ART, TECHNOLOGY, AND INSTITUTIONAL DISCOURSE

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This paper and talk ties together current innovation policy initiatives that incorporate the arts into their programs, before arguing in support of more complex understandings of the relationships between art and technology.

Recent structural changes in Western industrialized economies include the establishment of the knowledge economy, competition from emerging nations in the manufacturing sector, economic crises, and grand scale challenges such as climate change. National leaders are seeking to support the development of new economic sectors as a response to these circumstances. This has led to a focus on innovation economies fueled by increasingly rapid technological change. In this climate, creativity and technological innovation are seen as correlates to a competitive economy. At the same time, art has shown its capacity to engage with high technologies through a critical mass of technological art visible in exhibitions, public interventions, symposia, and specialized academic programs. This paper ties together current innovation policy initiatives which incorporate a spectrum of roles for artists. It then argues in support of more complex understandings of the relationships between art and technology.

European Innovation Policy

Millennial European Union (EU) innovation policy exemplifies the shift from conventional technoscientific industrial research and development (R&D) initiatives to those incorporating a focus on creativity as a driver of innovation. In March 2000, at the EU Heads of State and Government meeting in Lisbon, national leaders set an overarching goal to make the EU "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" by 2010. [1] The policy supporting this objective is known as the Lisbon Strategy. One of the main goals of this ten-year economic plan was for government, university, and corporate R&D spending to reach 3% of gross domestic product in each of the member nations. Throughout the first half of the Lisbon Strategy years, we see strategic guidelines, such as the communication *More research and innovation*, [2] which correlate economic objectives and institutional R&D. The shift to a rhetoric emphasizing *creativity* and innovation in addition to institutional R&D is apparent in the 2008 Council of the European Union communication, *Council Conclusions on Culture as a Catalyst for Creativity and Innovation.* [3] Here the Council promotes a broader understanding of innovation and recognizes the contribution of the arts and culture to foster creativity. Overall, EU communications throughout the decade 2000-2010 show a shift from institutional R&D toward a vision of an innovation economy emphasizing creativity as a key resource in the new economic environment.

This change in the concept of innovation is due in part to a shift in profitability from the manufacturing sector to the creative industries. While traditional manufacturing industries in Western countries suffered external shocks such as the rise of industry in emerging nations, the knowledge-based creative sectors were resilient. According to a 2010 United Nations report, despite the 12% decline in overall global trade, world trade of creative goods and services increased by 14% between 2002 to 2008. [4] A recommendation in the same report suggests that "Policy strategies to foster the development of the creative economy must recognize its multidisciplinary nature — its economic, social, cultural, technological and environmental linkages." Here the 'creative economy' refers to a loose intersection of the arts,

culture industries, business, and technology, particularly digital technology. In this thinking, economics are explicitly linked with creativity, technology, and human social and cultural development in the sense that the ability to create and circulate creative intellectual capital can produce income, jobs, and export earnings. Artists working commercially in the creative industries are typically configured as contributing aesthetic assets, whether it be digital assets, storytelling, music, or product design, for example.

The later Lisbon Strategy years saw the 2008 economic crisis as well as the European Year of Creativity and Innovation, 2009. The role of this initiative was to highlight innovation and creativity as a response to the global downturn. Prioritizing creativity and innovation in conjunction with the knowledge economy represents a transition from the mindsets, practices, and divisions of labor that determined success in the industrial economy toward an economy where creativity, entrepreneurship, knowledge resources, skills, and expertise function in an interconnected, globalized economy running on a combination of information and know-how.

The shift in policy rhetoric from industry-focused research and development to creativity-fueled innovation brings the arts into innovation discourse. In preparation for Europe 2020, the next European economic framework following the Lisbon Strategy, 75 experts at the "Towards a Pan-European initiative in support of innovative creative industries in Europe" workshop, wrote the Amsterdam Declaration of 5 February 2010, which stated:

Beyond their contribution to cultural diversity, creative industries represent indeed a great economic and social potential. In order to take full advantage of this potential, there is a need to combine arts and creativity with entrepreneurship and innovation. These industries are not only a source of inspiration but represent also an enormous asset to be turned into competitive advantages and the creation of new and better jobs in Europe. [5]

The relationship between the arts and innovation in this discourse is supported in part by the associative relationship between the arts and creativity, and creativity and innovation. Other discussions of the role of art in innovation policy configure "humanistic" contributions of the arts:

Art and culture can make a vital contribution to the achievement of objectives that reconcile wealth creation with sustainability and respect for common humanist values because one of the features of art and culture is that they help us to transcend purely economic or utilitarian constraints. [6]

In these examples we can see various configurations of the artist within the new innovation initiatives. Many of these initiatives situate artists in terms of potential aesthetic, creative, and humanizing contributions to the central project of technology development and innovation; however, there are EU-related projects which configure artists as more centrally involved in the development of technologies and innovation processes. For example, INNO-Grips is a project of PRO INNO Europe, a research agency that supports European policy. Their report titled *Innovation Unbound: Changing innovation locus, changing policy focus* positions artists in multidisciplinary innovation labs along with engineers, architects, designers, sociologists, businessmen, and policy-makers. [7] INNO-Grips sets forth a vision of a network of multidisciplinary and interdisciplinary innovation labs supporting Europe as the "global innovation leader in effectively addressing complex social, environmental and economic challenges through sustainable, human-centered and democratized innovation." In this vision, these innovation labs "create and support the combination of social, scientific and artistic disciplines." [8]

Two programs existing independently of the EU policy framework also place artists centrally within the innovation team. Disonancias is a Basque organization supported by the corporate Xabide Group and the Basque government. Disonancias places artists in companies, research centers, or public institutions to work along with members of these organizations on innovative projects. Disonancias promotes the capability of artists to "propose new and different innovation paths, introducing detours and dissonance into the usual processes of thought and action." Disonancias puts forth the view of artist-mediated innovation "not as an end in itself, but as a tool to change ways of acting, attitudes and values, beyond that of economic benefit." [9] Disonancias was chosen as a Best Practice Case in Creativity and Innovation by the European Year of Creativity and Innovation program.

AIRIS is a similar project initiated by TILLT, an organization formed by the region of West Sweden in 1973 as a platform for collaboration between artists and businesses. Under AIRIS, artists join a company for ten months of collaborative project work. The AIRIS project has three main goals: "to create an interface for interaction between industry and the culture sector, to enhance the creative capabilities of industry with regard to a specific business development goal, and to create new employment opportunities for professional artists." [10]

Creative Clusters

Creative clusters are cities or regions that combine related industrial, small business, or other economic practices. The notion of a creative cluster leverages the idea that through networking and cross-pollination, a creative cluster can be synergistically greater than the sum of its parts. Localization and sense of place are central to the notion of creative clusters, and cultural and artistic presence within the cluster is seen as desirable for community-building. Discourse and initiatives supporting creative clusters configure a spectrum of roles for artists. For example, Digital Media City in Seoul, Korea was established by the city of Seoul on the site of a massive landfill to be the center of Korean broadcasting, music, film, computer game, e-learning, and other digital media-based industries. Commercial artists are employed by the digital media industries, and fine artists are commissioned to create public art. The rationale behind welcoming artists and allocating resources for public art is to support placemaking. [11] The presence of art and artists is considered to play a role in creating an environment which attracts a mobile, highly-educated, and skilled workforce. [12]

Kortrijk, Flanders has a long history in the textile industry. Rather than face economic decline when textile manufacturing moved to Asia, Kortrijk reconfigured itself as a cutting edge design region, Designregio Kortrijk. Thanks to funding in part by the City of Kortrijk, a large abandoned textile factory is being transformed into Buda Fabriek, a physical location as well as project platform for artists, designers, research institutes, students, and businesses to come together and share knowledge about artifact development, new materials, and innovative applications. Supporters see Buda Fabriek as necessary physical infrastructure to create a substantive intersection between artists, the economy, innovation, and development. The goal of Buda Fabriek is to make its locale, Buda Island, into the cultural and artistic node of Kortrijk, thus building a creative cluster within a creative cluster.

Silicon Valley in the United States is often cited as an example of a successful creative cluster. While Silicon Valley innovation depends in part on the dense concentration of technology specialists who can readily interact with each other, there is a parallel cluster of technological artists. Formal contact between artists, scientists, and technologists has come through artist-in-residence programs at Xerox

PARC, Interval Research, the University of California at Berkeley Space Sciences Laboratory, and the Exploratorium, a San Francisco science museum. Informal cross-pollination occurs between Silicon Valley and nearby San Francisco Bay Area artists and technologists through festivals such as the Zer01 San Jose Biennial and Maker Faire, an annual art, engineering, science, and DIY (do-it-yourself) exposition and networking event. There are accessible and well-tooled community workspaces for both technology and technological art projects. These include The Crucible, NIMBY (acronym for Not In My Backyard), and TechShop. The Burning Man Arts Festival, in which 50,000 participants come together for a week each year to build a city in the Black Rock Desert of Nevada, features a high concentration of high-tech art projects from Silicon Valley and the San Francisco Bay Area. Black Rock City, likened to the temporary autonomous zone (TAZ) of Hakim Bey, is itself a creative cluster. Artists and technologists build and test hybrid art/technology projects in the harsh but Dalí-esque desert, exemplifying a mixture of artistic creativity and technological innovation. The Burning Man organization and spin-off affiliates apply this know-how to not-for-profit community art/technology/building projects in public art, disaster relief, K-12 education, and solar energy.

Initiatives in the United States

While the European Union develops pan-European arts and culture policies, there has not been a great deal of interest in the United States in formulating arts and culture policies at the federal level. The largest share of government support for the arts and culture is typically provided indirectly through tax concessions which encourage individual and corporate giving. [13] Yet in 2003, the National Academies Press of the United States published a book titled *Beyond Productivity: Information, Technology, Innovation, and Creativity*. The book argues for institutionalized support for integrated art and technology practices, included under the term 'ITCP' for 'Information Technology and Creative Practices.' The book views certain "art and design practices as forms of computer science research and development." [14]

This book was followed up by a program at the U.S. National Science Foundation (NSF) called CreativeIT, which funded work at the intersections of art, music, performance, design, creativity research, and information technologies. The CreativeIT program in turn led to the first joint meeting of program directors and high-level representatives of the NSF and the National Endowment for the Arts (NEA). This joint meeting produced a roadmap for developing and supporting integrated art, technology, and research strategies at the national level. [15]

These developments intersect with current discourse within and beyond the NSF to expand some STEM (science, technology, engineering, and mathematics) educational programs to STEAM (STEM plus arts) programs. STEAM discourse had been an undercurrent in education, science, and technology circles until recent momentum from the NSF CreativeIT program and the joint NSF-NEA workshop described above. STEAM was given further impetus through a NSF five-year joint research award to Brown University, the University of Rhode Island, and Rhode Island School of Design, a prominent art and design school, to study the effects of climate change on marine organisms and ecosystems. Recently, U.S. Congressman James Langevin from Rhode Island introduced federal STEM to STEAM legislation, which as of the writing of this paper stands in committee. [16]

A handful of public universities in the United States have combined arts and technology programs which exemplify STEAM, including the CADRE program at San Jose State University in Silicon Valley, the Univer-

sity of Washington's DXARTS program, and Arizona State University's Arts, Media, and Engineering program. The prestigious art academies Art Institute of Chicago and Rhode Island School of Design have arts-based research and technology programs.

Art?

As we can see from the examples above, the arts hold a spectrum of new economic potentials beyond the art market, commercial arts, conventional art-in-education programs, and other domains in which artists traditionally participate. Emerging roles include the development or co-development of new technologies or innovation processes within business contexts, participation in creative clusters, and participation in STEAM-based education. Yet within the high status discourse of technology, innovation, and creativity, there are questions regarding the terms of participation. We may be reminded of Adorno and Horkheimer's critical stance toward the culture industries in the mid-20th century, and Benjamin's counterpoint.

To Adorno and Horkheimer, art's function is to challenge the alienating capacity of advanced capitalism. The culture industry brings the 'administrative rationality' of industrial production into arts practice and consumption, thus undermining its ability to challenge the economic hegemony. [17] Benjamin believed that art could participate technically in the same methods that support the culture industries but would invert their purposes to bring about new collective modes of production and participation that undermine the hegemony's ability to create status through a logic of aesthetics (as Hitler had aestheticized war in the 1930s and 40s). [18] These positions regarding the culture industry have parallels in the contemporary innovation industry. The innovation industry values the rapid expansion of the technological frontier. There is a notion of technological advancement building upon previous successes within a domain. Challenges and provocations are not a central part of this paradigm. Thus art-based intersections with technological innovation may be characterized in terms of their formal aesthetic value, expressive potential, communicative power, or humanizing insights. Yet we can see that art from the industrial age forward has a history of radical departures from the established norm, bringing about a reorientation or, to use a stronger term, destabilization of convention, perception, and/or established ways of doing or being. Consider the modern and postmodern works of art we value from the past: the work of the Impressionists, the Cubists, and the Fauves, the writings of James Joyce, the interventions into the concept of art by Duchamp, Warhol, Serrano, Koons, and Hirst. Contemporary Western society does not so much cultivate art that harmoniously stabilizes a practice, concept, or perception. It cultivates art that destabilizes.

In contrast, technological development values stabilization. The practice of engineering is to stabilize natural forces so that they act reliably within a device. This emphasis on stabilization extends beyond technological reliability to social and cultural stabilization as well, so that when we are acting within a reliable threshold of a technology, be it a bridge or an iPhone, we are also stabilizing reliable cultural practices. Postmodern technological art acts outside of these reliable thresholds. Thus it follows that art, as we as a society have conceived it, would not be instrumentalized into the service of status quo technological innovation. Instead, art would be more apt to push and pull on the assumptions of technological development as well as particular technologies and technological practices. This role is already realized by some elements in the art and innovation arena, including Disonancias and Tillt's AIRIS program mentioned above. We can find further support for this way of understanding art's role in the new innovation economy. For example, President of the European Commission José Manuel Barroso's response

to Culture Action Europe's *We Are More* campaign shows an openness, at least rhetorically, to this conceptualization of art:

Sometimes we can have creative disruption, but it is from this kind of disruption that we can have real construction and also innovative thinking inviting us to prepare for the future in a mindful way. And in challenging times such as this, creative, critical thinking is more essential than ever. [19]

Conclusion

Truly incorporating art and technological innovation practices means admitting the dynamics of stabilization and destabilization within the discourse of innovation. By allowing art to be a churn in the system instead of a well-behaved contributor to sunny-day scenarios of creativity and innovation, we open up new dialogues about what technology is and can be. Such dialogues would come as institutions face the challenges of climate change, financial crisis, increasing competition for resources, and a generation of innovations involving populations existing beyond first world commercial agendas.

References and Notes:

1. *Eur. Parliament, "EC Lisbon: Conclusions of the Presidency" (Bul. 27.03.2000).*
2. *Commission of EU, "More Research and Innovation..." (COM(2005) 488 fin.).*
3. *Council of EU, "Council Conclusions on Culture as a Catalyst for Creativity and Innovation," 2008.*
4. *Creative Economy Report 2010 (UN, 2010).*
5. *Amst. Declaration, 2010, www.edc.nl/amsterdamconference (accessed September 2011).*
6. *The Impact of Culture on Creativity (KEA Eur. Affairs, 2009).*
7. *J. Basset, H. Thénint, I. Miles, Innovation Unbound... (PRO INNO Eur., 2011).*
8. *H. Thénint, Labs for a more innovative Eur. (PRO INNO Eur., 2009).*
9. *"What is Disonancias?" www.disonancias.com/en/articulo/249-what-is-disonancias (September 2011).*
10. *A. Styhre, M. Eriksson, Bring in the arts... (Chalmers Univ. of Tech., 2007), cited in [6].*
11. *A. Markusen, A. Gadwa, Creative Placemaking (NEA, 2010).*
12. *R. Florida, The Rise of the Creative Class (New York: Basic Books, 2002).*
13. *D. Netzer, "Cultural Policy...," In Hdbk. of the Economics of Art & Culture, ed. V.A. Ginsburgh & D. Trosby (Elsevier, 2006).*
14. *W.J. Mitchell, A.S. Inouye, M.S. Blumenthal, Beyond Productivity... (Nat'l Academies Press, 2003).*
15. *D.F. Harrell, S.V. Harrell, Strategies for Arts+Science+Technology Research(2011).*
16. *Rep. J. Langevin, H.R. 319 (U.S. Congress, 2011).*
17. *T. Adorno, M. Horkheimer, Dialectic of Enlightenment (CA: Stanford Univ. Press, 2002).*
18. *W. Benjamin, "The Work of Art in the Age of Mechanical Reproduction," (1936).*
19. *Culture Action Europe, "Pres. Barroso supports the we are more campaign," vimeo.com/ 15558727 (accessed September 2011).*