti Khaire, Oct. 2008, advises us to "Motivate people to contribute ideas by making it safe to fail." RobotLab's Innovation Simulation Challenges creates a creative environment to motivate your top tier personnel in science parks to contribute ideas without fear of failure.

Through the new and systemized creative approaches that RobotLab introduces, your executives, scientists, and other science park personnel will achieve a significant shift in mindset, enabling them to better generate sound strategic policies for their organizations to create a vision for dealing with many different challenges that do not appear at firsthand to have a solution.

Conclusion

It is essential for the leadership of science parks to develop creativity within their organizations. RobotLab's Innovation Simulation Challenges are unique because this is a process that takes the theoretical and systemized processes of creativity and successfully applies them to strategic global challenges faced by science parks with an outcome of generating practical solutions.

[19] Ned Herrmann, The Whole Brain Business Book, Unlocking the Power of Whole Brain Thinking in Organizations and Individuals (New York, NY: McGraw-Hill, 1996) p. 132.

Creativity can be learned. However, science parks must provide their leadership teams with the tools, processes, and frameworks to nurture creative thinking. An Innovation Simulation Challenge incorporates training for teams to value diversity and to increase their performance.

Innovation Simulation Challenges have the power to engage your science park with the excitement and leadership instilled by creativity champions to recruit, grow, and retain STEM talent. Innovation Simulation Challenges create the excitement and branding needed to attract investors. Global companies are more likely to select your science park when you are perceived as a champion of an environment that nurtures creativity and innovation.