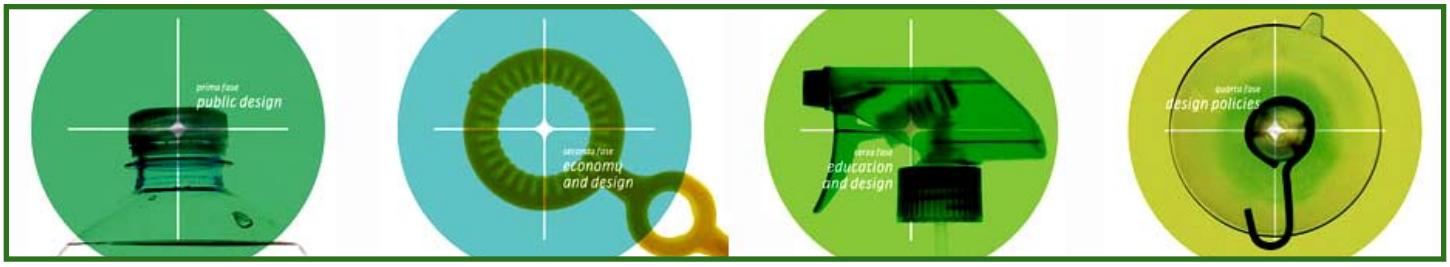
Innovation, Agglomeration & Creative Cities

Heather Chiang
Russell Taylor



The four calendar phases of the Torino 2008 World Design Capital project: Public Design, Economy and Design, Education and Design, & Design Policies.

Foreword

This paper came about after the SFU Italia Design Field School group's return from Italy in Summer 2007, unlike most of the other papers which are conceived and planned out before the group leaves for field work in Italy. The previous Italia Design field studies have touched on the topic of innovation and its many ties to agglomeration and creative cities; however, it has never been investigated in depth. This paper seeks to create a foundational work on the topic by pulling together the related sources and disciplinary studies into one whole that can be expanded by future studies in-field on this topic. At the time of writing it was understood that this topic would be explored in depth in Italy in Summer 2008 and is not the first paper produced on the topic. So what has been covered to date in the project on this topic?

The study of "innovative cities" was previously explored first in 2005 when Madison Poon was assigned to read James Simmie's book, Innovative Cities, and to model its content. That model will appear along with others later in this paper. We still use it. The topic is then explored at length in research papers on contemporary design and architecture in Rome and Milan, *The Rebirth of Roman Design* by Andrew Drinkwater and Russell Taylor as well as *Nuovo Milano* by Jayme Cochrane and Russell Taylor, both published in 2006. The purpose of these papers and their attendant studies was to understand the current state of and subsequently the design revivals of the once-innovative Italian cities Rome and Milan. In those papers we see the amazing persistence of these cities, which over centuries of historical change, rise up again and again as creative cities bubbling with renewed energy and momentum. How Rome and Milan will change in the next decade is still uncertain with many speculations coming from the Italian designers we have interviewed. However, from our studies, it is clear that both cities are experiencing massive change, if for no other reason than a belated response to post-industrialism. We clearly identified that there has been and will be significant changes in design and manufacturing mentality in the urban and architectural landscapes of both cities which serve as markers of that change, as well as changes in the Italian state, society and public realms such as education that affect design and innovation.

Our 2006 papers documenting this massive shift in Italy's two largest cities saw positive portents that might yet bring stability to the Italian economy and maintain - or even save - the design economy it is based on. We believe as urbanists that a city must change, and be reinvigorated and affected by contemporary ideas for it to move forward and stay "alive", to not remain a museum of ancient policies and artifacts. Italy still runs this risk thus so do Milan and Rome. In 2007 we began thinking more on innovation and what was stalling its progress in Italy. Designers in Italy, on return in 2007, seemed less enthusiastic than we were. Italians are by nature pessimistic about things that involve their economy and particularly, government. We wanted to know what other places, other innovative cities, were doing that was causing them to seemingly shoot past Rome and Milan's impressive growth, and what Italian cities were not. So from the urban scale we now begin a cycle of looking at what is happening at street level by studying Rome's most vibrant neighborhoods, and begin to study Torino, the World Design Capital of 2008.

To begin this work in advance of the summer 2008 studies, agglomeration and innovative cities were also studied by senior interaction design students at SFU as new content in the regular course curriculum. They were looked at from the angle of how we as "creative workers" can understand what cities are "happening," and why they are, how cities change and how agglomeration takes place, and the importance of being in a place bustling with creative energy. This is something the serial *Fast Company* magazine does each year in its intriguing "Fast Cities" issue. Vancouver was listed as one of those cities by *Fast Company* in 2007 - Rome and Milan, were not. So we went back to the key sources on this topic and began to try to make sense of all of this.

In the context of this paper we will look mainly at three texts on agglomeration and innovation theories: *Innovative Cities* by James Simmie, *Post-Capitalist Society* by Peter F. Drucker, and *Cities and the Creative Class* by Richard Florida. Each of these books presents a slightly different spin on the topic. All of which however, embrace similar viewpoints and work with each other to fill in a more complete picture. We will include information models on agglomeration and innovation done by students who have studied this topic under the guidance of the authors of this paper, and then apply these theories to understand several innovative cities around the globe. By doing so, we hope to provide a primer on the topic, bring sense to it, make it useful, turn information into useful knowledge and apply it in the next round of studies in Italy in Summer 2008. The student team who will work on that material will look back to this paper as foundational text on this subject. We see this as a significant area of study that lies at the center of designers understanding their relationship to technology, and to the global environment they will practice in. And we hope that others might find the work useful and enjoyable.

Introduction

For decades intellectuals have debated what factors make certain cities flourish. Growth, in of itself, we now know is not a marker of a good and economically strong city. As with other emerging areas of sustainability, cities that grow without plan and without certain kinds of urban assets, developments, workers and industries will almost certainly not be innovative. What fills some cities with energy and an unstoppable momentum that builds upon itself while many other cities remain uninspiring no matter how much investment was put into local businesses and city planning? What causes some cities to weather economic ups and downs without much effect on employment and production and others to limp along until conditions change? We first wondered about these questions upon beginning to understand the importance of Milan to all of Italy. With Milan Italy is a top eight GDP-producing nation. Without Milan, it would economically resemble Greece. As Silvio Berlusconi ground Italy to dust in the last five years Italy shuddered. Milan seemed to shrug. Meanwhile nearby Northern Italian city neighbor Torino limped out of the 1990's still reeling from the drop in its auto manufacturing base. But, with the application of what was working in Milan and elsewhere in innovative cities, even Torino seems to be making a remarkably swift post-Olympic turn-around.

In fact, with enough intellectual minds and hands on deck, a city can transform itself into a top tier innovative center within a short timeframe. Numerous cities worldwide are proving this theory, Buenos Aires, Argentina and Tampere, Finland among the most remarkable. But perhaps the best case study of this is the City of Torino in northern Italy. Torino was officially named the first ever World Design Capital on September 30, 2005, in recognition of the crucial role Torino and Piemonte play on an international level in the field of design and with the goal of transforming the industrial city to a post-industrial European city (Torino 2008 World Design Capital, 2007).

"Torino is a city that is full of life. For years it had been saddled with the image of a gray, industrial metropolis" (Torino 2008 World Design Capital, 2007). "The city's candidacy to host the 2006 Olympic Winter Games and the launching of the Strategic Plan to enhance the City of Torino's international position marked a change in the city's vocation, from its historical industrial roots to a diversified economy of services, in order to valorize research and innovation" (Torino 2008 World Design Capital, 2007) Today, its vivid cultural panorama, its high quality of life and "the presence of research centres, style centres, and model and prototype laboratories in various productive sectors presents an added value to the strong industrial tradition in Torino and Piemonte" (Torino 2008 World Design Capital, 2007).

So how did they do it?

Torino 2008 World Design Capital is an ambitious project, an opportunity that involves many of the city's communities along with designers from around the world to together enhance the city with four strategies: raise public awareness in design by putting the daily life and experiences of its citizens at the center of the events, incorporate design innovations into businesses by showing businesses and designers the opportunities offered by mutual involvement in developing new ideas, reform design education by pinpointing a multidisciplinary educational model that will efficiently prepare students to face the challenges of international competition, and finally, develop policies aimed at recognizing the growing importance of design in economic and social developments (Torino 2008 World Design Capital, 2007). And clearly, behind this, as is so equally absent in Milan and elsewhere in Italy is local government agencies and initiatives.

"From Spoon to City" Torino 2008 event: a symbolic store with visual and televisual representations dedicated to stimulate discussions on architecture, design, and creativity.

The initiatives of Torino 2008, will take the form of special projects, events, exhibits, conferences, trade fairs, and school projects, with flexibility (in education, transportation system, methods of work, and mixtures of cultures) as the theme that ties them together, and design as a tool to "help re-establish new equilibriums and redesign a more sustainable and shared future" (Torino 2008 World Design Capital, 2007). In other words, Torino is carefully "designing" an innovative city based on the newest strategies and understandings of how creative cities "work." In fact, Bruce Sterling, an American speculative fiction writer and highly acclaimed futurist thinker and design critic, is currently living in Torino so as to be right in the middle of action of this phenomenal transformation (Experientia, 2007). Sterling has long been associated with "World Changing" initiatives such as the bi-annual "Doors of Perception" community and conferences. We have truly come a long way in the field of design to arrive at this point where design thinkers and designers have gained a voice to innovate and change the urban fabric of an entire city. Torino is modeling after the core idea of innovative cities: the creation of innovative centers around which like minds agglomerate and share resources.

In the contemporary world, it is no coincidence that certain cities grow faster than others, becoming international hubs, and that they are doing it specifically by developing innovative centers. Innovative centers are clusters of innovative firms and institutions, with policies that support innovation, and above all they are created by a constant input of highly educated creative workers and knowledge workers. Without innovation a city can grow in size by supporting various industries, but it would not grow in terms of the quality of life or the energy of the city, nor would this growth in size lead to the creation of innovation - it would stay a big industrial, metropolitan area, which does not lead to a sustainable future. But when cities pay attention to quality of life they attract the knowledge workers and creative workers, and compete for their residency in the cities and their contribution to the innovative economy. Sterling in Torino is but a high-profile example. Innovative cities must compete with each other for the best talents, as companies needed to in the past. Cities that get this are transforming themselves to attract the best and the benefits are clear. An innovative city does not need to have this start, as say New York or Paris does - they can build it by design. It is possible for a city to transform itself into an innovative city such as has been the case of Torino, San Francisco, Buenos Aires, and Barcelona - world design and technology capitals that also happen to be some of the must pleasant and memorable places to work, live and visit. These creative cities are becoming increasingly important to individual knowledge workers, to the cities themselves, to the region and country, and to a globalized, interconnected world. But is this all “hype”? What is the factual basis of this claim? How does it work? What makes it work? The basis of it is how companies cluster in cities and how truly innovative companies create energetic clustering.

Innovation & Agglomeration Theories

Since the beginning of the 19th century, theories of “agglomeration” have been devised in an effort to explain why and how firms and industries cluster together in particular central areas in certain regions, and the effects of these theories echo in major economic policy decisions. So, this is not just business knowledge; we’ve known about it for some time. However, at first, traditional agglomeration theories were not concerned specifically with innovation. They focused on market relationships among the firms and customers of the regions, the cost benefits for firms to share pools of land, labour, capital, energy, and transportation (Marshall, 1890) as well as the beneficial impacts of one firm’s new investments on the possibilities for greater profitability among other local firms (Scitovsky, 1963).

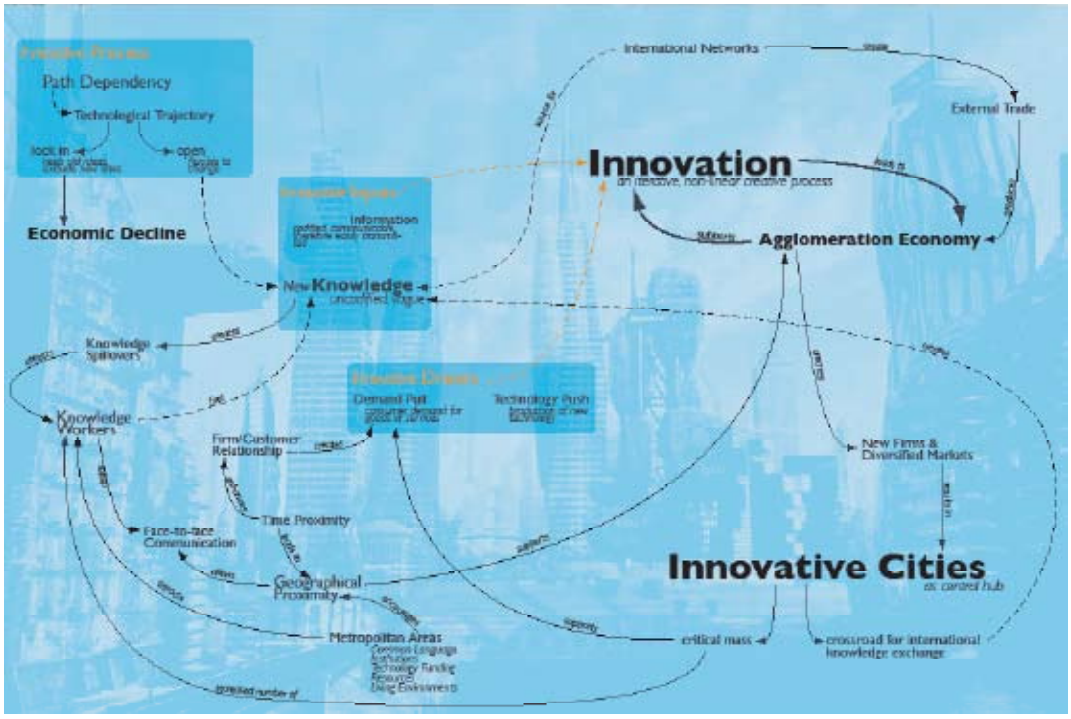
Many factors that may support and lead to agglomeration and innovation have been presented over the decades. It is argued that “entrepreneurs in small firms select external inventions, develop and commercialize them within the firms and

produce innovations. This involves both temporal and spatial clustering," while others have proposed that innovation is both pushed by the supply of ever advancing technology and pulled by consumer demand, stressing that innovation is an interactive and not a linear process. These also lead to agglomeration due to the spatial proximity required by production companies to produce the technology and the time proximity required for firms to establish relationships with their customers and clients (Simmie, 2001). Once in existence, agglomerations also interact with innovation in a supporting role. This role includes the accommodation of large pools of resources such as land, labour, and capital. This intense network built by the firms specializing in a particular field or process of production can permit ever-increasing degrees of specialization by facilitating subcontracting among the firms. The advantages of local proximity may minimize the costs of their constant innovation and change or raise productivity by creating new combinations and new use of resources. The greater the size of agglomerations, the greater are the opportunities for profitable networks (Simmie, 2001). Certainly many of these factors are at the heart for example of Italy's "Economic Miracle" in the 1950's and 60's [see *The Players of Italian Design* by Betts, R., Poon, M., Lam, H., & Taylor R. (2005)].

By the mid 1900's, *Joseph Schumpeter* (1942) brought about the idea of "creative destruction," defining innovation as including "new commodities, new technologies, new sources of supply and new types of organization." Since then, "innovation has moved to the heart of economic policy making" (Simmie, 2001). More recently, knowledge has taken the central stage in theories regarding how certain regions become and stay innovative. New information and knowledge are now seen as the essential inputs to create innovation. "In so far as their generation and transference are related to space, they may also provide some explanation of the disproportionate concentrations of innovations in some regions rather than others" (Simmie, 2001).

Braczyk *et al.* (1998) argued that firms learn about new knowledge through local firms and research institutions and interlinked organizations that support and conduct innovations; therefore geographic proximity is important in facilitating the personal exchange of new knowledge between knowledge workers. In fact, innovative firms may have difficulty in monopolizing the new knowledge that they create (Lundvall, 1990; Beije, 1992; Lundvall and Johnson,1992). This will lead to the key factor of "knowledge spill-overs," mainly from larger companies and institutions defusing to other related, smaller companies in the local agglomeration. This can take the form of knowledge workers leaving the large companies to work in other companies as well as knowledge being transferred via the Internet, in conferences, trade shows, workshops, and meetings. These are important in the exchange and sharing of knowledge between individuals, organizations, busi-

ness consultancies, and capital firms (Saxenian, 1990). Another important source of new knowledge is the latest best practice or R&D from other advanced economies. “In most cases international best practice or the latest technologies are not confined to a single region. International interchange between the most innovative regions is therefore an important source of new knowledge for them” (Simmie, 2001). In this instance, time of exchange is facilitated by geographic proximity to international hub airports (Simmie, 2001). Simmie argues that this theory of international knowledge exchange is a plausible explanation on how some firms and regions are able to become innovative for the first time. So, Simmie naturally has been a core source for this study.



Agglomeration & Innovative Cities *info model by Madison Poon*

Innovation is an iterative, non-linear creative process that leads to Agglomeration Economies, which create new firms and diversified markets that result in Innovative Cities. Innovative Cities are crossroads for international knowledge exchange; they create New Knowledge that serves as innovative input to spark innovation and leads to Knowledge Spillovers, which are attractive to Knowledge Workers. Time Proximity and Geographical Proximity support Agglomeration Economy, enhance Firm/Customer Relationships, and allow Face-to-face Communication which Knowledge Workers desire. The Innovative Process is often Path Dependent. If it’s open and flexible to change, it can lead to the production of New Knowledge. If it’s locked on old ideas and exclusive of new ones, it may lead to Economic Decline.

His work has allowed us for example to understand how Torino's turnaround has been so swift. We also noted the classic Italian design manufacturer Saporiti by year 2004 moving out of central Milan, closing the traditional "showroom" and locating their "hub" within a ten minute drive of Milan's new International Airport at Malpensa, and we discussed this decision with Rafaelle Saporiti in 2004 and 2005 (Saporiti, 2005). And while many other traditional, family-owned furniture businesses in Milan have suffered hard times in recent years, such as the sale of Cassina to German Poltrona Frau, Sapoiriti has diversified and gotten out of the traditional furniture business it began in. Saporiti works on a time proximity model of agglomeration-innovation.

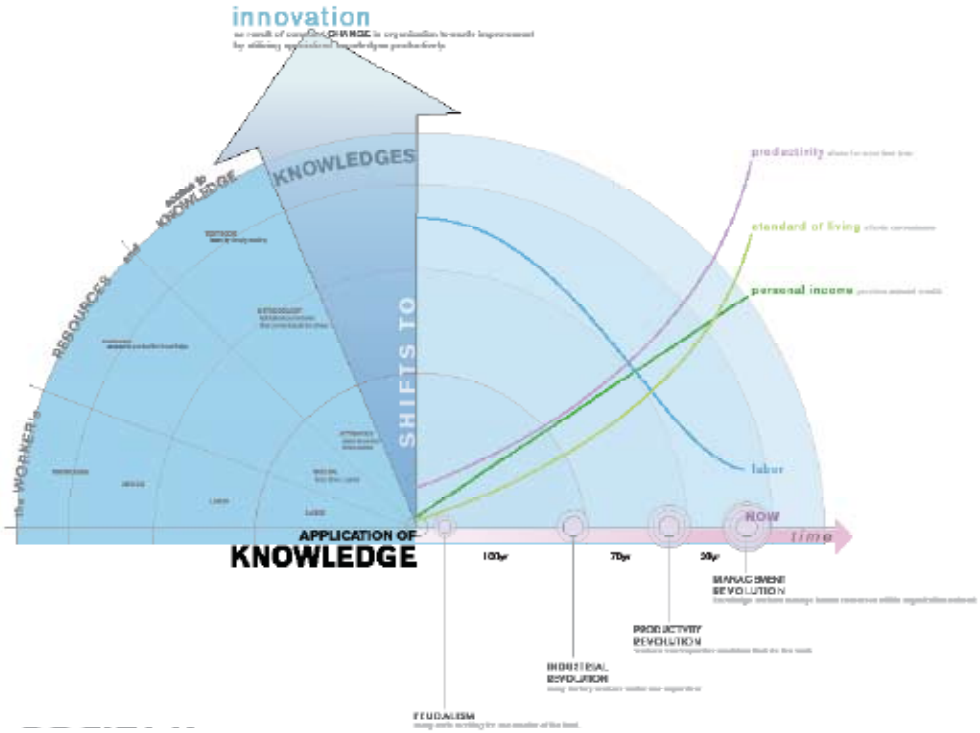
In fact, research shows that the most important factor of producing knowledge-based innovative industries is a concentration of highly educated and trained knowledge workers, and the location of these workers who can contribute to the production of new knowledge is critical to the agglomeration of innovative activities (Audretsch, 1998). The strong demand for innovators gives such workers higher degrees of choice over where they want to live. Generally, the regions that possess agglomeration economies, high quality facilities and attractive environments are in a better position to attract and retain innovators (Lambooy & Boschma, 1998). Larger companies and R&D in headquarter regions now have both the resources and the incentives to scan the world for new ideas and knowledge (Vernon, 1979).

This is aided by proximity to similar organizations and customers in other global nodes, which is further facilitated by infrastructures such as international airports that are also usually located in the same regions. These world cities become centers for international communication and interaction and have the highest probability of obtaining access to relevant information and adapting to change (Pred, 1966).

Along a parallel line of thought but in another discipline, management theorist Peter Drucker also put firm emphasis on the primacy of knowledge as far back as the 1980's, arguing that we had already entered what he termed "the Knowledge Economy" - a post-capitalist society in which the primary resource is knowledge. "The traditional 'factors of production' - land (i.e., natural resources), labor, and capital - have not disappeared, but they have become secondary. They can be obtained, and obtained easily, provided there is knowledge. And knowledge in this new sense means knowledge as a utility, knowledge as the means to obtain social and economic results" (Drucker, 1993).

He argued that the leading group of the knowledge society are "*knowledge workers*" - knowledge executives, professionals, employees - who own their knowledge

and take it with them wherever they go. They are highly skilled workers who now also possess a substantial amount of formal knowledge, formal education, and



Knowledge & Innovation *info model by Geraldine Chong, Jihye Kim, Joyce Leung, & Karen Lo*

Over the years, Workers' Resources and Access to Knowledge have evolved and improved, leading to a decrease in Labor and an increase in Productivity, Standard of Living, and Personal Income. This results in a shift towards the Knowledge economy, in which Innovation is created by Applications of Knowledge and as a result of constant change in organizations towards improvement by utilizing specialized knowledges productively.

the capacity for continuous learning because knowledge is constantly changing. Knowledge workers who can combine discreet knowledges and who can make knowledge productive are the most valuable employees according to Drucker (Drucker, 1993).

In most institutions and companies (what Drucker calls "organizations") each member makes a vital contribution without which there can be no results. "Organization is therefore always in competition for its most essential resource: qualified, knowledgeable, dedicated people. This means that organizations ... have to

attract people, have to hold people, have to recognize and reward people, have to motivate people, have to serve and satisfy people" (Drucker, 1993). They need to offer them exceptional opportunities to be effective. Like Simmie, Drucker (1993) argues that "the productivity of knowledge is going to be the determining factor in the competitive position of a company, an industry, an entire country." So, it was natural that from this bi-partite agreement from esteemed experts in two discreet disciplines that we began to realize that cities themselves would also be so organized. Drucker also stresses the importance of schooling, the institutions of knowledge themselves, maintaining that schools have a new responsibility to imbue students *first and foremost* with the motivation to learn and with the discipline of continuing learning, so as to be able to remain innovative in the knowledge applications of their field. They need to become, he argued, much more of a "open-system" available for everyone, to impart knowledge both as substance and as process. Finally, organizations of all kinds - businesses, government agencies, non-profits - must become institutions of learning as well. Schools must work in partnership with employers and employing organizations. It seems in our Torino example that these principles have been applied. We will focus specifically on cities that are modeled after these theories below. But first, we must introduce one more disciplinary knowledge to bring specificity to this argument, in order to explain how an innovative city and its innovation centers are and can be created.

Creative Cities

Since highly educated knowledge workers own the method of production, that is, their knowledge and ability to learn, they become highly *mobile* as the demand for knowledge workers increases. They also become more impermeable to economic down-turns. But how do cities get them to stay? Richard Florida (2005) argues that innovation is not merely a process of technological invention, but also a process of organizing and mobilizing talent. With regard to agglomeration, he believes that "companies cluster in order to draw from concentrations of talented people who power innovation and economic growth." Therefore, the questions for him become: "What motivates the location decisions of people? How do people's location decisions affect the ability of places to be innovative and spur economic growth?" Studies have shown that it does matter critically where people decide to locate. "[The cities] provide the thick labor markets that help match people to jobs, mating markets that enable people to find life partners, social markets that encourage people to form meaningful friendships, and amenities that allow people to pursue the lifestyles they wish and the ability to validate their identities" (Florida, 2005).

Florida identifies a group of knowledge workers that he calls "the Creative Class." These members engage in work whose function is to create meaningful new forms. But the Creative Class does not merely refer to people who would traditionally have been considered "creative" such as artists. "The core of this new class includes scientists and engineers, university professors, poets and novelists, artists, entertainers, actors, designers, and architects, as well as the thought leadership of modern society: nonfiction writers, editors, cultural figures, think-tank researchers, analysts, and other opinion-makers" (Florida, 2005). Members of this creative core produce new forms or designs that are readily transferable and broadly useful. So what do creative workers demand from their cities? The Creative Class are specifically attracted to live and work in a city that is highly *tolerant and inclusive* of all ethnicities, races, and sexual orientations, that has an *abundance of talented and educated people*, and that has a *high concentration of innovation and high*

Talent & Innovative Cities *info model by Samanthi Jayetileke, Katrina Chua, Azmina Karimi, & Gurpreet Badesha*

Innovative Cities offers great Environments and lifestyle amenities. They have an abundance of highly educated and Talented people and attract new Companies that cluster to create Agglomeration, which then foster Innovations. Innovations and new knowledge fuel Economic Growth, which is both created and benefited by the Companies. Organizations within Innovative Cities support and manage Innovation and may fund universities to provide education to foster Talents.

technology. In addition, forward-looking regions see the *environment* as a source of economic competitiveness, quality-of-life, and talent attraction. "They have undertaken efforts to reduce sprawl and move to smart growth, promote environmental sustainability, clean up and reuse older industrial sites, encourage firms to adopt environmental management systems, and preserve natural assets for recreation and improved quality-of-life" (Florida, 2005).

In our 2006 papers mentioned above Cochrane, Drinkwater and Taylor specifically focused on this aspect in order to understand what was happening in Milan and Rome. Vancouver began its transformation along such lines in the 1970' s with the visionary re-development of its urban and maritime core as did numerous cities worldwide since that time. This city center redevelopment could broadly be described in urban terms as "post-industrialization." Vancouver factors in *Fast Company*'s 2007 "Fast Cities" list for this specific reason, which is the basis of its positive urban and sustainability reputation. So, Florida (2005) maintains that it is this mix which must be pursued and not merely a desire to create a climate for high technology or any other single factor.

These cities or regions are creative centers that boost innovations and high-tech industry growth as *signs* of overall regional vitality and energy. But, it is their openness and spark that attract innovative creative workers from around the world, constantly feeding the already strong knowledge-base. Indeed, such cities can be measurably shown to be the economic winners of our age (Florida, 2005). To identify these regions, Florida (2005) has created the "Bohemian Index", a measure of the concentration of working artists and designers, writers and actors, dancers and musicians in an area in order to examine what effects such concentrations had on the location of both highly creative individuals and high-technology firms, and the "Gay Index," a scale used to probe the relationship between diversity, creative capital, and high-tech industry growth. These measures proved to be highly predictive of creative centers with advanced high-technology firms, innovations, diverse cultures and creative workers.

So, now that we have all of that, just how do the Italian cities rank? Are they creative and knowledge centers? Are they measurably innovative? No matter how pleasant a city may be, innovation may not be what is driving its economy. In the case of many Italian cities of course, its not innovation that greases the olive press - its tourism. Is that sustainable over the long term?

Rome, Milan & Torino, Italy

Italian cities have given birth to wonders in the fields of art and craft, industrial and fashion design, as well as architecture. Among them, Italy's two largest cities Rome and Milan, two of the four cities the Italia Design Field School has gone back to year after year, have been incredibly persistent as vibrant urban centers. If you want to study what works in cities, these centers are among the world's best. And history has shown that time and time again they establish and re-establish themselves as two of the top innovative cities in world arts and design. But in the past half century, Rome and Milan have both experienced significant periods of stagnation due to policies that resist any alteration to their famed historic centers, and although Milan has been a global leader in fashion and design since the Italian economic miracle in the 50's and 60's, the growth largely took place in neighboring suburban areas while the center of Milan remained virtually unchanged after the post-war rebuild of whole neighborhoods. They weren't able to make the post-industrial jump to transform themselves into cities suitable for contemporary life until very recently. In Rome and Milan there is a gradual but significant shift in the political landscape and an important adaptation taking place among design industries in response to globalization and the passing of the old generation of design masters. Milanese architect Cino Zucchi (2006) said that Italians accept the idea of layers, the idea that over time, designers and architects add to the city, creating layers of meaning and structures as they all contribute to a collective artifact. And it is this long-view thinking, innate to Italians and Italian design, that is guiding Rome and Milan to slowly transform themselves to contemporary, post-industrial cities. But ever so slowly.

Currently there are new projects popping up everywhere in Rome and Milan, the large variety of projects include public civic spaces, train stations and public parks, business and congress centers, museums, cultural and community centers. These Italian cities are able to stand back up because they never forgot that public spaces and architectures are made for people, indeed they become part of their lives, and for that reason people should always remain at the core of design and people's needs should lead innovations. These cities do not need to learn how to make great urban spaces, in other words: they invented the craft and have been the world's best at maintaining it ever since. It is precisely this quality, this ability, and heritage which attract tourists to Venice and the rest of Italy, even if they don't realize that is why they came. Meanwhile, a counter-argument can now be made that this tourism is slowly killing the Italian cities, replacing authenticity with ersatz novelty. And it is for this specific reason that innovation in Italy and Italian Design is the key to move forward, thus our excitement over the new architectures and urbanism in key new projects entering the Italian cities that challenge the Italy-as-museum paradigm.

The Parco della Musica by globally-recognized native-born Italian Renzo Piano is one of those key new projects in Rome; it is simultaneously a high-culture venue for music and recording and a place for the ordinary and the low-brow to gather and enjoy concerts. More importantly though, its central piazza is a public community space for families and young adults and a place away from all of the tourists who have taken over the great Roman historic squares. Zaha Hadid is currently constructing the Museum of the 21st Century (MaXXI) which will be Rome's first museum of contemporary art. Imagine. How can that be? Rome? *Its first?* This is how long Italy's cities have slumbered. The museum is meant to be a flexible space, able to adapt to the needs of different exhibitions. It is expected to house a variety of collections, offices, apartments, a library, and an outdoor demonstration space (Danda, 2006). Massimiilano Fuksas, another native-born Italian, world renowned architect with an international portfolio, and his construction of the new EUR Congress Center brought significance and energy to the old Fascist suburb on Rome's southern edge. In this project, Fuksas proposes a design that will add the element of positive emotion to the center. The building is a cloud within a box, "a building that has no crystallized form at all" (Arcspace, 2004). All three forms are quintessentially post-industrial. But are some good new buildings enough to make an innovative city?

In Rome, however we also see a promising development that looks and smells like agglomeration. Many new young firms are emerging, and *clustering* around the re-energized Ostiense area, creating a design innovation center by drawing

Principal IaN+ architect Luca Galofaro, during our interview in 2005 (Left)
Music Rack project lead by Arduino co-founder Massimo Banzi in Roma d+ Design Piu 2007 (Right)

knowledge workers, students, talents, designers and architects to the area (Drinkwater & Taylor, 2006). IaN+, Labics, Giametti+Giametti and Ricci-Spaini are some of the best firms who are winning competitions both within and outside of Italy, bringing young architects in to work on new projects (Drinkwater & Taylor, 2006). It is of no surprise that the Roma Design+, a fledgling new annual international design event that promotes and enhances design culture in the forms of exhibitions, seminars, meetings and performances held in various locations around the city, is centered in a recently completed Ostiense cultural center as well (Roma d+ Design Piu, 2007). And in the case of the MAXXI project, the Ostiense building is, as many other old industrial era buildings would, being put to new use, as a cultural center.

Massimiliano Fuksas's Nuovo Polo Fiera during Salone del Mobile 2007

In a similar fashion, new developments are starting in the center of the city in Milan, creating private and much needed public urban spaces. The Nuovo Polo Fiera designed by Massimiliano Fuksas, an enormous exhibition space that is both beautiful and highly efficient at moving a large number of people through the various spaces, seems to have sparked the contemporary transformation of Milan. The choice to move the site of the annual Salone del Mobile outside of city center and closer to the Malpensa airport led to further developments of that neighborhood that are still connected to the center via metro lines (Cochrane & Taylor, 2006). And as with the move of Saporiti to nearby Novedrate, moving the Fiera and the Salone to a location closer to Malpensa evinces time proximity clustering.

But many of the new spaces, immense old industrial sites for industrial age giants such as Pirelli, are within the city's urban core.

Aimed at connecting the urban and suburban areas and incorporating multi-use, open public areas, and designing with people's needs in mind, Milan's new developments are dispersed throughout the city and not just concentrated in the center, but all are connected by a now extensive metro system. The largest projects of these involve creating public gathering spaces and parks. La Citta della Moda, The City of Fashion, composed of commercial buildings, residences, schooling and shops, and an urban park and piazza that unites the organically shaped buildings, provides a central location to showcase Milan's business giants while providing a space for social gatherings and green space, and concentrating design, fashion, communication, culture, university and research in the same location.

For more specific information on all of these projects, see our 2006 research papers *The Rebirth of Roman Design* and *Nuovo Milano* for an in-depth look at modern Rome and Milan. Suffice to say that Milan and Rome are both showing certain signs of clustering and the creation of innovation centers. Whether the process is centralized enough is another concern. Several Milan-based architects and designers expressed concern in our 2007 interviews that these projects were being driven in MIlan at least by commercial property speculation more than any cohesive goal for city and region innovativeness. However, Torino may be breaking this unfortunate Italian mold.

Since their 2006 Olympics the city of Torino has been rapidly transforming itself, using flexibility as the motif and design as the method behind all projects. Unlike the mainly architectural transformations in Rome and Milan, changes in Torino are guided by exhibitions and events that raise cultural, social, economical and educational awareness in design, creativity, and innovation. World Design Capital is a title awarded every two years by ICSID (International Council of Societies of Industrial Design) to one city in the world with a strong predilection for design as an economic, social and cultural growth factor (Citta' di Torino, 2007).
The Torino 2008 World Design Capital events run from November 2007 to December 2008 and each month they focus on a theme, a particular point of view on design, architecture, and graphics (Citta' di Torino, 2007). We shall see what emerges out of this initiative, but early signs seem to be positive. And when asked the specific question, "where is the hot new design and young designer in Italy today?", for many of our Milan-based interviewees, including notably Aldo Cibic, their answer was, Torino.

Torino is on the radar as a possible Italian city that the Italia Design Field School group will visit and study in the future precisely because it is transforming itself into a highly innovative and sustainable contemporary city, by producing knowledge and creative workers and attracting more from all around the world to work on projects with them. This project is without a doubt experimental, however it is bound to have long-lasting positive effects that will set an example for the world to see how far creativity and innovation can go. If Torino can pull it off, we will be able to see how a specific Italian city, with little else to sustain itself, has carried out the trick. We can only hope. So what is it that Torino is attempting to *become*? We'll now look at three non-Italian cities that have emerged as key examples of post-industrial knowledge economy creative cities with innovation centers - San Francisco, Buenos Aires, and Barcelona. So what is it that they've done? How can they operate as exemplars of what we are looking for?

San Francisco, California

San Francisco has emerged as an international center for design and high-technology with a thriving community of designers from all over the world. There is a vibrant energy in the city: all kinds of cuisine line the streets, the design studios are only a few blocks apart, dotted by museums here and there, plenty of interesting little design stores come in groups, and the shopping centers draw in a constant crowd of tourists. San Francisco is beautiful near the waters. And on a

San Francisco and its surrounding innovative regions

well-loved cable car system that has not lost its charm, anyone can enjoy checking out the people, stores and architecture while riding ridiculously-steep hills as if on a roller coaster.

The city is still very much tied to Silicon Valley's fortunes, thriving off of the economic advantages, innovations and creative workers within, which in turn improves the lifestyle amenities and fuels the city's appeal and ability to attract more talent. It's also "hatching its own digital-media sector and a biotech and biomedical hub around UCSF" (Fast Company, 2007). The University of California is a leader in biomedical engineering, constantly attracting and training young creative workers in health sciences and engineering. Graduates from institutions such as Stanford University, after going through programs in business, engineering and sciences, can often find opportunities to collaborate openly with and inside companies in Silicon Valley (Slavin, B. & Dolnik, M., 2007).

It is a city open to many ethics, lifestyles and sexual orientations and is highly tolerant to other cultures; there are major design conferences, seminars and workshops, as well as events such as marathons and pride parades. The population is made up of a great variety of ethnic backgrounds. Designers know each other in the well-developed design community and there are collaborations and friendly competitions among the design firms. They hold parties, discussion sessions, and studio tours among themselves. There are many design and high-tech companies in San Francisco and the surrounding Bay Area, such as IDEO, Frog Design, Aaron Marcus, Smart Design, Google, Apple, and the list can go on. There is also a flourishing web presence in San Francisco; many website companies started there, including craigslist and digg.com, while Wikimedia has plans to move there from Florida (Slavin, B. & Dolnik, M., 2007). Sports fans can find every league and level and storied franchises in San Francisco. The city also has a very well connected transportation system consisting of several trains (BART and Caltrain), cable cars, and buses that allows people to quickly move through the city, to the airport and nearby cities such as San Bruno and Oakland via a short train ride. Clearly our three texts - Simmie, Drucker and Florida - all apply here. San Francisco is agglomeration and innovation incarnated.

Buenos Aires, Argentina

The most significant and admirable innovative strategy in Buenos Aires is the reformation of the education system, which aims to provide higher forms of equity to all people. Principally, the city offers a free and public university, the University of Buenos Aires, to all citizens. There are over 14,000 students enrolled in programs such as clothing, textile, industrial, graphic and sound design. This in return, it was

planned, would create more talent, more creative workers and resources to drive up the economy and sustain the city from within. Did it work? Is agglomeration occurring? Is agglomeration leading to innovation? Is the city more "tolerant" and diverse? "Buenos Aires's Palermo Soho district has emerged as an international design hub, with more than 300 new shops and studios and a slew of upstart film- and television-production companies" (Fast Companies, 2007). Many festivals

Plaza Serrano of the Palermo Soho district, where fairs and performances are often held

and fairs are held in Palermo Soho, and combined with the many restaurants, bars and design stores in the area, the district embraces different ethnics, diversity and creativity and becomes an energized, popular urban space for all.

Innovative activities, economic and cultural growth are further fostered by Centro Metropolitano de Diseno (CMD), a non-profit institute that supports and sponsors events related to design for both private and public organizations. It supports companies, industries, and individual designers, producers, directors and managers with research, cultural events and any event that involves culture and art (Sung, E., Mak, L. & Chan, W., 2007). But most importantly the center *also* sustains activities in product and interaction design, strategic design, and various design fairs. Simply "supporting the arts" is not enough. And at the same time, it is espe-

cially helpful for design companies at the early stage of incubation and startup as it builds the competitive edge of local design companies for them to attract creative talents (Centro Metropolitano de Diseno, 2007).
The Federal Government welcomes any productive immigrant with careers and encourages European immigration, and does not restrict or burden with taxes foreigners who come with the goal of working the land, improving the industries, or teaching sciences and arts. This immigration policy, together with the new developments to improve the amenities of life, such as the project of revitalizing the old abandoned port Puerto Madero by constructing new apartments, restaurants, and establishing new businesses with job opportunities, is able to attract knowledge workers from abroad and at the same time sustain innovative growth. As a result, the city has had, and continues to sustain a strong European influence and with it comes a tolerance for a great variety of cultures and ethnic groups (Sung, E., Mak, L. & Chan, W., 2007).

Barcelona, Spain

"Paris and Milan may still get more ink, but Barcelona is the style capital of the European continent. Behind the twin towers of Richard Rogers's Hesperia Hotel

Sea water swimming pool & aquatic park facilities of Parc del Forum (top)
Beastie Boys rocking away at Sonar 2007 (bottom)

and Jean Nouvel's Agbar high-rise, the congested district of Eixample is recovering its public spaces, with plans for a park with playgrounds, magnolia trees, benches, and statues within 200 meters of every resident by 2010" (Fast Company, 2007). The innovative city is home to 4.5 kilometers of sandy beaches. These outdoor amenities and recreational attributes in Barcelona are great attractors for creative workers (Florida, 2005). Barcelona is one of the most successful cities that early on made a profound jump to the post-industrial model. They have been the model for cities like Buenos Aires and Torino as to how to do it: they left a virtual blueprint. After the developments that revitalized the downtown center for the 1992 Olympics, the city created their Parc del Forum as a symbol of the "New Barcelona," which led to a series of consequent growths in the area, with luxury hotels and new tram lines soon following along the coast line (Cochrane & Taylor, 2006). Barcelona has a mix of cultures and a rich history and the Barcelona International Airport, being the second largest airport in Spain, facilitates easy international knowledge exchange.

The Sonar, an annual musical festival held in Barcelona, is one of the events through which the culture of the city can be experienced. There are also many museums that house works of art and artifacts that reflect the cultural diversity of the city (Quan, B. & Brown, G., 2007). Home to companies such as Hewlett-Packard, Volvo and Audi, Barcelona has grown to accommodate an astounding concentration of designers and technology firms and manufacturers - over 1,500 design studios and international firms (Fast Company, 2007). Local design firms include B01 Architects, Morilla Brand Design, and Smart Design. The demand for creative workers has influenced the staggering eighteen design schools within Barcelona as well as the universities, most notably the University of Barcelona. In addition to the new Torre Agbar and Hesperia Hotel, Santa Caterina Market, which gave new energy into the area of new and old apartment buildings, the International Convention Centre, and the Rambla de Mar all offer different ways of using technology to create new areas for work, social interaction and leisure (Kolehmainen, 2003).

Conclusion

So what do we know? Knowledge is the key to innovation and a city without innovation and creativity is a city waiting to fade away, to turn into a museum, or become a large, grey and polluted industrial metropolis or a ghost-town waiting for or suffering from the latest downturn. Innovation occurs, and must occur, at many levels and in many ways, as demonstrated by the projects taking place in Torino: in the architectural landscapes and urban fabric of the city, in education systems, business strategies, and culture and public awareness, and most notably in the

mindsets of designers, companies, developers, and policy-makers. Of course, the average designer or technology worker living and working in a truly innovative city probably does not know this, or know why the city is working. But they know the buzz and feel of a town that is experiencing growth, has good prospects, and offers them the possibility of a fulfilling lifestyle, however they define those things. They know that there's often new hirings and not enough workers to fill the positions, such as the case in san Francisco of all places at the time of writing. Agglomeration formed by clusters of knowledge workers, creative firms, research institutions, universities occurs in specific regions to form innovation centers and become the engine that fuels the city, gradually, sustainably-generating ever more opportunities to attract talents and creative industries, raising the quality of life, developing the surrounding areas, driving up technological innovations, and overall fostering an exciting place that is full of pulsing energy and variety and, most importantly, *built* for people based on their needs. These clusters of firms, universities, institutions, and knowledge workers support each other by attracting more talents together, building networks to exchange knowledge, collaborating with clients and among each other in close proximity, and driving down the cost of production by drawing from the same pool of resources.

Innovative cities are often international hubs, in order to sustain quick international knowledge exchange, and once developed, these cities are incredibly persistent in their innovation, with an unstoppable energy that defuse to neighboring areas, causing a chain reaction of developments.

These cities can find a way to break through and keep going because imbedded in the cultures and the people is a creative energy, an understanding of innovation, and an expectation for a good quality of life.

In the contemporary world, issues of sustainability ring louder than ever before. Environment conscious consumers are beginning to question the reusability and life cycle of products. A city needs to build itself a sustainable future, and this not only points to a less-polluted environment and a reduction of resource consumption, it also means a sustainable education system, business strategy and understanding, city wide policy, and public awareness. It calls for a system that can encourage and support innovation growth. As well, this generation of designers and the companies they work for need to be ever more aware and be ethically responsible for the projects they design, and should not design with only business and consumerist goals in mind. Short-term thinking kills innovative cities. Because some firms may mainly focus on profit and users don't know how to do design, creative workers are often the middle persons who have to the power to build better solutions. In closing, we'd like to propose one more key element to innovative cities success matrices, and provide some resources for beginning this work.

Many organizations and designers are interested in issues of sustainability and are doing very interesting work to research better futures, experiment with and raise social awareness. *The Sustainable Everyday Project* (SEP) is an open web platform aimed to stimulate social conversation on possible sustainable futures by proposing scenarios and discussing examples of successful social innovation on sustainable futures from all over the world. It hosts annual research activities and workshops and organizes "traveling exhibitions to meet public events, confront with closed scientific communities and give visibility to new visions of sustainable daily living" (Sustainable Everyday Project, 2006). Ezio Manzini, a professor of Industrial Design and director of the Research Unit Design and Innovation for Sustainability at Politecnico di Milano, is a strong supporter and an editor of this project. He works on strategic design and design for sustainability, with a focus on scenario building and solution development (Sustainable Everyday Project, 2006). Such initiatives are important because they get further at the need for cities to be livable and desirable and be places that the creative and knowledge workers can settle. It seems that we are learning from the Italians yet again about what makes a town great and enjoyable to live in.

SEP initiatives are taking place all around the globe: Tokyo, Japan (left), India (right), and Hamar, Norway (bottom)

An organization with a focus of sustainability is the New York-based *Slow Lab*. Its mission is to promote 'slowness' as a positive catalyst of individual, socio-cultural and environmental well-being, engaging the creative capacities of individuals and leveraging the collaborative potential of communities to incite new thinking and approaches (Slow Lab, 2007). To achieve this, Slow Lab is growing a network of creative, civic-minded individuals from the general public to exchange ideas and resources, share knowledge and cooperatively develop projects that positively impact the lives of individuals, the communities and the planet (Slow Lab, 2007). "SlowLab's current and future programs include public lectures, discussions and exhibitions, a dynamic online project observatory and communication portal, academic programs and project publications" (Slow Lab, 2007).

Innovation is not invention. Simply making new stuff is no longer a tolerable answer to the question, "what can technology do for us?". Technology is but one part of this equation and it needs to be put back into that balance. As John Thackara so rightly had it in his book, *In the Bubble: designing in a complex world*, simply designing objects and stuff is no longer a reasonable outcome, given what design can and could bring to the table. "Design thinking", says Thackara, "in combination with technologies can reshape the whole production processes, even the entire logic and structure of an industry". This is how, "a commitment to sustainability drives innovation. When organizations put design at the heart of product and service development, they are triggered to ask fundamental questions." He goes on to clarify what sounds like pollyanna by suggesting, "complex systems are shaped by all the people who use them, and in this new era of collaborative innovation, designers are having to evolve from being individual authors of objects or buildings to being facilitators of change. We need to change the innovation agenda in such a way that people come before tech. A lot of organizations will continue on this path, but they're behind the times" (Thackara 2006). We can't stop tech; we need it, but we can't run things the way we've been doing them and be sustainable too. In our minds, sustainability is the fourth key and it is clearly already written into the three other threads we've traced to see how Innovation and Agglomeration are changing cities for the better. And people are living better in them. What we mean when we say innovation clearly is a big part of the paradigm shift. And yes, you the junior design or tech employee can indeed be part of changing this for the better. For starters you can go live in an innovative city and support that innovation model. Simple. And economically, it works for you. Everyone wins.

So in this frame of mind, innovation is what pushes the world to become a better place to live, or to rectify or ease existing problems. But it is also a city's ultimate weapon to compete for world markets in this age of globalized and interconnected economy, and at the same time, to foster and attract creative workers to continuously fuel the city. A society needs innovation to create a high quality of life and

spaces and objects that fulfill people's needs and a culture needs the tolerance and openness of an innovation city to accept all walks of life. And with innovation, in time a city will become a world city flourishing with international events, conferences and festivals, cultural activities and cuisines from different ethnic backgrounds, and knowledge from every corner of the world. As Thackara points out, innovation, and design are complex. But as we've attempted to show here; it's not incomprehensible. There's more too it, no doubt. But we think we've got a significant part of the whole. We'll keep working at it in any case. Innovation is the creative workers' source of income and also their ticket to unrestrained mobility as they can carry their knowledge with them to anywhere they choose to work. That's why in the most simple terms they should care. And given the audience most likely to read this, why *you* should as well. Innovation is also what attracts and energizes them and stimulates their creativity. By being in an innovative city, the creative/ knowledge worker is constantly learning new knowledge and making new connections and expanding networks, while engrossed in diversified cultures and enjoying a high quality of life. That is what they love and need to excel. So, the companies and employers, and organizations win as well. And that's why they should care. Knowledge has now become the primary resource of our society, continuously accumulating and advancing, becoming evermore important to creating a world with a sustainable future. So that's a designer's *real* job. As designers, we should never stop learning because the only way to innovate is to have new insights, realizations, to make new connections and to know what has come before us so we can add to what already exists and know what is possible today. And that's why innovation is not merely invention, which is a line we stole by the way from Bill Buxton. Interaction design is not yet fully developed but gradually gaining ground in some of the most successful technological firms all around the globe. Companies like Microsoft and Palm are incorporating design into their business plans and thinking and are revamping to focus on innovation and true user experiences. It is truly a promising and exciting time for design and creativity to really make a difference in the way people live.

2006 & 2005 Italia Design Field School

Italia Design Interviews Cited:

Available in audio and video format on the Italia Design Website: http://www.sfu.ca/italiadesign/2006/findex.html

Signor Cino Zucchi – Zucchi Architetti
http://www.sfu.ca/italiadesign/2006/page/Cino.html

Signor Rafaelle Saporiti- Saporiti SpA.
http://www.sfu.ca/italiadesign/2005/interviews/Saporiti/index.html

ItaliaDesign Research Papers Cited:

Drinkwater, A. & Taylor, R. (2006). *The Rebirth of Roman Design*.
http://www.sfu.ca/italiadesign/2006/page/Papers.html

Cochrane, J. & Taylor, R. (2006). *Nuovo Milano.*
http://www.sfu.ca/italiadesign/2006/page/Papers.html

Betts, R., Poon, M., Lam, H., & Taylor R. (2005). *The Players of Italian Design.*
http://www.sfu.ca/italiadesign/2005/findings/papers/index.html

2007 IAT 338 (Interactive Objects and Environments) Student Research

Information Models Cited:

Poon, M. (2005). Agglomeration & Innovative Cities.
http://www.sfu.ca/italiadesign/2007/page/InformationModel.html

Chong, G., Kim, J., Leung, J., & Lo, K. (2007). Knowledge & Innovation.
http://www.sfu.ca/italiadesign/2007/page/InformationModel.html

Jayetileke, S., Chua, K., Karimi, A., & Badesha, G. (2007). Talent & Innovative Cities. http://www.sfu.ca/italiadesign/2007/page/InformationModel.html

Research Papers & Presentations Cited:

Quan, B. & Brown, G. (2007). *Barcelona.*

Sung, E., Mak, L. & Chan, W. (2007). *Buenos Aires.*

Slavin, B. & Dolnik, M. (2007). *San Francisco.*

OUTSIDE REFERENCES

Arcspace.com (2004, January 19). *Massimiliano Fuksas Congress Centre.* Retrieved November 29, 2006, from http://www.arcspace.com/architects/Fuksas/congress_index.htm

Audretsch, D.B. (1998) 'Agglomeration and the location of innovative activity', *Oxford Review of Economic Policy*, 14, 2, 18-29.

Beije, P. (1992). 'A network analysis of markets', *Journal of Economic Issues,* 26, 1, 87-114.

Braczyk, H.-J., Cooke, P. & Heindreich, M. (eds) (1998). *Regional Innovation Systems: The Role of Governance in a Globalized Economy.* London: UCL Press.

Centro Metropolitano de Diseno (2007). *Fields of Action.* Retrieved December 8, 2007, from http://www.cmd.gov.ar/agenda/?id=378&info=detalle

Citta' di Torino (2007). *Torino World Design Capital.* Retrieved November 30, 2007, from http://www.comune.torino.it/torinoplus/english/news/Torinoplus-torinoworlddesigncapital.html

Danda (2006). *MaXXI / zaha hadid.* Retrieved December 2, 2006, from http://www.danda.be/reviews/82/

Drucker, P. F. (1993). *Post-Capitalist Society.* New York : HarperCollins Publishers.

Experientia (2007). *Bruce Sterling moving to Torino, Italy.* Retrieved November 25, 2007, from http://www.experientia.com/blog/bruce-sterling-moving-to-torino-italy/

Fast Company (2007). *Fast Cities 2007.* Retrieved November 20, 2007, from http://www.fastcompany.com/cities/2007/

Florida, R. (2005). *Cities and the Creative Class.* New York ; Abingdon, Oxon, UK: Routledge.

Kolehmainen, J. (2003). Territorial Agglomeration as a Local Innovation Environ ment. *Massachusetts Instituted of Technology Industrial Performance Center Special Working Paper Series on Local Innovation Systems.* Retrieved October 10, 2007, from http://web.mit.edu/lis/papers/LIS03-002.pdf

Lambooy, J.G. & Boschma, R.A. (1998). 'Evolutionary economics and regional policy', paper presented to the 38th Congress of the European Regional; Science Association, August, Vienna.

Lundvall, B.A. (1990). 'User-roducer interactions and technological change', pa per presented to the OeCD-TEP conference, Paris/ La Villette, June.

Lundvall, B.A. & Johnson, B. (1992). 'The learning economy', paper presented to the European Association for Evolutionary Political Economy Conference, Paris, November.

Marshall, A. (1890). *Principles of Economics.* Basingstoke: Macmillan.

Pred, A. (1966). *The Spatial Dynamics of Urban-industrail Growth 1800-1914: Interpretive and Theoretical Essays.* Cambridge, MA: MIT Press.

Roma d+ Design Piu (2007). *Home.* Retrieved December 3, 2007, from http://www.romadesignpiu.it/page_en/homeing.html

Saxenian, A. (1990). 'Regional networks and the resurgence of Silicon Valley', *California Management Review,* 33, 1, 89-112.

Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy.* New York: McGraw-Hill.

Scitovsky, T. (1963). 'Two concepts of external economies', reprinted in A.N. Agarwala and S.P. Singh (eds) *The Economics of Underdevelopment.* Oxford: Oxford University Press, pp. 295-308.

Simmie, J. (2001). *Innovative Cities.* London ; New York : Spon Press.

Slow Lab (2007) *About.* Retrieved December 8, 2007, from http://www.slowlab.net

Sustainable Everyday Project (2006). *About us.* Retrieved December 7, 2007, from http://www.sustainable-everyday.net/SEPhome/home.html

Thackara, J. (2006). *In the Bubble: designing in a complex world.* Cambridge, MA: MIT Press.

Vernon, R. (1979). 'The product cycle hypothesis in a new international environment', *Oxford Bulletin of Economics and Statistics,* 41, 255-67.