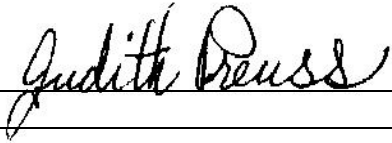


**XXIV IASP WORLD CONFERENCE ON
SCIENCE AND TECHNOLOGY PARKS 2007**

Contact Information

Title of the Paper	Understanding, Fostering, and Managing “Creativity”
Session for which the Steering Committee has selected the abstract submitted prior to this paper:	Plenary Session 1
Length of the paper:	3,505 words
Author & Paper Presenter’s Name:	Judith Preuss *
Co-Authors’ Names:	Josh Brewer, Chip Welter and Kevin Dale
Author’s E-mail:	judithpreuss@comcast.net
Organisation:	City of Clovis, Technopolis Clovis Core Committee
Address:	1752 Houston Avenue, Clovis, California 93611, USA
Phone:	(559) 324 8745
Fax (optional):	
I confirm my ability to present my paper in English <u>YES</u>	
By submitting my Full Paper I authorise the Conference Organisers to publish it in the Conference Proceedings (if the Paper is approved by the Steering Committee).	
Date	<u>February 28, 2007</u>
Signature	<u></u>

Note:

The abstract was submitted by Mr. Josh Brewer, but primary author and presenter is now Judith Preuss, who has been a co-author throughout the development of the abstract and paper.

IASP WORLD CONFERENCE ON SCIENCE & TECHNOLOGY 2007

PLENARY SESSION #1

“Understanding, Fostering, and Managing ‘Creativity’”

Executive Summary

Life could not exist, let alone improve and advance, without creativity. Creativity could not be what it is without overcoming skepticism; as human as it is to create, it is just as human to desire a guaranteed result and thus to fear failure.

There are countless examples from history, Thomas Edison’s light bulb among them, of remarkable inventions that have changed the world for the better. The success of these inventions could never have been predicted beforehand, and the chance that genius could turn into madness or failure was a necessary risk.

Understanding creativity is an ever-evolving science; fostering creativity is a challenging responsibility; and managing creativity is an art that requires balancing freedom and structure. In this grand history of creativity, The Technopolis Clovis Core Committee (TC³), a group of Clovis, California citizens, seeks to creatively foster the emergence of an innovative technology hub.

* * * *

I. Understanding Creativity

Creativity has been compared to both genius and madness. Scholars still debate whether creativity is a birth gift or a learned trait. Others further complicate the issue by professing that we are all born with a certain amount of creativity; parents, teachers, supervisors, and other influences may enhance our creative qualities, or they may quash it. Who is a genius? Who is mad? And is the end result of those factors really of concern in the quest for creativity? The debate rages.

When we think of creative people of the past we think of them in light of the end product of their creativity rather than the creative process from which the desired outcome was precipitated. Seldom do we consider the resistance and ridicule that they may have endured throughout the process.

The genius work of Thomas Edison’s development of the incandescent light bulb provides a good example. Skeptics could not understand how it was possible to hang the bulbs safely upside down, orienting them differently from familiar gaslights and oil lamps. Others were alarmed by the presumed threat from explosives to their houses and neighborhoods. “What would happen if the wires or the bulbs were to blow up?” they asked. Many people were concerned and even alarmed that electricity would leak out from a fixture that did not have a light bulb screwed into it!



On another front, in Europe there was resistance to the plans of Baron Georges-Eugène Haussmann, who was commissioned by Napoleon III to develop an urban plan for Paris. His city plan was completely

different from what Parisians had been expecting and were accustomed to. The large boulevards, the star-shaped intersections, the new bridges, and many other innovations made him many enemies. Yet, Haussmann persisted. Driven by his creative vision, he brought knowledge producers, commercial opportunities, art, transportation, and great environmental changes such as sewers, clean water systems, chimney filters with spark arresters, well-placed markets, and many other enhancements that did not exist in Paris prior to 1853.

Haussmann was a most creative planner, but even great plans can be quashed. In fact, when he was contracted to rebuild London after the great fire, he encountered so much resistance from Londoners that, unlike Paris, London was never coherently rebuilt. Sadly, the creative genius of Haussmann was lost on London Town.

Imagine, for a moment, a creative environment that might have embraced the outlandish antics of Walt Disney, the Wright brothers, Thomas Edison, George Lucas, or Steve Jobs *prior* to their accomplishments. Envision a place that would have facilitated the rapid development, presentation and acceptance of the products and ideas of these revolutionary thinkers. What would it have meant to the rest of the world? How much sooner would we have taken to the air in powered aircraft? Would we have had electrical power delivered years before we did? What would the world be like today if those who tried so hard to stifle the work of creative people had instead embraced innovation and technology? Where would we be without medical advancements, the laptop computer, the iPod, the Internet, the copier, the cell phone, and other extraordinary items that help ease our tasks or entertain our minds?

We can only wonder.

The path of creative faith is not always easily followed. Cities such as old Paris and modern San Francisco would need to shatter their habitual rigidities around perpetual and predictable outcomes in order to change the essence of their collective characters. To advance toward this vision, these cities must overcome many obstacles: the *fear of change*, the *fear of financial risk* and the *fear of failure*. These fears tend to provide for failure as a self-prophesized result for the visionless.

► ***Facing our fears***

How can this condition be remedied? How can we expedite the creative process in business settings that promote innovation? How many times have you heard of a marketable idea that went unrecognized; a revolutionary idea that washed out for lack of nurturing?

It is difficult to anticipate the result of a creative element but we have to allow it to emerge and even to fail, or we have learned nothing from the process. It took Thomas Edison 2,000 attempts before he succeeded in creating the incandescent lamp. His comment, though, was that he had simply discovered 2,000 ways how *NOT* to invent the incandescent lamp; he only needed one way to make it work.

When does an entire city allow space for failure? When does a city allow credence for learning without thought to conclusion? Can creativity be forced or is it just a process that happens? As with most great inventions, the world was most impressed with the baby after it was born but gave little or no consideration to the birthing pains.

It is our human responsibility to understand, foster and manage creativity. If we are to do this successfully we must be prepared to take the endeavor seriously, believing the outcome has mutual and multiple benefits for all mankind.

The term “creative genius” is generally discounted to mean someone other than your self. If we consider two words that come to mind after hearing the term “creative genius” it would be “risk” and “reward.” Why is it that most people are afraid to create out of nothing? Why is it that most people fear the unknown? Why is it that most people feel that they are not creative people? In the following paragraphs we will explore this phenomenon called creativity and analyze the result of our exploration.

Let’s begin our exploration in the late 1600s in Central California.

► *Central Valley development*

The San Joaquin Valley was a desert. The Indians needed food to survive. They lived near the two main rivers and fished. They took acorns, ground them and made flat bread. White men came and planted wheat, made shelters and created settlements. As the settlements grew, towns began, and governing infrastructure was implemented.

Where there is probable risk, there is always the presence of fear. If fear has a redeeming quality it would be that it measures the amount of risk present in a situation and communicates to us the need to minimize risk exposure. When unforeseen need is present, fear fades to the background and creativity abounds as a measure of our intended endurance as human beings.

In the San Joaquin Valley, Clovis is a town crafted from fear, courage and the need to create a successful community. Need was present in the creative methods of finding a way to channel water from two regional rivers into the valley leading to the development of the most successful agrarian valley in the world. Fear was always present, but it was the fear of failure superseded by the drive to survive that gave Clovis its roots as a creative community.

Technopolis Clovis Core Committee (TC³), a group of Clovis, California citizens, is looking at this creative phenomenon and intends to harness its transforming energy to recast the city into a venue that nurtures innovation and innovators. To some degree, Clovis is following paths that have been marked by such locations as Adelaide, SA, Australia; Cambridge, UK; Bari, Italy; Sophia Antipolis, France; and others.

If we are serious and ready to commit to the process of creativity and innovation in the community and workplace, we must be prepared to sustain an atmosphere most suited to its arrival and continued growth. The members of TC³ have provided the catalyst for this commitment and environment within the City of Clovis and the surrounding areas.

► *New models in education*

In the formal education system we are given a model of conformity that is applauded when followed; we are taught to follow traditional methods and to follow the rules. From an early age, we are trained to conform to social expectations and rewarded when we adapt to this behavior. It is in this very concept that we have traded our unique individual creativity for a badge of honor related to our adherence to the system in place.

However, within that formal, traditional educational environment, there are few shining examples of institutionalized educational systems that have initiated steps to foster innovation and technology; Clovis Unified School District (CUSD) is one of those few. CUSD has made its core program a supportive and nurturing arena for students’ creativity. Clovis understands that creativity is the backbone of a sound economy.

New models in education are, and will continue to be, a driving force behind the fostering of creativity, as we continue down the path of expanded technological knowledge and advancements. Occupations and titles not yet created within specialty applications and discovered through further exploration and expansion of this tech-based age will provide jobs that can hardly be imagined at this writing. One thing is certain, understood or not, they are imminent and forthcoming. In Clovis, the Center for Advanced Research and Technology (CART) is one such model of education that will most certainly be duplicated many times over.

CART is an innovative learning environment that enables high school juniors and seniors (students in grades 11 and 12) from the Clovis and Fresno Unified School Districts to make connections with their future through academic programs and professional partnerships with real world relevance.

The CART experience combines all the traditional class work components of a college preparatory program with practice in project-based applications of learning and enabling students to combine critical areas of their lives and learning. At CART, students are connected with a range of career possibilities for the present and future as they become immersed in a program of continuous improvement, and begin to regard education as an opportunity to become vital, creative members of their communities. CART students will ultimately constitute a highly skilled technical workforce that will create more technology-based businesses which will foster economic growth and generate capital for future investments. In partnership with education, business and community agencies, CART educates students in a cross curricular, project-based environment that is academically rigorous and facilitated through a business based instructional model.

► *Embracing risk*

Today, CART enjoys a national and international reputation for secondary education. However, establishing CART was a great risk. It was a creative idea, but could it be implemented? Fear of failure was always there, even for the first years of its existence. Tremendous planning and risk was involved to establish this educational model; highly creative people constantly and creatively improvised new ideas during the development of the program.

Risk is defined as “a chance of loss, a danger.” Now that it has been made clear that the kind of creativity that is being discussed is a level that assumes great risks and carries on in the face of fear, we must protect at all costs this endangered trait.

If we were to really believe in the inherent trait of creativity in one another, we would value and honor, with great sobriety, the sacredness of creativity to humanity and the unseen potential reward attached to its proliferation amongst us all.

If this is at all true, then we must consider our human responsibility to assist others toward the development of their individual creativity for the universally shared reward. It is in this approach that we will begin to create a natural and authentic environment for the healthy fostering of the creative genius in us all.

Teachers, administrators and the governing board of Clovis Unified School District believe strongly that parent involvement plays a critical role in the evolution of growth and success of a child in school. Clovis Schools charge parents to become involved in vast and varied activities of learning as befits their child’s chosen educational path.

Over the years, CUSD evolved a vision for technology in the classroom with a laptop for every student in the third grade. Through partnerships with parents, the district is working towards its vision of all classes

benefiting from laptops. To further this vision, the District has also entered into a partnership with the Central Valley Internet Project at California State University, Fresno to provide internet access to students, teachers and parents of the Clovis Unified community.

II. Fostering Creativity

Establishing environments for the development of creativity is certainly the key to unlocking the world we could know, versus our continued existence in the world we currently know. If knowledge based economies flourish, where others stagnate, then the answer is near for worldwide prosperity.

History shows that merchants used to set up shop on a main thoroughfare offering a service or goods that attracted people as they passed by. Over time, areas that were common to this atmosphere would become regular locations for merchants to gather. Many such sites became towns, and the larger the surrounding areas, the more diverse offering of services and goods existed in that community.



With the development of the World Wide Web we all have virtually become citizens of one community. This global community has more merchants added every day than any other physical market location in the world could ever accommodate. The dynamic that this connectivity to each other has created is a rapidly changing landscape. As we find out more about the specific needs of others, we are better equipped with the information necessary to offer solutions to these needs. The opportunities for creativity flourish as a constant result.

The fact of the matter is that our community is rapidly changing and society is being affected immediately. It is a transformation that has begun and cannot be stopped. The best thing we can do is to find ways to cooperate and partner with the creative forces behind the transformation of the community. Resistance to change of this proportion and pace will certainly deliver the deathblow to those communities who do not respond to and respect it.

Flexibility and openness as a corporate mindset are the characteristics necessary for an organizations' survival within this societal transformation. The ability to ramp up, respond and react quickly to emerging trends will be the core characteristics of the forerunners of innovation, invention and entrepreneurial genius.

How do we find our respective place in progressing toward this end? How can we be certain that we will not find ourselves victims of circumstances mentioned?

In this emerging community there will be a reshuffling of the cards, so to speak, with regard to positions and employment. People will find better where they "fit" in the big scheme of things and break free from positions of mere occupation to find their true vocation.

The creativity to which we refer needs a nurturing environment to emerge and a nurturing environment to flourish. Settings for these types of environments are best created at the local level where there is more relative assistance for the budding idea or enterprise. This fact is true regardless of whether the initiative is private citizen- or government-driven

Technopolis Clovis Core Committee intends to harness creativity's transforming energy to recast the city of Clovis into a venue that nurtures innovation and innovators. This is accomplished first by

providing a venue for the voice of the entrepreneur to be heard. The Central Valley Business Incubator is just such a venue.

The Central Valley Business Incubator (CVBI) in Clovis is a private/public partnership that nurtures the development of entrepreneurial companies. CVBI has helped hundreds of entrepreneurs start and grow businesses which have in turn infused over \$12 million in capital into our community.

Also crucial to developing and sustaining a creative community culture is the involvement of the city's economic development department in preparing the city to receive technology companies with the proper infrastructure necessary for a business to flourish. The cooperation of the local government also plays a key role in the equation. Clovis, the Clovis City Council members have banded together to create pathways for the "budding enterprise" to emerge in the community.

III. Managing Creativity

As we have seen, the influence of a community's creativity can be based on the steadfast nature of a collective group of people or even an individual person intent on honoring creativity over overt negativism.

Most communities have an abundance of conventional local businesses necessary for a community to exist. It does not necessarily afford the type of environment for progress in new endeavors outside the forms of familiar commerce. What would our communities do with businesses that allowed employees to work flexible hours or take time off for creative, innovative education?

For a business to take the same continuous action and expect a dramatically different outcome is futile. In order to realize acceptable outcomes in keeping with the goal of fostering and managing creativity in our local economics, we must reform our approach and our actions. If we truly seek to have a result of introducing new concepts in business and commerce, we must gently tweak the systems that manage this end.



How would we do this? As with all progressive successes having to do with planning, identifying problems, developing viable solutions and implementing those solutions, the process must be relatively free of constraints. What did we do before the first airplane was built? What did we do before X-rays? What does it take to generate and support free-range ideas? How many helping hands are needed to expand, or change, or attain a forward-thinking goal?

As with unique ventures, each situation requires specific attention. What will work for one situation, community or company may not work for a second one. Several arguments could be made against a more hands-on approach to creativity and its maturation. One of the arguments is simply financial; who would support and fund these ideas whose outcomes are not immediately predictable?

While the skeptic is tempted to predict that funds will not be available for a creative learning community to develop, history has shown that when the need is identified, the means to go forward appears. One solution that has appeared in our economy today is "venture capitalism," investors who are interested in supporting new ideas and willing to gamble on future profit for the prospect of growth outside of a culture and business box of rules and measures.

Establishing an expanding division of economic development that is representative of a community's progressive and innovative aim will foster fluid adaptation and acceptance of new forms of creativity in a given locale. It can be citizen-driven, it can be widely accepted, and it can be accomplished.

Clovis, California, itself is a blend of social and commercial creativity balanced on knowledge and revenue-production in a region that has historically been dependent on natural resources. We have already begun our quest of creativity with agriculture related activities: biotech, biodiversity, water/irrigation technology, and food sciences. The quest is about to be expanded to a plethora of new arenas.

Conclusion

In summary, could we say that the early native land of Clovis has taught us what it means to be entirely creative without restraint, much as the waters and the earth made their own paths to follow? Do we as human beings follow the path of change, chart our own course, or follow our own inner marvel toward greater outcomes or rewards?

The hope of future businesses and cities of the world ultimately rests on the answers to those very questions. Is Clovis ready to invest energy, cash, time and visionary experiments to achieve the goal to be more than we are? Is change worth the risk? Are we, in fact, willing to change?

TC³ asks these questions of its members and anticipates challenging answers. It is now necessary for this citizen-driven committee to generate a Concept Development Plan that will ultimately result in Clovis's transformation into a technopolis, an innovative technology hub for Central California. In an attempt to understand and possibly emulate similar successful international models, TC³ is planning the first-ever Clovis Technology Conference in October/November of this year.

In the final analysis, Clovis must change because it has *chosen* to change, to become a knowledge-based, revenue-producing community where quality of life, employment, and a venue for entrepreneurs and established knowledge industries will become a fact, a reality.