

mcd[Ⓢ]

magazine des **cultures digitales**

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An abstract sculpture featuring a dense, chaotic arrangement of thin, dark wires (black and red) intertwined with thick, white, curved, and angular forms. The sculpture is set against a light gray background. The wires and white forms are tangled together, creating a complex, organic structure that resembles a network or a tangled web. The white forms are thick and have a smooth, slightly glossy finish, while the wires are thin and have a matte finish. The overall composition is dynamic and visually striking.

Art / Industry

DESIGN/TECHNOLOGIES/AGENCIES
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The disruption of art

At a time when brands like Facebook, Google, Twitter... gather more people than entire continents, it can be interesting to question the relationship between digital artists and new creative industries. Creative people who use technology and work with engineers, developers and scientists produce works, devices and inventions whose users are no longer confined to the institutional sphere and museums nor places dedicated to the contemporary art scene.

Their research & creation intersects the R&D departments of companies and laboratories. The collaborative methods of such groups made of developers, designers and artists, promote innovation without necessarily claiming its ownership. Some of them, like the Graffiti Research Lab or the Free Art Technology Lab (FAT Lab), even assert the open-source as a constitutive feature of their works. Occasionally, companies and brands are inspired by these creations and might even choose to involve artists in their development.

Art-Industry interactions are numerous and crossbreed at different stages of collaboration. The content of this issue demonstrates the variety and richness of achievements and the research undertaken. The connected artist might indeed be the one who best enables us to disconnect.

I am particularly grateful to Marco Mancuso from Digicult Italy, who was given carte blanche for this issue, all the authors as well as organisations, artists and brands who kindly answered our questions. I also wish to thank, once again, the French Ministry of Culture and Communication, our partners and advertisers for their support towards this publication.

ANNE-CÉCILE WORMS
EDITORIAL DIRECTOR



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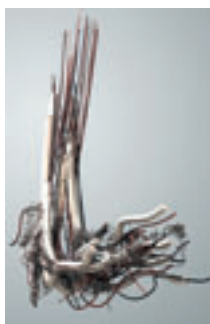
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Superscript'

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Couverture :
Forms, installation
audio-visuelle.
Memo Akten
en collaboration
avec Quayola.
Photo © R.R.

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Since 2005, Digicult has been one of the main online platforms that examines the impact of digital technologies and science on art, design, culture and contemporary society. Based on an international network of critics, curators, artists, designers, professors, researchers, journalists, media centers, galleries and festivals, Digicult is an editorial project that daily publishes news, informations, articles, interviews, reports and even essays, artists' books and the Digimag Journal through its online publishing service Digicult Editions. Digicult furthermore develops tools for communication, marketing and Internet cultural promotion strategies, as well as curatorial, management, consultancy and artists supporting projects through the Digicult Agency. Digicult was founded and is directed by Marco Mancuso. Twitter: @digicult



ART INDUSTRIES

a new production paradigm

We've got to start living with it, the future is here; those who do not take it in are lost. The twentieth-century sustenance models of artistic and cultural production are disappearing and our generation has not had the time to test them all the way. In Western countries, state subsidies for culture, as well as funds provided by enlightened (and interested) sponsors, are ever more scarce and concentrated in the hands of a few representatives of a social and economic elite that is busy occupying and consolidating its roles and positions.

■ In the last three decades, the necessary finances to activate production processes in the field of Media Art have come first and foremost from institutions, but also from banks, patrons or sponsorships from markets that seemed apparently untouched, though ready to commercially contaminate others and thus guarantee their own survival. The common feeling is that this great welfare mechanism that — let's admit it — was thought to be everlasting is no longer sustainable and should allow space to more virtuous art production and dissemination processes.

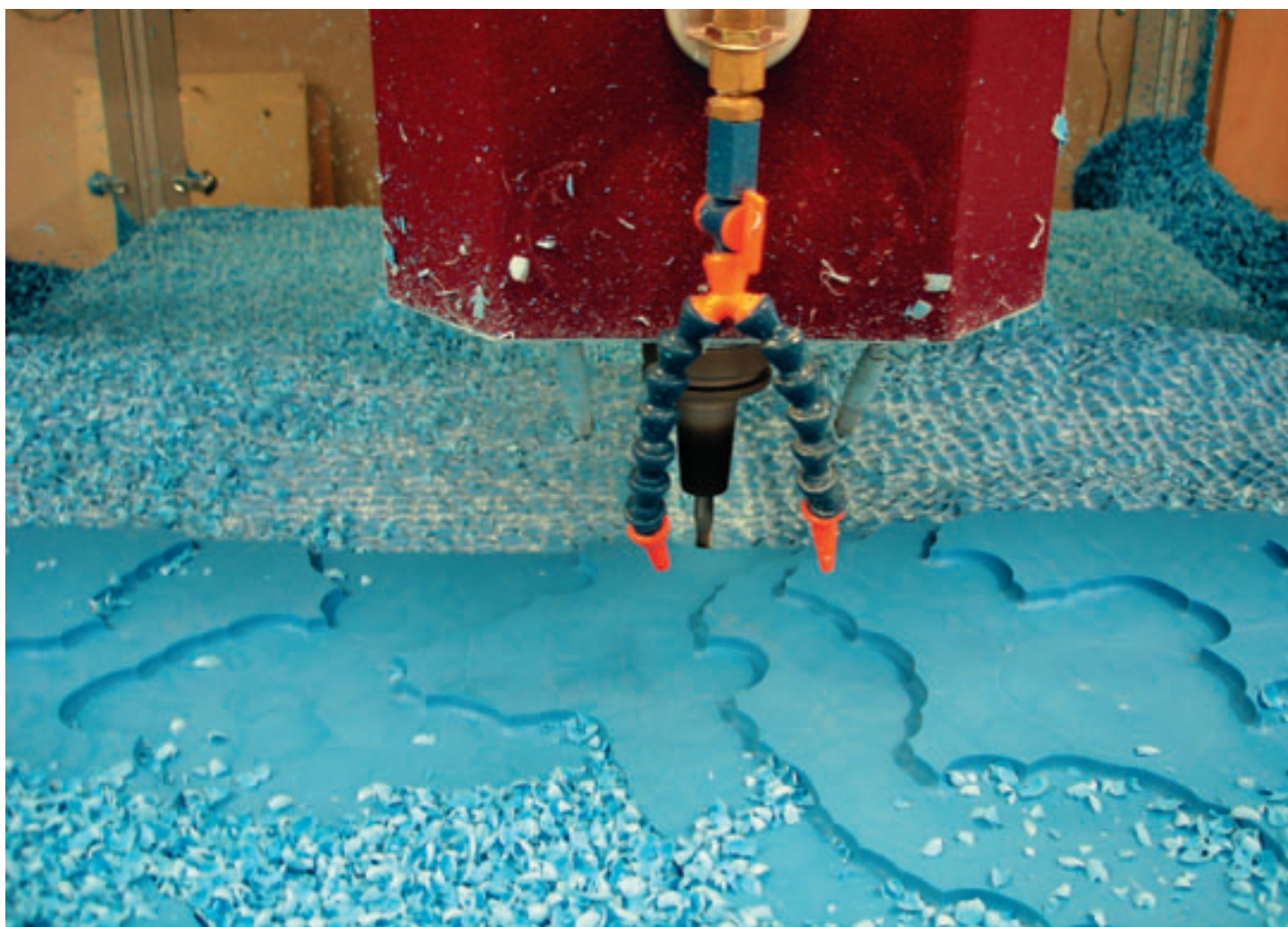
In fact, in a period of growing economic recession and widespread cuts to cultural funding, the number of examples of cultur-

al and creative subjects and industries involved in the standardization of sustainable development models aimed at activating functional productive processes to realize a "cultural object" is increasing: artists, designers, programmers, authors, hackers, makers, musicians, film-makers, graphic designers; but also companies in the ICT sector of course (such as hardware and software producers) or active in fields including scientific research, mechatronics, artificial intelligence, biomedicine or materials investigation.

The new "creative classes" come from diverse backgrounds; they have not necessarily been institutionalized even though they contribute to creating "value" on a socio-economic mod-

el scale that is more connected to the *networks* and the production of bottom-up culture. They are able to act as a link between the industries and an the ecosystem of research centres, laboratories, and academies, exhibition spaces and institutions of excellence, so as to create interesting sharing, exchanging and production mechanisms. The ultimate goal is to activate dissemination and circulation processes for the "cultural object" — a product that a company would not have access to — for the growing interest of a whole productive sector ever more ready to invest in arts and culture, more attentively and massively than in the past.

The ability of what we refer to here as "Art Industries" is that of acting as catalysers and



ART+COM, *River Is...*,
Yeongsan, South Korea, 2012.

incubators of an increasingly popular form of grassroots artistic, economic and cultural production, linked to the usage of (new) technologies; and it is interesting to note the long the list of similar experiences, both in recent times and with reference to the past century avant-gardes.

If, on the one hand, it is useful to recall such programs as the Boston Cyberarts "Artist in Residence at Technology Companies of Massachusetts" (A.R.T.C.O.M.) that puts New Media artists in contact with high-tech companies for a mutually beneficial exchange of technical and creative resources, or the PAIR, The PARC Artist in Residence Program (US), an ongoing research project at Xerox PARC (Palo Alto Research Center), at the ARTLAB, developed by Canon Inc., that serves as a laboratory aimed at pioneering new artistic realms through the integration of science and art by applying digital technologies to artistic investigations, on the other hand it is also important to

trace the history of contemporary arts, from the avant-gardes to the pioneers of the '60s and '70s — as described in Claudia D'Alonzo's essay — investigating the thickening of the relationship between art and industry, firstly due to the artists' fascination for the mechanized world and, subsequently, thanks to the increasingly systematic interest that hi-tech companies and TV broadcasting companies have had in integrating artists within their R&D departments.

The new "Art Industries" highlight the need to operate by activating networks of acquaintances and contacts, integrating artists in the most appropriate productive circuits; designers and creative people belonging to increasingly liquid local/global networks that mirror a hybrid territory, interpenetrated by (in)experience and know-how. We need to be acquainted with the most prominent international case studies and draw from specific literature, between topics related to "creative industries" and the more "Media Art"



oriented publications. Lastly, we must understand how the paradigms of artistic and cultural object creation are changing, how they are being affected by the relationship with the companies and the market and how the mechanisms of expression and freedom of research on the *medium* are changing.

Thus, the interviews and testimonies herein have the ambition to narrate a common experience. From Linz's Ars Electronica Lab to Dublin's Science Gallery, from Helsinki's Aalto Media Lab to Lausanne's Sinlab to Berlin's ART+COM studio and MIT's Seans- ➤



Visitors with *Magicicada* by David Rothenberg as part of OSCILLATOR, at Science Gallery, Trinity College, Dublin.

able City Lab, what emerges is a common trait characterized by interpenetrated paths amongst arts, design, science and research on new forms of artistic and cultural production, entailing a tight form of collaboration between the world of industrial production and scientific research. The questions were posed in a spirit of inquiry, to analyse the mechanisms and dynamics behind the workability and economics of productive structures referred to globally. The attempt was to extrapolate experiences, highlight strategies, search for often-concealed forms of collaboration; in other words, share a possible alternative economic model, as part of a cutting-edge production circuit still overly neglected by institutions, governments and markets.

The ultimate aim of this publication is to highlight how the introduction and dissemination of new open technologies, on

the one hand, and the development of networks, peer-to-peer structures and social networking dynamics on the other hand, have produced radical transformations in the relationships amongst arts, science, design and society. In fact, if the progressive de-institutionalisation of forms of production, management and usage of material and immaterial goods, brought in by new technologies, is reshaping the way we think about the production of culture, economics and information — blurring the boundaries between fields and disciplines, combining methodologies, languages, know-how and influencing the distinction between "high" academic approach, and "low" self-taught approach — the birth of a series of platforms and online projects facilitates new ways of relating between producer and market.

The *Do It Yourself* philosophy has become the subject of reflection and research into

new and interesting balances for a class of producers of creativity and culture: reduction of costs, lean structures, offer of services, capillary dissemination and communication, platform sharing, sharing of expertise, direct professional relationships are forms and practices that provide the market with culture, art, design and communication in an innovative and competitive way for companies in the sector.

This is the sense of Marc Garrett and Caroline Heron's texts: to recount — with competence, vision and knowledge — the various experiences carried out at the head of the cultural project Furtherfield and the series of social events, training sessions and meetings on digital strategy in culture called Art of Digital London (AoDL) / Metamute. I proposed Marc Garrett to tell us about models, potentialities, risks and strategies as regards the difficult relation-

ship between the worlds of art and of industries and private research. How do the conception and production of an art piece change in relation to new industrial and economic paradigms? How can cultural institutions work in such a system and how can curators and producers do their job, i.e. supervise?

Whereas, I suggested Caroline Heron to focus her attention on what roles Media Art and contemporary cultural production are playing and how these are changing (through misuse, adaptation or dependence) within the increasing economy of reputation in the contemporary cultural industry, whilst being affected by Internet and social technologies in a new system of values, social recognition and visibility. How are professional networks (from the world of ICT, computation technologies, science, art, design, manufacturing, hacking, architecture) opening new opportunities to those artists and creative people who are able to relate to different cultural and production playgrounds?

Although both essays are focused on what is going on in the UK, the situation is informative and can refer, more broadly, to digital cultural production in general. The surprising (or maybe not so much so) conclusion is how thin the divide between art, research and commercial representation of aesthetics, codes and expressive languages has become. Google reigns and prospers over whatever is Internet-related, with a series of platforms and projects aimed at linking companies, professionals, web marketing strategists and programmers, software artists, video artists and broadly intended audio-visually creative people.

From Think With Google to the Creativity Online platform, up to Google Creative Lab (who declined participating in this study), the Mountain View giant clearly looks at contemporary Media Art with great interest. Meanwhile, the number of cultural events is expanding exponentially, in the form of talks or presentations, branded by ICT or computer science firms, in which more or less well-known artists and designers personally represent the industry's growing interest for their creativity, technical expertise and knowledge of the latest codes and expressive languages.

From the Ted Talks, now covering a broad spectrum of topics, to the MoMo Amsterdam Conferences, up to the Seed Design Series and to other important gatherings in the contemporary Media Art circuit such as Barcelona's Offf, Manchester's Future Everything and, above all, Belgrade's Resonate, the contemporary artist is clearly and mostly a professional who not only is able to respond to the demands of the society he is active in, but also to the markets who reside there. What we may still ignore is how industries



PHOTO © SCIENCEGALLERY.COM

and markets look at the world of art and computational design; how research on specific materials and technologies can affect production and sales of artistic works and objects and what the evolution of the so-called "creative classes" can be in a world radically dominated by technology and networks.

As a conclusion, Nikolaus Hafermaas is the one to tell us that *if and how* innovation in industry can be driven by creative people (namely artists and designers) and which are the creative processes of conception, experimentation, rapid visualizing / prototyping / testing / fabrication, crowd sourcing, radical collaboration that can be developed on a larger scale and can be potential and interesting for industries to invest in.

With this in mind, I would then talk about Open Innovation, i.e. when the processes described herein really affect not only the economical dynamics, but also the production of art and culture in contemporary society. Here, innovation is not only "open" because it implies shared knowledge and techniques, but mainly because it activates cross-cultural processes, thus developing artistic objects whose real "value" is not only what determines their impact as "goods". ■

Marco Mancuso is a critic and curator in the field of digital technologies and their impact on arts, design and contemporary culture. Founder and Director at Digicult and Digimag Journal (part of The Leonardo Affiliate Program), he teaches at Naba Academy in Milan, Carrara Academy in Bergamo and SUPSI in Lugano.

With the Digicult Agency he curated a series of exhibitions, screenings, lectures, meetings and was partner with the most important media art festival internationally. Marco Mancuso recently developed the Digicult Editions open-publishing service and is now studying new economical Internet models for art and culture.

Marco Mancuso

Faber Futures by Natsai Chieza
as part of GROW YOUR OWN, at Science Gallery,
Trinity College, Dublin.

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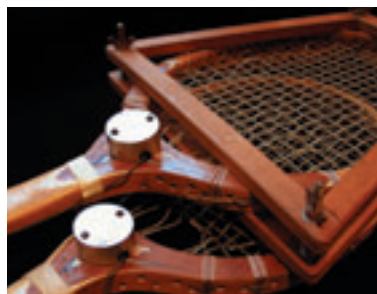
- › Boston Cyberarts, *Artist in Residence at Technology Companies of Massachusetts (A.R.T.C.O.M.)*. <http://bostoncyberarts.org/air/>
- › ARTLAB, Canon Inc. www.canon.co.jp/cast/artlab/index.html
- › PAIR, The PARC Artist in Residence Program (US), Xerox PARC (Palo Alto Research Center). www.pair.xerox.com
- › Mobile Monday Amsterdam. www.mobilemonday.nl
- › Seed Design Series. <http://seedmagazine.com/designseries>
- › Ted Talks. www.ted.com/talks
- › Offf Festival. www.offf.ws
- › Future Everything. <http://futureeverything.org>
- › Resonate. <http://resonate.io/2013/>
- › Google Creativity Online. <http://creativity-online.com>
- › Think With Google / Creative Sandbox. www.thinkwithgoogle.com

BETWEEN TECHNOLOGY AND ART

For a history of the company as a source of new forms of knowledge

The relationship between art and industry, which emerged with more clarity in recent decades thanks to widespread digital technologies, has indeed been present since the dawn of contemporary arts. This proximity was initially supported by a common interest for technique and, later, for technologies.

Looking at some important moments in the history of this binomial allows us to identify features, constant aspects and mutations, perhaps useful to decode the current scenario. A history explored in the light of two questions that have both an epistemological and a pragmatic character: what do historical episodes of insertion of artists in the frames of industrial production have produced in terms of knowledge? What are the advantages generated for the industrial world and what are those for the arts?



Tennis Racquets
Equipped with Electronic
Components / designed
by **Bill Kaminsky** and
Jim McGee, 1966.
Photo: Éric Legendre.
The Daniel Langlois
Foundation for Art,
Science, and Technology,
9 Evenings: Theatre
& Engineering fonds.

■ The very first interest for a contamination between both areas came from artists and intellectuals rather than from the industry, as a result of the industrial revolution and with the assertion of mechanical production methods. Things, as we shall see, had changed so much by the 1950s with the growing complexity of the technology landscape, the advent of pioneering forms of electronic and digital media and the birth of ICT. From the second half of the Nineteenth Century the industrialization caused radical

transformations that affected the field of the arts. One of the most evident was the assumption of greater and greater importance of applied arts, which determined what would then be defined as industrial design or design and their statuses within the industrial world.

But there were also many indirect consequences on the areas which, at the time, were defined as "fine arts". In particular, in the first two decades of the Twentieth Cen-



PHOTOS © R.R. / COURTESY OF JULIE MARTIN (EXPERIMENTS IN ART AND TECHNOLOGY) AND THE DANIEL LANGLOIS FOUNDATION (MONTREAL).

The Pepsi Pavilion, World Fair, Osaka, 1970

tury, Futurism in Italy, Cubism in France, and Constructivism in Russia faced the issue of mechanization not only in industry but of life in the broader sense. They overturned the (often negative) sense attributed to the concept of technique, subordinate to aesthetics, occurring in modern aesthetic, and often exhibited a true enthusiasm for mechanisation. The technical medium therefore was the first vector in the rapprochement between the paths of the art and those of the industry. A fascination that continued in the decades that followed, always driven by an interest for the medium, not necessarily as a technological apparatus, but also as a material. In the 1950s, in fact, numerous artists openly looked to the factory and included in their work industrially produced materials — such as plastics, synthetic varnishes, and metals. These entered the canvas, often replacing it — As in the works of the American Abstract Expressionism and later in Pop Art or, in Europe, in the work of Italian artists such as Alberto Burri, Lucio Fontana and Pino Pascali, Enrico Castellani or Fabio Mauri.

The advent of electronics marked a shift of focus from material to medium understood as an apparatus and a system of functions, cornerstone of processes and ways of

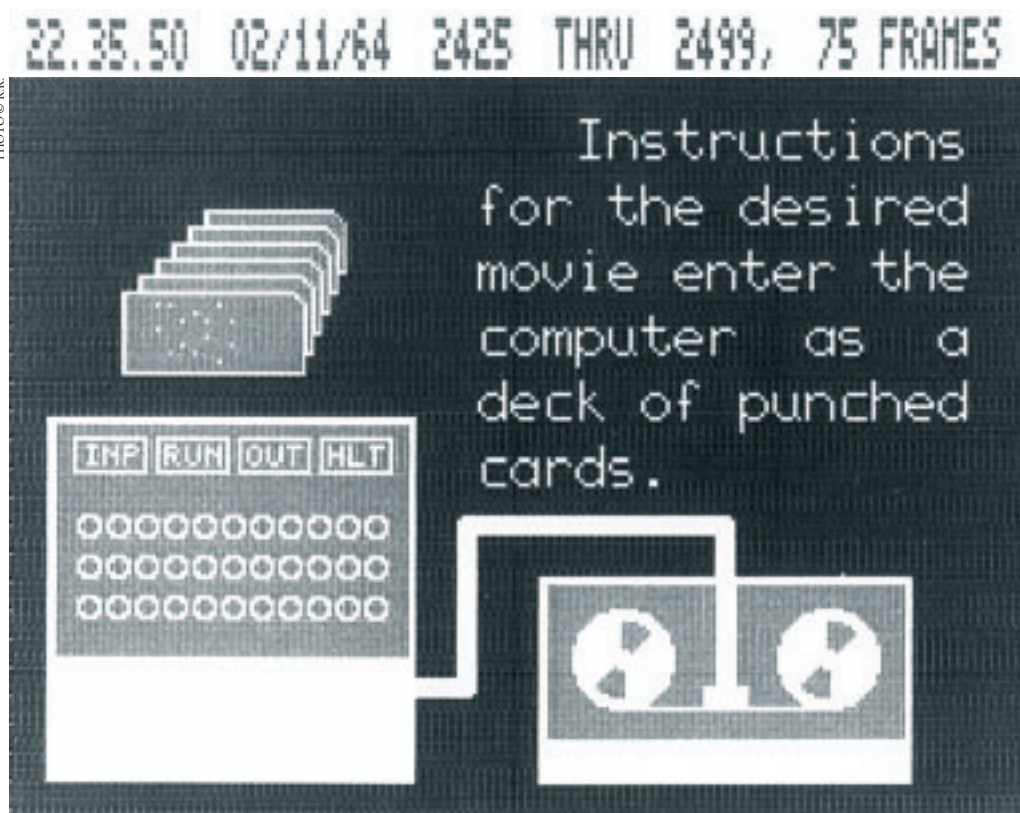
designing with direct consequences also in the ways of “doing” and designing art. The first movement that made this influence readable was without a doubt *Arte Programmata e Cinetica*, which proposed to create their own methods and technological tools of industrial production into artistic practice. Simultaneously, the industry started to take an interest in artists. If in the USA, this interest was manifested in the form of residencies, which welcomed artists in dedicated areas, one should also remember an experience of the second half of the 1950s in Europe, more precisely in Ivrea, a small Italian town.

The example is that of the management by Adriano Olivetti of the homonymous family company, an avant-garde and utopian experience not only because it was one of the first examples (on the international scene) of the inclusion of artists and humanists in a company, but also because (perhaps this case is unique) in the course of the 1950s, artists, writers and humanists were fully included in the factory's organisation of production. An inclusion deemed necessary to adapt the industrial production to changes occurring in society and modernise the territory, carried out through a recruitment policy defined by the “principle of triads”: for each new technician or engineer

who joined the company, a person with an educational background in economics, law or humanities was also hired.

In the USA, since the 1960s, many technological industries have created residency programmes for artists and writers.⁽¹⁾ The companies see in the artists a great resource for empirical experimentation of the potentialities of technologies developed in their laboratories. The first company to have had this intuition was the Bell Telephone Laboratories, Incorporated, which initiated a residency programme (1962-1968) linked to graphic design using the BELFLIX animation system, created by Dr. Kenneth C. Knowlton in 1963 and used by him to create a computer-animated film in 1964.⁽²⁾ The program hosted artists such as Stan VanDerBeek, who later worked (starting around 1965) with Knowlton in creating computer animated film series *Poemfield*⁽³⁾ and Lilian Schwartz, who initially visited Bell Labs at the very end of 1968 and later worked with Dr. Knowlton (from 1970 to about 1975) in the creation of a number of experimental artistic films involving computer animation. Jerry Spivack, was also an employee of Bell Labs and he did an interactive art piece toward the end of 1968. Aaron Marcus was an artist who visited and worked at Bell Labs doing computer art in 1967.

PHOTO © R.R.



COMPUTERS/Movies - BEFLIX One scene of Bell Laboratories 17 minute animated file produced by a computer programmed in the new BEFLIX language. This self explanatory film is entitled, **A Computer Technique for the Production of Animated Movies**. The notation above the frame does not appear in the final movie.

It also was produced by the computer. It gives the time and date of the computer run and indicated that 75 frames of the final movie, frames 2425 through 2499, are to be printed optically from this original master frame. The programmed computer generates a magnetic tape, which is fed to a General Dynamics Microfilm Recorder that produces a drawing on the face of a cathode ray tube. A camera photographs these drawings.

> Employee Dr. Manfred R. Schroeder also did computer art at Bell Labs. Visiting artist Laurie Spiegel programmed herself computer art — in the early 1970s — at Bell Labs. In the course of the years, the programme has helped developing not only researches of technical type but has also encouraged a process of innovation of the repertoires and visual aesthetics. As described in the excellent documentary "Incredible Machine" from 1968,⁽⁴⁾ the freedom left to the creators and the close relationship between engineers and artists allowed experimenting with new methods of work, generating previously missing knowledge and skills. As well described by A. Michael Noll in his essay⁽⁵⁾, the program was given tacit approval by department head John Robinson Pierce, yet was not a formal arrangement within the Labs.

But the greater legacy left by Bell to the contemporary scene is represented by the contribution to the establishment of the electronic work in the realm of the arts. And not only because many works have been exhibited since 1965 in major museums, but mainly because it inspired the birth of the E.A.T. (Experiments in Art and Technology), a not-for-profit organisation of services for artists and engineers that gave life to important phases in the history of media art, such as

Evenings: Theatre and Engineering (1966) and the Pepsi Pavilion at the Expo in Osaka (1970). Billy Kluver, engineer at Bell, founded the E.A.T. in 1966, carried by the enthusiasm for his residency experience at Bell. The IBM artist residency programme, launched in 1966 with John Whitney, represents another virtuous example. As a result of the productions with IBM, the artist decided to abandon analog synthesis and to entirely devote himself to digital works, creating films such as *Arabesque* (1975), a classic piece of computer animation.

Another section of the emergent media art that finds the lifeblood for its development in residencies in large American companies is video art. Between the second half of the 1960s and the beginning of the next decade, many creators were welcome in the premises of public broadcasting companies, mostly WNET (NY), KQED (San Francisco) and WGBH (Boston). A mechanism governed by a particular synergy, unfortunately only maintained for a few years, thanks to substantial grants from the Rockefeller Foundation, the interest of some "enlightened" producers — such as Howard Klein and Norman Lloyd — and from Nam June Paik, who has acted as a mediator and animator between financiers, television companies and the art world.



PHOTO © R.R. / COURTESY OF JULIE MARTIN (EXPERIMENTS IN ART AND TECHNOLOGY) AND THE DANIEL LANGLOIS FOUNDATION (MONTREAL).

Catalogue published for **9 Evenings: Theatre & Engineering**. Edited by Pontus Hultén and Frank Königsberg. New York: *Experiments in Art and Technology, The Foundation for Contemporary Performance Arts*, 1966. The Daniel Langlois Foundation for Art, Science, and Technology, 9 Evenings: Theatre & Engineering fonds.

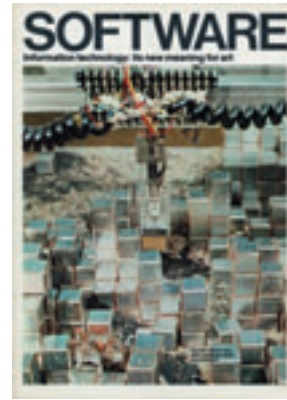
The need to feed it implied, for the artists, the possibility to use very expensive professional tools, for the television companies, the awareness of the resource of expertise on the "new technologies" represented by the artists, which occasionally influenced the design and development of some fundamental devices for the evolution of the technique and the language of television. In some cases, the aim of the companies was also the creation, togeth-



Some More Beginnings:
an Exhibition of Submitted Works Involving Technical Materials and Processes,
New York: E.A.T., 1968.
The Daniel Langlois Foundation for Art, Science, and Technology. Collection of Documents Published by E.A.T.



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Maurice Tuchman, **A Report on the Art and Technology Program of the Los Angeles County Museum of Art 1967-1971**, New York: Viking, 1971. The Daniel Langlois Foundation for Art, Science, and Technology. The Daniel Langlois Foundation collection.

PHOTO © R.R. / COURTESY OF JULIE MARTIN (EXPERIMENTS IN ART AND TECHNOLOGY) AND THE DANIEL LANGLOIS FOUNDATION (MONTREAL).

er with artists, of new palimpsest models, thus to extensively reform communication protocols of the TV medium. If there were many successes and innovations in the technological field, this second aspect remained largely unfulfilled and the programming of the artists remained relegated to the margins of broadcast programming. This perhaps was the determining factor in the rapid depletion of these experiences, in the United States but also in similar examples present to a lesser extent in Europe, with the disappearance of public and private funding.

In 1975, in fact, the Rockefeller Foundation put an end to the grant for the residencies at the broadcasting networks. After this, having neither the artists nor the identification of other forms of sustainability by television companies, the collaboration and all of its potential for the future of video art and for the birth of a different television ran out in a definitive way. A TV reformed thanks to artists remains a utopia, not even followed by initiatives like the one from the most avant-gardist of producers, Howard Klein who in 1977, foreseeing it was necessary to expand the boundaries of the American experience, started the international conference INPUT, aiming at creating collaborations between producers of the major American and European television companies and some representatives of video art.

At the end of this historical route, without a doubt partial, it is worth returning to the initial questions: What have historical episodes produced in terms of knowledge? What advantages do these hybridisations

generate for the art world on the one hand and the industry on the other? One particularly needs to examine what has happened since the second half of the 1950s, the virtuous consequences are mainly related to the developments of new devices and the affirmation of media aesthetics, which has led to the growing awareness that new technologies could have enabled the birth of new art disciplines. Therefore, it was a big boost to the innovation in terms of aesthetics and new knowledge. These results were, without a doubt, of extreme relevance. The consequences of which, however, fall almost exclusively in the domain of art and culture.

Unwilling to slow the flow in any way, it is nevertheless natural to raise a doubt. The unresolved challenge remains that of the sustainability and the visible advantages in the medium term for companies, without compromising the freedom and the integrity of artistic research. On the contrary, examples of similarities between the purposes of art and those of profit still exist and they are, indeed, too numerous. But this is not what we are interested in. The issue of sustainability and the challenge represented by the identification of the mechanisms that allow art and industry to feed each other without losing their own specificities, suddenly brings us back to the present. Now the issue arises with great urgency, because developing models for this synergy, which could take into account this untreated aspect throughout the history of media art, could represent the survival of much art of research. ■

Claudia D'Alonzo

- (1) Cf. George Fifield, "Artist In Residence Programs. A mutual attraction: creativity and innovation", http://bostoncyberarts.org/air/fifield_air_essay.html, last access 6 March 2014.
- (2) Marita Sturken, "Private Money and Personal Influence, Howard Klein and the Rockefeller Foundation's funding of the media arts", in *Afterimage*, Vol.14, No. 6, January 1997.
- (3) Sherry Miller Hocking & Richard Brewster (curated by), *Eigenwelt der apparatewelt, Pioneers of Electronic Art: Image Processing*, catalogue, Ars Electronica, Linz, 1992.
- (4) Among the first initiatives there was the Bellagio Conference, at the Rockefeller Foundation, also attended by the omnipresent Nam June Paik, accompanied by a young artist in residence at a small centre in Italy, Bill Viola, at the time hosted at ArtTapes 22. See note 2.

Researcher, writer, and curator, **Claudia D'Alonzo** holds a PhD in Audio-Visual Studies. She works with digital art, visual arts, cinema, and video art. She has collaborated with museums, galleries, arts centres and festivals for cultural projects and exhibitions. She is an advisory board member of the project Digicult. As a writer, she publishes for magazines, catalogues and papers. She has contributed to seminars and lectures at international conferences and festivals.

WHERE WE ARE NOW?

Furtherfield and Contemporary Art Culture

For over 17 years Furtherfield has been working in practices that bridge arts, technology, and social change. Over these years we have been involved in many great projects, and have collaborated with and supported a variety of talented people. Our artistic endeavours include net art, media art, hacking, art activism, hacktivism and co-curating. We have always believed it is essential that the individuals at the heart of Furtherfield practice in arts and technology and are engaged in critical enquiry and the role and direction of our arts collective is shaped by the affinities we identify among diverse independent thinkers, individuals and groups. The mix of art, culture and technology keeps us contemporary while remaining critical and examining the human condition.

■ Neoliberalism's panoptic encroachment on everyday life has informed Furtherfield's own motives and strategies. In contrast to most galleries and institutions that engage with art, we have stayed alert to its influence as part of a shared dialogue. Neoliberalism perpetuates patriarchal systems of dominance through, de-regulated markets, corporate corruption and bad government; each of which implements the circumstances where us everyday people are only valued as materials for a colonial exploitation. This turns us all into indigenous peoples struggling under the might of the wealthy few. Hacking around and through this impasse is essential if we are to maintain a sense of human integrity and control over our own social contexts and ultimately to survive as a species.

We assert that any practice that calls itself critical, innovative, experimental, avant-garde, visionary, evolutionary, or imaginative must take account of this context. If we as an arts organization, shy away from what other people are experiencing in their daily lives and do not examine, represent and respect their stories, we quite rightly should be considered as part of an irrelevant elite, and seen as saying nothing to most people. Thankfully, there are many artists and thinkers who acknowledge and take on these themes in their work in various ways, on the Internet and in physical spaces. So much so, that this has introduced a dilemma for the mainstream art world



Up close and personal with Furtherfield, Randall Packer, Open Source Studio, Performance is Reality, 2012.

regarding its own relevance in contemporary culture, constrained by its compliance to the demands of a corporate elite, whom only appreciate art in terms of economics, markets and brands.

Most Art Says Nothing To Most People.

“The more our physical and online experiences and spaces are occupied by the state and corporations rather than people’s own rooted needs, the more we become tied up in situations that reflect officially prescribed contexts, and not our own.”⁽¹⁾

To start things off, I want to refer to an artwork made by Heath Bunting (co-founder of irrational.org) and I in 1991. It was a large paste-up displayed on billboards around Bristol in the UK. At the time, as well as initiating and participating in other street art projects, pirate radio and BBS boards, Heath, I and others were members of the art activist collective called Advertising Art. We made street art as an argument against the presumed ownership of our art culture and voices of expression, by the dominating hierarchies in society. I have taken the slogan

“Most Art Says Nothing To Most People” as a personal mantra ever since. Furtherfield is inspired by ideas to underpin a grass roots form of enlightenment, and so nurture progressive ideas and practices of social and cultural emancipation. The Oxford English Dictionary describes emancipation as *the fact or process of being set free from legal, social, or political restrictions*.

“Kant thought that Enlightenment only becomes possible when we are able to reason and to communicate outside of the confines of private institutions, including the state.”⁽²⁾

Art critic Julian Stallabrass proposes that there needs to be an analysis of the operation of the art world and its relationship with neoliberalism⁽³⁾. Gregory Sholette argues that, “*imagination and creativity in the art world thrives in the non-commercial sector, shut off from prestigious galleries and champagne receptions. This broader creative culture feeds the mainstream with new forms, and styles that can be commodified and utilized to sustain the few elite artists admitted into the elite. [...] Art is big business: a few artists command huge sums of money, the vast majority*

are ignored; yet these marginalized artists remain essential to the mainstream cultural economy serving as its missing creative mass. At the same time, a rising sense of oppositional agency is developing within these invisible folds of cultural productivity. Selectively surveying structures of visibility and invisibility, resentment and resistance [...] when, the excluded are made visible, when they demand visibility, it is always ultimately a matter of politics and rethinking history⁽⁴⁾.”

Drawing upon Sholette’s inspirational, unambiguous and comprehensive critique of mainstream art culture, I would like to offer as an illustration, Furtherfield’s recent experience of this process in action, with the emergence and usage of the term “Post-Media”. This concept is only just beginning to be defined by theorists in media art culture and is said to *unleash new forms of collective expression and experience*⁽⁵⁾. However Furtherfield - an entity whose practice is entirely native to, and arguably a key player (with many art other collectives and individuals) in the generation of, “Post-Media” art context since 1997 – is not referenced in any of the proliferating materials on the subject. ➤



Shu Lea Cheang, *Seeds Underground Party*, 2013.

> The extra irony here is that many of these supposedly insightful art historians and theorists advocate a decentralized, relational context and networked culture in their writings. However, many of them are not actually either engaged in supporting or creating these alternative structures with others themselves or in practice.

The real problem is how they acquire their knowledge. Most academic writing takes place within certain networks and protocols, and relies on dominant theoretical canons to validate regurgitated concepts rather than connecting with what is actually happening on the ground. The art used to illustrate and inspire their themes are selected from established arts venues or from within associated, academic institutions and conferences. This inevitably reinforces the validity of the work selected by established power networks and degrades and devalues other works and artist groups

not included. This insular and hermetically sealed approach is restrictive and shows an over reliance on central hubs for official reference, and it also distances theorists from the actual culture they propose to be experts in. Because of this, whole areas of innovative practice are lost and this is a big mistake. It only serves to perpetuate the conditions of an institutionalized, privileged art elite, blocking or laying low avenues for genuine, artistic and social emancipation.

Furtherfield and Hack Value.

“ We must allow all human creativity to be as free as free software.”

Furtherfield is a network across different time zones, platforms & places — online & physical, existing as various decentralized entities. Its culture supports interaction: to create, discuss, critique, review, share infor-

mation, collaborate, build new frameworks, power systems, artworks & alternative environments — technological, ecological and social independent structures for peer knowledge, respect and representation, with grounded contexts and socially aware value systems.

Furtherfield's roots in cultural hacking assert the value of hacking not only with technology but also in every day life. In fact, Furtherfield is one big social hack. Hack Value advocates an art practice that develops the cultural agency of the artist by: taking the mechanics of society as part of the medium of art along with the aesthetic resonances of social contexts; working critically with existing (art) systems. It disrupts and discovers fresh ways of looking and thinking about art, life and being; reclaiming artistic and human contexts beyond the conditions controlled by elites.

Hack Value can be a playful disruption. It is also maintenance for the imagination, a call for a sense of wonder beyond the tedium of living in a consumption-dominated culture. It examines crossovers between different fields and practices, in terms of what their combined approaches. It can be political or participatory, or both. Hack Value can be carried by artworks that use digital networks and physical environments as well as printed matter. What binds brings them together is not only the adventures they initiate when experimenting with other ways of seeing, being and thinking; they also share common intentions to loosen the restrictions, distractions and interactions dominating the cultural interfaces, facades and structures in our everyday surroundings. This relates to our relationship with food, tourism, museums, galleries, our dealings with technology, belief systems and community ethics.

Donna Haraway proposes a kind of critical subjectivity in the form of Situated Knowledges. *We seek not the knowledges ruled by phallogocentrism (nostalgia for the presence of the one true world) and disembodied vision. We seek those ruled by partial sight and limited voice – not partiality for its own sake but, rather, for the sake of the connections and the unexpected openings situated knowledges make possible. Situated knowledges are about communities, not isolated individuals⁽⁷⁾.*

In 2012 Furtherfield relocated its gallery to the heart of a North London park. The park setting informs our approach when coordinating and setting up exhibitions, projects and events. The place has a strong local identity in a public green space set aside from the larger busy, urban environment with its highly multicultural population. Our growing connection to the local community reinforces for us the necessary connection between art and an unruly and unpredictable public. We relish this. We are not distant from our gallery visitors like most traditional, academic or mainstream arts environments. We are not interested in creating yet more elite artists, elite groups and elite products. We want to change our culture through our practice.

It is our contention that by engaging with these kinds of projects, the artists, viewers and participants involved become less efficient users and consumers of given informational and material domains as they turn their efforts to new playful forms of exchange. These projects make real decentralized, growth-resistant infrastructures in which alternative worlds start to be articulated and produced as participants share and exchange new knowledge and subjective experiences provoked by the work⁽⁸⁾.

We are simultaneously connected to a network of international critical artists, technologists, thinkers and activists through our online platforms and communities, as well as a wider networked art culture.

Being accessible has nothing to do with dumbing down. It concerns making the effort to examine deeper connections between people and the social themes affecting theirs and our lives. We don't avoid big issues and controversies and are constantly engaged in a parallel dialogue between these online communities and those meeting us in the park.

On the 23rd of November we opened our second space in the park *the Furtherfield Commons*. This new lab sets out to explore ways to establish a commons for the 21st Century. It draws upon influences from 1700s when everyday people in England such as Gerrard Winstanley and his peers forged a movement known as the Diggers also known as the True Levellers to reclaim and claim common land back from the gentry for community interests. Through various workshops, residencies, events & talks we will explore what this may mean to people locally, alongside our connection with online communities and international networks. This not only includes skills exchange and learning about coding, free software and hardware, but also critical approaches to gardening, gaming, drawing, making and other hands-on practices where people can claim direct influence in the physical world, so to initiate new skills and social change on their own and shared terms. ■

Marc Garrett

www.furtherfield.org/programmes/exhibitions

- (1) Marc Garrett. "DIWO (Do-It-With-Others): Artistic co-creation as a decentralized method of Peer-2-peer empowerment in today's multitude". From chapter - *DIWO, Emancipation and Mainstream Culture*. Page 2. (2013)
- (2) Dan Hind. *The Return of the Public: Democracy, Power, and the Case for Media Reform*. Verso, 2010. pp 155.
- (3) Julian Stallabrass, *Art Incorporated: The Story of Contemporary Art*. OUP Oxford, 2004.
- (4) Gregory Sholette, *Dark Matter: Art and Politics in the Age of Enterprise Culture*. Pluto Press, 2011.
- (5) About the Post-Media Lab By Post-Media Lab, 20 January 2012. www.metamute.org/editorial/about-post-media-lab
- (6) Hans-Christoph Steiner. *Floss + Art*. Compiled and Edited by Aymeric Mansoux and Marloes de Valk. GOTO10 in Association with OpenMute, 2008. P151.
- (7) Donna Haraway. *Situated Knowledges: The science Question in Feminism and the Privilege of partial Per-*



PHOTO © MARC GARRETT

**Zombie Triptych
Remix
(found footage).**
Marc Garrett,
2012.

spective. *Feminism and Science*. Editors, Evelyn Fox Keller and Helen E. Longino. Oxford University Press, 1996. P259.

(8) Marc Garrett, Ruth Catlow, *DIWO: Do It With Others - No Ecology without Social Ecology*. 2013. First published in *Remediating the Social* 2012. Editor: Simon Biggs University of Edinburgh. Pages 69-74. www.furtherfield.org/features/articles/diwo-do-it-with-others-no-ecology-without-social-ecology

(9) Ruth Catlow. "We Won't Fly For Art Culture Magazine", special themed issue *Paying Attention: Towards a Critique of the Attention Economy* by Patrick Crogan and Samuel Kinsley. Special Issue of *Culture Machine* Vol. 13, 2012.

Marc Garrett is a Net artist, curator, writer, street artist, activist, educationalist and musician, emerging in the late 80's from the streets and exploring creativity via agit-art tactics. He has made use of unofficial and experimental platforms such as the streets, pirate radio, net broadcasts, BBS systems, performance, intervention, events, pamphlets, warehouses, and gallery spaces. Co-director and co-founder, with artist Ruth Catlow of the Net arts collectives and communities - furtherfield.org, furthernoise.org, netbehaviour.org.

Furtherfield.org is a London-based, non-profit organisation for the creation, promotion, and criticism of adventurous digital/Net art works for public viewing, experience, and interaction. Furtherfield events and projects incorporate a strong participatory element and break away from conventional approaches to contemporary art. The projects are often live, real-time, collaborative artworks, facilitating and documenting unrestrained interaction and communication between artists and online audiences.

VALUE AND INNOVATION

in contemporary art and culture

There are wealth of cases to support the statement that digital innovation in the cultural sector is of great importance. In this article I will explore the factors that affect innovation in particular, digital innovation in the UK's cultural sector at the present time, and see how a consideration of sector specific conditions can better devise modes of production that aid the rate of change. Within this frame, I will also consider the types of values that cultural activities create and the systems of exchange that affect levels of digital innovation. Although the article is focused on occurrences within the UK, the situation is indicative of a broad pattern in digital culture production worldwide.

■ Mute Magazine, founded in 1994 by Pauline van Mourik Broekman and Simon Worthington, was set up to discuss the relationships between culture, politics and networked digital technologies. Alongside

this editorial vehicle, Mute also developed a sister project called OpenMute. This is the area where the organisation experiments in modes of cultural production; researching and re-distributing knowledge

(Art of Digital London, Hybrid Publishing Lab⁽¹⁾), adopting innovative services in the production of the print products (Print on Demand, ePub) and site development, and where there is a gap, even



Art of Digital London, Meetup **Crowdfunding** event, held on 17 August 2012 at The Photographers' Gallery, London.

building new tools (Progressive Publishing System⁽²⁾). Having grown up with the free culture movements associated with the nascent, critical net culture of the 1990s and 2000s, OpenMute's initiatives advocate for open standards, non-proprietary systems and working in collaborative communities.

Sites of (cultural) production are the grounds for constant negotiation. The majority of producers function on low budgets and in small, diversely-skilled teams. In order to ensure the long-term financial viability of their projects they must battle to maintain a level of critical activity whilst finding ways to maintain low overheads, draw audiences and generate revenue. OpenMute looks towards digital technologies to provide such

solutions, seeing them as creating spaces in which productive artistic, social and political reconfigurations occur.

2009 saw an important moment in the recent history of digital innovation in the UK when David Cameron released the Digital Britain report⁽³⁾ — a strategic vision to put the country at the forefront of the global digital economy. As a result, public funders set new agendas to encourage the widespread adoption of digital technologies across all the artforms. OpenMute was commissioned in the same year by Arts Council England to launch Art of Digital London (AoDL). This was a research and live events programme around 'digital strategy in culture' that ran in various formats until 2013. The objective was to facilitate the establishment and maintenance

of a London network investigating the relationship that public arts organisations and independent producers have to digital technology. This was a unique effort at the time, that gathered workers from both cultural and tech communities to bring attention to the sector specific adoption of digital technologies in the creation, production, distribution and marketing of artistic programmes.

At the time it was felt that the digital work taking place in the cultural sector needed greater exposure as visible examples were drawn predominantly from the commercial, tech start-up and media sectors. The important work carried out in Media Arts remained contained within those communities and any examples of work that did come from

the cultural sector came from larger institutional organisations. What Art of Digital London sought to do was to create a community platform where cultural workers could highlight key works, share ideas, articulate their position, raise awareness of the issues and advocate for support for digital experimentation in the sector. Importantly, it sought to do this from the perspective of small organisations and independent producers and using open techniques.

During the 5 years that AoDL was in operation, the programme highlighted hundreds of digital projects, all of high calibre, that were produced within the cultural sector during that time. They evidenced a level of expertise and critical engagement that is unique to the field and through which some of the most interesting applications of digital technologies have been brought about. Much of the research is available online, however, for the purposes of this article, I would like to pick out a few personal highlights mostly centred on video:

- Digital Archives: LUXOnline, Pad.ma, Siobhan Davies Archive, UbuWeb
- APIs: BBC APIs List⁽⁴⁾, BBC Digital Public Space⁽⁵⁾, Culture Grid (Europeana), Museums APIs List⁽⁶⁾, Tate GitHub⁽⁷⁾
- Digital Copyright: CREATe, Cornelia Sollfrank's *Artistic Research into Copyright-Critical Practice* interview series⁽⁸⁾
- Online exhibition spaces: Tank.tv, Vdrome, KALEIDOSCOPE Videoclub
- Live Streaming events: Auto Italia LIVE, ICA Online Talks⁽⁹⁾, NT Live
- Documenting the arts: Art21, Artplayer.tv, Arty ok, Frieze, MOCATv, Tate, Video in Common, the Miro Player tool⁽¹⁰⁾
- On-Demand: BFI Player, Digital Theatre, TheSpace, MUBI,
- Curating the web: Network Awesome

Digital technologies have had a fundamental and profound affect on how we operate in the world. The pace of invention and use in the commercial markets is something much quicker than could be absorbed or acted upon in any meaningful or sustainable way by the cultural sector, for reasons I will elaborate on below. When AoDL began there was a general panic within the sector fed by persistent calls from funders for 'innovation', 'employing creative approaches' and 'spiriting entrepreneurial attitudes', all while funds were being cut in wake of the 2008 financial crisis. Good ideas are one thing but the means to bring them about is another, that is, innovation is defined by and produced through the operations of the sector's infrastructure.

AoDL recognised this and took to investigate how digital technologies were affecting cultural production from the ground up. As we mapped the areas (publishing, video, audio) and the issues (tools, copyright, cultural policy) the dialogue initiated revealed the complexity of cultural production by exploring the support structures that affect real innovation and change; technical knowledge, skills development, acknowledgement of the types of value creation, business models and, above all, the individual attitudes of cultural directors and funders who play vital roles as advocates.

In addition to the discussions of AoDL, an important reference for the following statements is the research conducted by the Common Practice advocacy group in London and their two position papers, *Size Matters: Notes towards a Better Understanding of the Value, Operation and Potential of Small Visual Arts Organisations* and *Value, Measure, Sustainability: Ideas Towards the Future of the Small-Scale Visual Arts Sector*.

Cultural producers, I mean small publicly funded organisations, operate on modest annual incomes made up from a mixture of public grants supported by a level of saleable wares and services. In the majority of cases, budgets are predominantly dedicated to core programme costs (artists fees, exhibition fees), staffing and overheads. They run lean, finely balanced organisations and there is little or no room for accumulating reserves, training staff or research and development⁽¹¹⁾. The playing field for innovation is therefore greatly reduced.

At the time of writing the tech sector in London is booming, the many startups based around Silicon Roundabout attract a steady stream of funding and investment, the labour force is highly skilled and in demand, meaning that wages are competitive. Any negotiations on wage are generally made with startups in exchange for company shares. The tech development skills level is low across the board in the cultural sector as many employed have naturally gone through some sort of formal arts and humanities education. Any skills are picked up out of necessity and so, when working on technical projects or site upgrades, organisations tend to hire outside commercial-rate companies. However, in producing their core programme, the cultural sector relies heavily on alternative economies of exchange and in-kind. Therefore the cash outlay in experimental tech development (labour and services) is beyond the means available.

Experimentation by an individual organisation, even if done at a low level on an iterative basis, is risky. In addition to this, the large cash outlay at the beginning and continuing maintenance costs of any technical project cannot be recouped at a quick enough rate; markets are small, products are niche and the resulting rate of return is slow and low. In many instances, organisations do not see the value of their efforts return in full as Sarah Thelwall has described through her theory of *Deferred Value Creation*.

Digital innovation is an unattractive activity for most individual organisations due to the lack of knowledge and understanding of the flexibility of new technologies, the need to outsource to commercial companies, the unpredictability of development times and therefore costs, the disjoint in rates of pay and the lack of alternative exchange systems between cultural and tech workers. This was evidenced through the demographic that attended AoDL when it began in 2009, as a large proportion of attendees held roles in marketing. In the main organisations choose to focus on the scope of digital technology in relation to organisational development with emphasis on income generation. The web is viewed more as a space for promotion and commerce than as a space to be curated. This is due to the pressure on organisations to become self-sustaining, ie: monetise assets, but also because developing these types of projects can be more easily contained and there are many more functioning examples to draw from in the (small scale) commercial environment. The underlying aim of digital strategy is in the wider spread of cultural knowledge and exchange through an increased visibility of core activities, remote access to events occurring within the physical space and the opening up of archival material.

To encourage the work in digital innovation in the cultural sector the challenge is on one side to increase the level of technical knowledge and confidence in approaching digital projects across the cultural sector and to all staff roles, and on the other to establish new relationships with those in the tech sector that see development happen through alternative economies. AoDL certainly sought to build links between the two communities but other notable events have been a series of hackdays presented by Culture Hack⁽¹²⁾, National Archives or Rewired State, residency programmes Sync Geeks in Residence, Wikimedians in Residence and in research partnerships as The Arts Catalyst have done⁽¹³⁾. Such events have proved success-



Sarah Thelwall, *Size Matters, Notes towards a Better Understanding of the Value, Operation and Potential of Small Visual Arts Organisations*, Common Practice, 2011. Practice, 2011.

Art of Digital London, *TheKnowledge, Peer Learning for Digital Strategy in Culture*, OpenMute, 2012.

ful due to their interdisciplinary nature, bringing tech developers into organisations otherwise working without them; enabling them to build relationships with staff and sharing knowledge in a focused, boundaried environment.

A way to spread the risk involved in digital production would be to work in collaboration with other organisations, educational institutions and tech partners, as the Digital R&D Fund for the Arts launched in 2012 was set up to do. In identifying a common problem or line of enquiry, groups can work together, sharing knowledge, skills and resources. The outcome of which can then be captured and widely spread. A particular project to highlight, that is similar to this but conducted independently of the Digital R&D, is Video in Common. This is a digital video production and training network consisting of seven small visual arts organisations in London. It exploits economies of scale to increase the digital capacity of the entire group to better describe, promote and contextualise their art and public programmes using the medium of online video. The issues were identified and the project plan was developed from discussions held by Common Practice. It was led by Mute and the research gathered was disseminated to the wider public through the Art of Digital London events programme.

To conclude, small arts organisations and individual artists create many forms of value; artistic, social, societal and fiscal. Networked digital technologies enable the enacting of these values on a broader stage beyond the reach of

the physical gallery space. Digital technologies are being employed in the cultural sector to great effect, to create deeper levels of audience engagement, generate income streams and distribute knowledge. As I have outlined innovation in this area is complex and occurs only through a long process of enabling the correct infrastructural conditions. To enhance the likelihood of more interesting work in this area there must be a consideration of the modes of production and a recognition of alternative means of exchange within the small scale arts sector. ■

Caroline Heron

- (1) <http://hybridpublishing.org>
- (2) www.metamute.org/services/r-d/pps-private-beta-online-docx-and-google-docs-conversion-to-ebook
- (3) http://en.wikipedia.org/wiki/Digital_Britain
- (4) www.bbc.co.uk/developer/technology/apis.html
- (5) www.collectionslink.org.uk/discover/sustaining-digital/1095-bbc-digital-public-space-diagram
- (6) <http://museum-api.pbworks.com/w/page/21933420/Museum%C2%A0APIs>

- (7) www.tate.org.uk/about/our-work/digital/collection-data

- (8) www.postmedialab.org/GWYDH

- (9) ICA have been using the Google Hangouts tool to conduct online talks with a group of remote speakers, streaming live and then archiving the content for future use

- <http://www.ica.org.uk/video/online-talk-lutz-bacher>

- (10) In 2009 Openmute used the Miro Player tool to gather the available video RSS feeds of cultural organisations in London. The test of which can be viewed here: <http://aodl.mirocommunity.org>

- (11) "The financial dynamics of small visual arts organisations", in *Size Matters: Notes Towards a Better Understanding of the Value, Operation and Potential of Small Visual Arts Organisations*, p14-23, Sarah Thelwall, Common Practice, 2011.

- (12) The National Archives ran a special event, 'Hack on the Record' in 2012

- <http://blog.nationalarchives.gov.uk/blog/hackon12-we-came-we-saw-we-didnt-sleep-much/>

- (13) Lisa Haskel is currently undertaking a 4-year full-time placement with The Arts Catalyst as a Research Engineer, this which is conducted in a technology partnership with the University of Bournemouth Centre for Digital Entertainment.

Caroline Heron lives and works in London. She is currently Project Director of Video in Common, that she established with Pauline van Mourik Broekman. She is also part of the Mute Magazine Editorial Group, after stepping down from her role there as General Manager in 2014. From 2009 to 2012 together with Simon Worthington, she has been the Project Co-ordinator of Art of Digital London. During this time they have ran the AoDL Digital Salon & Surgeries and published TheKnowledge online and print resource. In 2012-2013, together with Jo Healy, she has been the Organiser of the Art of Digital London Meetup series. <http://video.commonpractice.org.uk>
<http://metamute.org>
http://theknowledge.aodl.org.uk/index.php/Digital_Salon_and_Surgeries
<http://theknowledge.aodl.org.uk/index.php/Frontpage>
www.meetup.com/Art-of-Digital-London/

NEW INDUSTRIES

How agencies look at digital artists and designers?

We are living in an age of exploding complexity, rising ambiguity and overall uncertainty, framed by an unprecedented speed of scientific discoveries and technological advances. In this highly volatile environment, digital creatives and artists have a window of opportunity to put their skills and strategies to work, not only in *what* they can do, but also in *how* they identify opportunities and approach challenges. John Maeda, author, designer, scientist and current President of the Rhode Island School of Design (RISD), writes in his book *Redesigning Leadership: Art and design are poised to transform our economy in the 21st century like science and technology did in the last century*⁽¹⁾.

■ Innovation strategies inspired by artists and designers

This text seeks to explore *if and how* innovation in industry can be driven by creatives, namely artists and designers, and which of the creative processes spanning from ideation, experimentation and rapid visualizing, prototyping, testing and fabrication, often facilitated by radical collaboration and crowd sourcing, could be developed on a larger scale for the industry to adopt and to invest in.

Some of the following examples are derived from my own professional experience as a design educator and as an artist, designer and entrepreneur, contextualized with a series of interviews, which I conducted with top creative leaders from a wide range of disciplines for my MBA thesis *The Un-Agency: A Quest for the Creative Self-Rejuvenation Gene*.

Be a learning environment

“ I hate doing new stuff, but I know if I don't, I'm going to be just another boring old fart. ”

Erik Spiekermann,
Principal, Edenspiekermann, Berlin⁽²⁾.

The conventional notion that learning environments are mainly made up of academic institutions is a thing of the past. Dynamic learning environments combine the best attributes of school, laboratory, agency and nomadic network. They can help to effectively expand the creative potential of individuals and corporations to become more resilient in times of great technological and societal shifts. Teaching design today is like training performance athletes for the Olympics — yet without telling them in *which* category they will be competing.

The philosophy of Art Center College of Design in Pasadena, California, as a school of teaching professionals rather than of professional teachers, encourages entrepreneurship among faculty and staff. With its informal network of designers, artists and fabricators who can share know-how and creative resources, the school serves as a hub for the local, national and international creative community.

As the Chair of the Graphic Design department at Art Center, I was given the opportunity to redesign how graphic design is taught in times of uncertainty, ambiguity, and great potential — primarily because of the convergence of different visual media formats, and radical shifts in media literacy and use across the population. The creative industry is demanding designers who can athletically stretch their skills across a wide range of analog and digital media formats to create communication design solutions successfully cutting through the white noise of our convoluted visual environment. Given an average of four years for an undergraduate design education, there is no way of fully predicting what the world of media will look like once a student, who is starting his or her education today, graduates.

Creating an effective, relevant and stimulating learning environment in such a shifting world calls for a very delicate balance of educational offerings: excellent foundational craft skills, deep conceptual abilities and — at the same time — a very broad understanding and facility in the ever-expanding spectrum of existing and emerging media formats, as well as a very broad understanding of their underlying business principles.

Transmedia Design and *Mediatecture* are the terms we use to describe our approach to teaching Communication Design as an essential, multifaceted and interactive tool for communicating the four-dimensional experience of a place, product, service or personality in every imaginable



PHOTO © P. RIJAL / O. BRUNET / R. HALBE.

Artist/Creative Director: Nik Hafermaas. Artist/Executive Producer: Jamie Barlow. Artist: Dan Goods, Visual Strategist at NASA's JPL, **dMIRROR**. BMW Flagship Store, Avenue George V, Paris. > <http://uebersee.us/projects/dmirror/>

context. *Transmedia* means working across *all* media. *Mediatecture* activates the built environment from a human scale to the urban scale.

Successful learning environments challenge the boundaries between learning and teaching; they are becoming more and more fluid. Petrula Vrontikis, an Art Center colleague, states that "To teach or work in this way is very different. It must be okay to not know and to not be the expert. It must include a high degree of receptivity and emotional IQ. It must include the physical and mental strength to withstand the chaos of outcomes in flux and everything up for grabs".

Collaborate with industry, across disciplines and be nomadic

"Make it a call to action: an invitation — and make sure the end result reflects that there's a designer/problem-solver in all of us."

Roshi Givechi,
Design Director and Associate Partner, IDEO⁽³⁾.

Art Center's learning environment is profoundly enriched by collaborations with industry and across disciplines. The school has pioneered and developed robust sponsored project opportunities in collaboration with leading global brands,

which turn to the school for inspiration and future-forward thinking. Over the past years an entire suite of different corporate engagement models were developed, from 2-day *Designstorms* with various ideation and rapid visualization components, to semester-long transdisciplinary projects that yield fully developed user scenarios and prototypes. The creative teamwork across the school's different art and design disciplines is further enhanced by closely collaborating with a tight network of engineers and scientists hailing from leading institutions like Caltech and Jet Propulsion Laboratory/NASA.

Parallel to creative collaborations with the industry, the school is conducting *Social Innovation* work through its *Designmatters* program⁽⁴⁾ — combining the desire of young artists and designers to create beautiful artifacts, with a mission to make these designs work for the greater good, it built a bridge between aesthetics and relevance.

In 2003, Art Center became an official Non Governmental Organization (NGO) with the United Nations⁽⁵⁾. Art Center is the first design school to carry such a title, which created instant attention for *Designmatters* and for the entire school. This program has become a distinguishing feature and asset in the competition for the most

talented students: Millennials who not only want to make a living in the creative industries but who also want to make a difference in the world.

Evolution strategy: creating a nomadic learning environment

In a traditional international student exchange, or in a collaboration with a partner school, students usually just move from one sheltered classroom setting to another one - this is what I call box to box. A *studio abroad* project is designed to deliberately remove the students from any school setting and move them into the atmosphere of a pop-up design office, organized and operated like a professional creative agency, running for a limited time of one semester (14 weeks), and organized by faculty and students. A network of high-caliber members of the local creative industries (communication and design agencies, architects, artists) supports the studio as dedicated mentors.

The most important player in this creative collaboration, however, is the urban environment — Berlin, in this case. The German capital, with its thriving cultural and subcultural life, provides inspiration and raw research material for new creative solutions. At the same time, the city is a unique urban testing ground for scenarios and prototypes.



Nik Hafermaas, Jamie Barlow, Dan Goods, **airFIELD**. Hartsfield-Jackson International Airport, Atlanta GA / MHJIT Art Program, 2012. SEG D Global Design Award, 2013. > <http://airfieldsculpture.com>

> In the *testlab Berlin* studio model, insights are generated through participatory research and prototyping, and the making informs strategy, which can lead to genuinely unexpected creative solutions. In the past years, *testlab Berlin* has generated fundamentally new insights for corporate partners like Johnson&Johnson (The Future of Health & Wellness), Sennheiser (The Future of the Retail Experience) and Berlin Partners (The Future of Mobility), to name just a few.

Transformative learning experiences like *testlab Berlin* help students to advance through cultural immersion, exploration, experimentation and prototyping: veterans from this program are still collaborating with each other on projects beyond the school. Through their shared experience they have become like the friendly version of a SWAT team⁽⁶⁾ which could be parachuted into virtually any environment: they would land on their feet, set up camp and get to (design) work. Lately, incubator labs and entrepreneurial start-up initiatives have been developed to further extend the Art Center learning experience and to open up new avenues for students and graduates to enter gainful careers in the professional world.

The state of design thinking in the industry, the rise and fall of the CCO.

“The making of real things has been bleached out of our kids’ minds.”

Jim Patell, co-founder of the d.school at Stanford University⁽⁷⁾.

Tim Brown, CEO of the design firm IDEO, describes in his 2008 TED Talk⁽⁸⁾ *Design Thinking* as an integrative creative methodology to solve problems and to create new opportunities across the full spectrum of human endeavors. Success stories range from re-imagining hospital environments to retail experiences and banking products. At the d.school and other reputable academic institutions — such as Harvard and ESADE — business executives pay hefty tuition to learn in executive workshops the creative methods of *Design Thinking* — mainly: how to see, imagine, and visualize the world again, just as they did when they were kids. Jim Patell, d.school professor and co-founder, relates the decline of the US global thought leadership directly to the necessity of re-learning hands-on creative processes, the skill of *making things*.

Meanwhile, other prominent voices already refer to *Design Thinking* as a “failed experiment”. Bruce Nussbaum talks in his article published in *Fast Company* in April 2011⁽⁹⁾ about what he calls the end of the *Design Thinking* decade: *Design Thinking* originally offered the world of big business — which is defined by a culture of process efficiency — a whole new process that promised to deliver creativity. By packaging creativity within a process format, designers were able to expand their engagement, impact, and sales inside the corporate world. Companies were comfortable and welcoming to *Design Thinking* because it was packaged as a process. He continues: *There were many successes, but far too many more failures in this endeavor. Why? Companies absorbed the process of Design Thinking all too well, turning it into a linear, gated, by-the-book methodology that delivered, at best, incremental change and innovation.*

Over the past decade, some major corporations have embraced the concept of creating value through design and creativity by implementing the position of Chief Creative Officer (CCO) among their executive ranks.

The CCO often reports directly to the CEO or to another high-ranking member of the executive suite. Together they form a *creative leadership team*, complementing each other's different backgrounds in design and business, law or engineering. Creatives in leading positions, and their empowering superiors, are often joined at the hip, so if the boss resigns, the CCO often follows suit.

Therefore, the role of creativity in the corporate world is a fickle one - big brands like Procter & Gamble, which only a few years ago prided themselves as pioneers to embrace *Design Thinking*, have recently fallen surprisingly quiet on the topic. What was celebrated as an irreversible move towards practices that are better for profit, for people and for the planet (the *triple bottom line*, as coined by John Elkington in 1994⁽¹⁰⁾), seems to have vanished together with the departure of Claudia Kotchka, the former Vice President of innovation, design and strategy and her visionary boss, CEO A.G. Lafley⁽¹¹⁾.

Prototype in public, co-create and fabricate

“*Few companies understand the principle that you should reward failure, because if you reward failure, then you reward risk taking.*”

Yves Béhar, Founder, Fuseproject⁽¹²⁾

To be a true learning environment, a creative organization must encourage risk taking and experimentation. Experiments, however, are prone to fail—it is the very nature of any iterative process to produce scores of failures until a suitable solution is found. Corporations usually try to protect themselves from product and marketing disasters through conducting focus groups: a form of qualitative research in which groups of people are asked about their perceptions, opinions, beliefs and attitudes toward a product, service, concept, advertisement, idea, or packaging. However, this process often leads to nondescript products that appeal to the lowest common denominator of taste and imagination. The Focus Group2.0 is actually the audience out in the world: an audience of passionate supporters that lends its expertise to co-develop and refine the product. *Focus Group2.0* means testing products and services in the market and having consumer feedback help to refine the creation.

The next level of consumer co-creation is actually the *open source*⁽¹³⁾ model — a term that was originally referring to any software program whose source code is made available for use or modification as users or other developers see fit, but is now also referring to a widening range of products that are developed based on shared intellectual property (IP). Don Tapscott and Anthony D. Williams made the concept of mass collaboration, open-source technology and shared IP widely popular in 2006 with their book *Wikinomics: How Mass Collaboration Changes Everything*. I expect that *Focus Group2.0* collaboration and *open source* models will dramatically gain relevance in the coming five to ten years, propelled both by sophisticated production tools becoming more widely accessible to the general population, and by greater user feedback and co-creation involvement.

Be an instigator

“*Your brain is making new patterns only if it's pushed. I think the brain is pretty lazy.*”

Brian Collins,

Principal, COLLINS, New York City⁽¹⁴⁾

Traditionally, most design offices and creative agencies are in the service consulting business to their commercial clients. This paradigm, however, is *shifting*: former creative service providers are beginning to develop products for sale (either directly selling these goods or licensing them) and/or are creating client engagements that are compensated by profit sharing or for the social good. I call these proactive creative agencies instigators: instead of waiting for the phone to ring or for a pitch to be won, these design entrepreneurs initiate their own projects from scratch.

The creative business of the future cannot rely on traditional pitching for sustainability, because clients are not willing to make the long-term commitments that were common in the past. Instead, it will be more creative and ultimately more profitable to channel that effort to produce apps, campaigns, technological tools, and events that provoke and instigate meaningful dialogue in the public realm. Self-initiated projects I call Pitching2.0: These projects often require risk-taking and entrepreneurial chutzpah. However, they can present a viable alternative to the wasteful practice of creative pitches and spec work⁽¹⁵⁾. ■

Nikolaus Hafermaas

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Professor Nikolaus Hafermaas is an award-winning artist, designer and educational leader. With two partners he founded one of Germany's leading design firms, Triad Berlin as former principal and chief creative officer of Triad Berlin. His Los Angeles based artist platform UEBERSEE conceives and produces data-driven art installations converging digital media and spatial experiences. As the Graphic Design Department Chair at world-renowned Art Center

College of Design, leading a faculty of over 40 professional designers and 300 students, he has created a new curriculum, fusing print and packaging, motion and interaction design into Transmedia Design. This innovative program is razing traditional barriers separating designer, artist and curator. As the Executive Director of Art Center's Berlin Satellite Program, he prototypes new learning models in Europe's most creative metropolis.

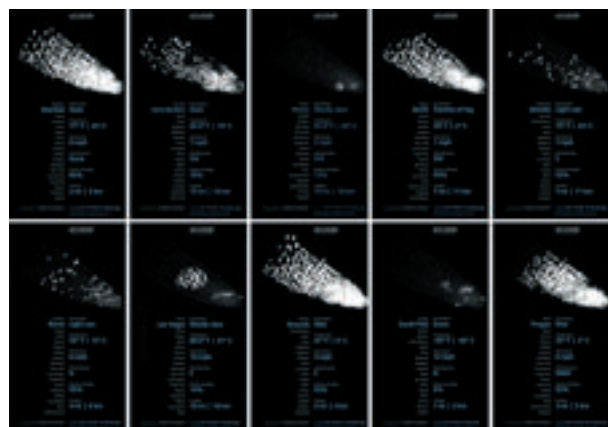


PHOTO © SPENCER LOWELL



Nik Hafermaas, Dan Goods & Aaron Koblin, **eCLOUD**. San José International Airport, North Concourse / City of San Jose Public Art Program, 2010. IDEA Award IDSA, 2011. AIGA 365 Design Effectiveness Award, 2011. > <http://ecloudproject.com>

ARS ELECTRONICA

Interview with Director Gerfried Stocker

In 1991, Gerfried Stocker, a media artist and telecommunications engineer founded x-space, a team formed to carry out interdisciplinary projects and produce installations and performances featuring elements of interaction, robotics and telecommunications. Since 1995, Stocker has been the artistic director of Ars Electronica, the organization founded in 1979 in Linz, Austria, which is behind the festival for art, technology and society of the same name. From 1995/96, he headed the crew of artists and technicians that developed the Ars Electronica Center's innovative exhibition strategies and set up the facility's in-house R&D department, the Ars Electronica Futurelab. He has been responsible for conceiving and implementing the series of international exhibitions that Ars Electronica has staged since 2004 and, beginning in 2005, for the planning and thematic repositioning of the new, expanded Ars Electronica Center.



Gerfried Stocker

■ **Marco Mancuso: Ars Electronica Festival — the Prix of competitions honouring excellence — was born in 1979, to showcase and observe the growing impact of technologies on contemporary art and society. The Centre as a museum and the FutureLab as an R&D department, with a set of private technological partners investing on it, came soon after. From a historical point of view, why, did it happen and how did it develop? It seems like Ars Electronica led a process of change in terms of art and culture production,**

with few other examples around the world to share and compare with at that time, following paths that had rarely been previously explored in media art and culture. How did this process work and what difficulties did you face?

Gerfried Stocker: In 1979, the Festival for Art, Technology and Society was founded together with the Linzer Klangwolke (Sound of Cloud). The Prix Ars Electronica came in 1987. In the late seventies Linz had a big need to reinvent itself. As a city that was dominated by the fast growth of heavy steel

industry after WWII, Linz had a lack of cultural infrastructure and was only known as a polluted industrial city. At that time it became clear that melting iron to steel was not giving the city a bright future.

It was at this point that the director of the local television station, together with an artist and a scientist, developed the idea for the festival with the belief that the computer would soon become much more than just a technical instrument – it would not only be a driving force for new technologies and new economies, but would also have a big impact on culture and society. This was remarkable



PHOTO © NICOLAS FERRANDO, LOIS LAMMERHUBER

State-of-the-art lighting technology illuminates the approximately 5,100-m² glass shell that enwraps the **Ars Electronica Center**. The LED strips mounted behind the 1,100 glass panes that comprise the façade are individually programmable. Brightness and color mixture can be fine-tuned. There are a total of 40,000 diodes—a quarter each emitting red, green, blue and white. In normal nighttime operation, 3-5 kilowatts of electrical power are all it takes to produce innovative special effects.

considering the very early time Ars Electronica was founded. Even more remarkable was that they understood that it would have not been enough to make a sophisticated festival and conference but that it also needed something that was able to reach out to all the people.

Since then, this has always been our main principle: looking at the topics and developments that are defining our future, trying to understand them with the help of artists and scientists from all over the world, and communicating it to the people. Throughout the years we have created a very strong chain of activities — with the festival, and in particular the Prix, as a source for inspiration and ideas; the centre as a platform for education where people can encounter the themes and technologies of the future in a strongly participatory and creative way; and the FutureLab as a think tank and melting pot for creative professionals, artists, techies, developers etc. — that allow people to use all this input and experience to create new ideas and prototypes. At the same time, we

also have a division that is developing exhibitions for places all over the world and we have Ars Electronica Solutions where we are transforming all of these creative ideas into products for the markets.

So you can see that the integration of Art, Technology and Society has become much more than just a nice wording but really the leading principle of all our work that has become more and more suited to coping with the challenges and changes of our technology-driven time. The one thing that is underlying in all these activities is the artistic point of view, the artistic way of approaching things. This makes sure that we are always very close to the needs of people, that we never lose sight of the importance of developing technology according to the users and that we are much better prepared to tackle the negative sides of the recent developments.

MM: Ars Electronica is a project funded both from public (Upper Austria, Ministries of Austria) and private partners, as can be seen on the related page on the website. From the vast

literature and experiences chronicled about Creative Industries it is clear today how industries of the twenty-first century will depend increasingly on the generation of knowledge through creativity and innovation (Landry, Charles; Bianchini, Franco, 1995, The Creative City, Demos). What is not totally clear — probably because it is less direct — is why private industries invest in a centre like Ars Electronica, what exactly they look for and what is the potential "come-back" (use "feedback" or "throwback" depending on what you are trying to say). In other words, which economical – cultural – production model could eventually be applied on a smaller scale?

GS: Please don't consider me impolite or arrogant, I just want to be clear and honest, but I have to say that it is ridiculous to expect an answer to THIS QUESTION in a few lines. I just could write some more of these meaningless statements that have already ruined a lot of the credibility of creative industries. ➤



Project Genesis – one of the exhibitions at the Ars Electronica Center – extends through two levels of the building. The works are grouped into four thematic clusters: Biomedica, Synthetic Hybrids, Genetic Ethos and Citizen Science.

> It took us many years to develop a practice and it would take hours to talk about it in sufficient depth. It is a highly complex and multi-layered ecosystem that has to be maintained to establish a working and sustainable partnership and collaboration between these areas and the people working in them. At the end, the reason why companies are working with us (not sponsoring but working and co-developing) is that based on our 35 years of experience we have found a few methods to facilitate or to moderate this exchange.

MM: At Ars Electronica Centre you work on exhibiting liminal and expressive art-forms: from biotechnology to genetic engineering, robotics to prosthetics, interactivity to neurology and environment technologies to synthetic biology. Do you think there will be spe-

cific territories for media art production that will be close to industrial investments? And again, how are the Ars Electronica Centre exhibition activities related to the strategies and investments of your industrial investors?

GS: So far we have never chosen topics for a festival or for exhibitions because of the investment of companies. One of the success factors (or maybe survival-factors of AE) is that we have always been a cultural institution run by the city of Linz. This means that we always have our basic funding for our core tasks and responsibilities. Of course we could strongly extend our range of activities and impact due to our collaborations with the private sector but we would always survive and still be able to do our core-business without them. However, we never could survive very long if we just went for money

from the industry because we would lose out strength and credibility and therefore our access to creative people and their ideas... understand it as an ecosystem and not as business model!!!!

MM: With regards to the Ars Electronica Futurelab, the Lab works on research topics like Functional Aesthetics, Interaction Ecology, Information Aesthetics, Persuasive Technology, Robotinity and the wonderful Creative Catalyst. Can you explain why you consider these specific topics to have potential both from an artistic point of view and for business focused on research and technologies? Do you think these matters will become part of our daily life, something to which media artists will refer and something that will bring about a



PHOTO © GREGOR HARTL FOTOGRAFIE

The Ars Electronica Futurelab's quadcopter swarm was the main attraction at the 2012 voestalpine Klangwolke. An audience of over 90,000 was on location to witness a world record: the first outdoor formation flight of 49 quadcopters. In the meantime, the quadcopters already made appearances in London, Bergen, Ljubljana, Brisbane and Umea. And they are also capable of light-painting.

productive culture and artistic value until it is honoured with an Ars Electronica Prize?

GS: Yes of course these things are already becoming defining parts of our life, culture and society. It is only by approaching them through strategies like catalytic creativity that we have a chance to do it properly. Think about the difference between Robotics and Robotinity, this is not just a word-play, it's a completely different approach to understanding the challenges and changes.

MM: The Ars Electronica Residency is a Network of excellence with partner organizations including institutions of higher education, museums, cultural organizations, R&D facilities in the public sector as well as private initiatives and companies. You say there is the desire to conduct an artist or re-

searcher-in-residence programme, each one of which concentrates on a specific thematic area in which the respective partner has unique expertise. Could you give me a real example of how a specific project was born, from where the initial input came (from schools, cultural organizations or private initiative), how the process worked, how students/schools/artists/companies were put in contact? Do you think the creation of an artwork, the value of the research on a specific technology and the expressive language could remain totally free and independent from any pressure from corporate and private investments? How could Ars Electronica prevent any possible process of massification / marketification of media art?

GS: Again I have to refer to the ecosystem! To benefit from creativity without exploiting it you have to work like a farmer, if you don't nurture your soil you won't be able to harvest. The artist-in-residence network is a strategy to feed back into the pool of creativity. It is a wonderful way to connect people and institutions that have similar ideas, to bring techies together with artists, etc, etc. On how to prevent the sell out maybe I can use again the comparison with farmers. It is not a sin to sell the products of your farm but if you sell your land instead of the products you can grow on it with all your special experience you become a real estate agent and all your skills experience and culture will vanish. ■

interview by **Marco Mancuso**
WWW.AEC.AT/NEWS/

SCIENCE GALLERY

Interview with Dr Michael John Gorman, CEO, Science Gallery International

Michael John Gorman is CEO of Science Gallery International, an initiative created to develop a global network to inspire young adults to engage with science, technology and the arts, founded with support from Google.

■ Since 2007 he has been Founding Director of Science Gallery an innovative cultural space bridging art and science at Trinity College Dublin (TCD). Currently, he is also Adjunct Associate Professor of Engineering and Computer Science at Trinity College Dublin, and Director of the TCD Idea Translation Lab, a collaboration between Trinity College and Harvard University, fostering cross-disciplinary innovation in undergraduates. He is Coordinator of the StudioLab project, a major European proj-

ect bridging art, science, and experimental design. He has been Lecturer in Science, Technology and Society at Stanford University, and has held postdoctoral fellowships at Harvard University, Stanford University and MIT.

Marco Mancuso: Help me give a definition of what Science Gallery is today, outside the usual grammar of official communication. Science Gallery is basically an exhibition center, not properly an art gallery or a media center, it could seem like a place for exhibiting science but it's much more than this. It is also an educational center, but it's not an official school or a media lab for workshops or seminars. It's also the hub of a worldwide network. How does this liquid structure help Science Gallery to be unique working with artists and students on the one hand and attracting industrial investments on the other hand?

Michael John Gorman: We think about Science Gallery as a meeting place for ideas, a sort of particle accelerator for colliding peo-

ple from different disciplines, a sociable space for creative and critical conversations across boundaries. We find that broad themes such as INFECTIOUS or STRANGE WEATHER naturally draw together artists, scientists, engineers, medics, entrepreneurs and students into new kinds of conversations. Let me give you an example – in our INFECTIOUS project we involved immunologists and epidemiologists, but also economists working on bank runs and viral media people like Jonah Peretti and Ze Frank of Buzzfeed. We did research experiments on the public, including a digital epidemic simulation run with the Fondazione ISI in Turin, leading to published research outputs, and also had artists exploring contagion. When we develop a theme, it works like a giant funnel for ideas, attracting new projects, commissions, student projects, research experiments and proposals for workshops and events. A theme will also suggest potential industry collaborators. The flexibility of Science Gallery means that everything is constantly changing and we are able to tap into current concerns and engage with unfolding events in science and technology in real time.



Typographic Organism by Adrien M / Claire B as part of ILLUSION, at Science Gallery, Trinity College, Dublin.

MM: Science Gallery is one of the first and few art venues which is supported by a network of partners that are not institutions or funding, but industries and PI. Science Gallery develops exhibitions and generates a wide range of outreach initiatives involving other venues, centres, labs, universities, depending on the investments of players like Google, Deloitte, Icon, NTR Foundation, and Pfizer. What is their business model? Why do they invest money in such liminal territories of culture and art? What is the main comeback in being in contact with the cultural-artistic network created by Science Gallery?

MJG: Private industry has had a long-standing connection with the territory at the intersection between art, science and technology. For Bell Labs in the 1960s, artists could provoke questions about emerging technology that would push boundaries of the technically possible, leading to the experiments of E.A.T. which Arthur Miller describes in his new book *Colliding Worlds*. Right now, digital artists like Scott Draves and Aaron Koblin work within Google, which also hosts SciFOO and other events bringing artists, scientists and techies together. Motivation

for companies to become involved stems in part from a self-interested goal to develop their own long term "talent pipelines", seeking more flexible, creative employees, and in part from the point of view of corporate social responsibility in terms of their contribution back to the community.

Companies benefit in various ways from being close to the creative community and research community that flow together at Science Gallery. Importantly Science Gallery is not a free-standing entity but a "porous membrane" connecting a research university with the city, allowing for less formal types of connections between companies and university research and students. These aspects are often far more important than the more "transactional" benefits such as branding and space use. In the long term, the role of Science Gallery as a public platform for engagement and innovation is evolving, and I am sure that the value companies get from early access to the new ideas and people participating in the gallery will probably emerge as the most important long-term benefit to the companies involved.

MM: In 2011, you received a gift from Google to launch the Global Science Gallery Network – a network of eight

Science Gallery locations developed in partnership with leading universities in urban centres worldwide by 2020.

In addition to Dublin and London, other locations include New York, Bangalore, Singapore, and Melbourne. Could you tell me more about the Global Science Gallery Network?

What could be the mutual cultural and economical advantage on the chain "students / artists / industries"?

Give me an example if you can, or a possible scenario that might happen...

MJG: The vision for the Global Science Gallery Network emerged from interest we were receiving in the model of Science Gallery, as a new approach by universities to cross-disciplinary public engagement and innovation. The idea is that each gallery will be generating different programmes, workshops, events and exhibitions drawing from its local artistic and scientific context, and that some of these can be shared through the network. We are excited about the idea of diversity of emphasis in the different galleries, for example the gallery planned at King's College London will have more of a health and healthcare focus. In several practical ways a network of university-linked galleries makes sense.



Helen Pynor reanimates a heart for *The Body is a Big Place* at the launch of OSCILLATOR, at Science Gallery, Trinity College, Dublin.

> For example, rather than the Dublin gallery having to develop four exhibitions from scratch every year, the Dublin gallery will be able to develop two major themes in depth every year which can then tour globally and bring in two or three shows from other network members. There are also exciting opportunities for collaboration and co-production — for example if both London and Bangalore are really interested in a theme such as BLOOD, and decide to develop a project together, linking researchers, artists and designers in both cities.

MM: Talking about the exhibitions.

All your shows and exhibitions work on the subtle border between art, design and scientific research. How important is this idea of inter-disciplinary in terms of relationship between public funding and private investors on the one hand and audience coming to the exhibitions, artists and scientists working together on the other hand? And again, how do the subjects/titles

of these exhibitions are chosen according to a new idea of culture that seems sometimes far from the standards of contemporary art market and/or scientific research?

MJG: The contemporary art market and current scientific research are often very impenetrable to the uninitiated, for slightly different reasons. In coming up with a theme for a Science Gallery project, we seek to identify themes that bring together all sorts of different types of practitioners — scientists, artists, designers, architects, engineers, etc. to explore areas of common concern, so the language tends not to belong exclusively to any one area. Themes like INFECTIOUS, STRANGE WEATHER or FAIL BETTER are powerful — allowing contributions from very diverse areas and opening up the conversation to those outside the worlds of research or contemporary art. As well as bringing together creative practitioners themes of exhibitions also need to connect with our core target audience of young adults.

MM: Science Gallery is part of several European Community networks, such as StudioLab, Places City Partnerships (CPs) and KiiCS. Incubation seems to be the keyword for you: a process whereby industrial and private investors are networked with artists, scientists, researchers, designers, academics, students or amateurs to work together with mentors, overcoming conventional and institutional obstacles. What are the advantages and the risks of such a production model of an art/culture object? Could you tell me something about the creative and the production processes through a tangible example?

MJG: I think incubation usually involves provision of certain types of supports to early stage projects. In the tech world, these supports often include modest financial support, access to mentors and provision of co-working space, and access to potential investors. It is well known in the tech start-up world that start-ups require multidisci-



The Invisible Eye
by Alistair Burleigh
and Steph Tyska
as part of ILLUSION,
at Science Gallery,
Trinity College,
Dublin.

plinary teams — engineers and designers. In the past decade or so, a number of what you might call "cultural incubators" have emerged, bringing together interdisciplinary teams in new collaborations, which can lead to the creation of new artistic projects, but also to new social projects and commercial products and to new scientific research.

These range from residency programmes such as SymbioticA in Australia to Ars Electronica FutureLab in Linz, Le Laboratoire in Paris and MediaLab Prado in Madrid, and Science Gallery, and all have slightly different approaches to incubation — special workshop formats, residency structures, selection processes, opportunities for investment and so on. In Science Gallery we realized that one thing we have that tech incubators don't generally have is 350,000 visitors per year coming through the space and engaging with new ideas, whether they are artworks, research experiments, prototype products or speculative designs. This offers an incredible opportunity to harness public feedback on early stage ideas, and I think we are only beginning to tap into this feedback potential, and learning from each other as we try out different models.

The incubation process is often less formal and not linear — for example a prototype for solar disinfection of water developed by Trinity College engineering students was shown in our exhibition *SURFACE TENSION: The Future of Water*. A QR code beside the project allowed it to be crowdfunded by visitors. They raised over 25,000 in their crowdfund-

ing campaign and were able to implement the system in three villages in Kenya. The type of incubation that is appropriate for artistic projects is often different from for new products or research experiments. Sometimes access to labs, and researchers, funding, and exposure are important.

MM: Let's finally talk about the example of the Cool Jobs. It is a networking event to engage with students, artists, investors and other enterprises, forging links between education and industry with a focus on creative approaches on both areas. How important are these moments in which different players can meet, share ideas and projects and understand how to work together? How Internet platforms can help this process and how young students, artists and designer will manage possible copyright risks on their works, ideas, and creations?

MJG: Facilitated sessions and workshops where ideas can be developed and prototyped in a supportive environment are hugely important. Science Gallery does not claim any intellectual property stake in ideas developed by artists or scientists in the gallery — the originators retain all IP in their projects, we just have the right to show the works. We find it important to educate students developing collaborative projects about IP. It is interesting to see different "cultural incubators" adopting different philosophies around IP. Some of our collaborators are very

strong advocates of an open source approach, whereas others are very focussed on the creation of patentable IP.

I think for any workshop or meeting where new projects and ideas are being discussed, the important thing is to be very clear about the rules of engagement up front (I like Tim O'Reilly's concept of the "FrieNDA", to treat everyone as you would your friend, and not to disclose any ideas that may be sensitive without seeking their permission) and I also feel that educating students about IP is also an important part of our mission. In terms of online collaboration, to be honest we have found that a key strength of Science Gallery is the opportunity for face to face interaction, and so far we have had limited success with purely online collaborative projects, though the opportunity for combining offline and online feedback on early stage projects is an area of focus for us now.

Science Gallery is not a VC or a tech incubator — however we form part of an ecosystem which includes, in addition to the university and the arts community, the tech start-up community in Dublin, the multinationals, the incubators and investors. For us it is important that we are involved as a platform and connector for projects that have potential for further development, making introductions to mentors and potential investors. We like existing in this space of emergence. ■

interview by **Marco Mancuso**
[HTTPS://DUBLIN.SCIENCEGALLERY.COM](https://dublin.sciencegallery.com)

SINLAB Experimental Stage Laboratory

Interview with Jeffrey Huang & Alex Barchiesi

The SINLAB is a unique experimental laboratory in Switzerland, situated at the intersection of Performing Arts, Architecture, Science, Engineering and Philosophy. Its director, Jeffrey Huang, is a Full Professor at the Faculties of Architecture, Communication, and Computer Sciences at the EPFL (École Polytechnique Fédérale de Lausanne) where he heads the Media and Design Laboratory.

Jeffrey Huang and Alex Barchiesi, SINLAB opening.



PHOTO © ALEX BARCHIESI, WANG SHIYUAN

■ His research examines digital architecture and the convergence of physical and virtual spaces. In 2011 he was named Berkman Fellow and Faculty Associate at the Berkman Center for Internet and Society. The project head, Alex Barchiesi, is a creative physicist with a PhD in Particle Physics, researcher at the European Organization for Nuclear Research (CERN ATLAS experiment), and Associate professor of new media art and informatics at the Art Academy in Rome. His artistic work has been presented around Europe, including the IRCAM, the Centre Pompidou in Paris,

and the Auditorium Parco della Musica in Rome, and he has received several international awards.

Marco Mancuso: The SINLAB was founded as an experimental stage laboratory combining disciplines such as performing arts, architecture, science, engineering and technology. The laboratory is funded with a grant by Sinergia, a platform for inter- multi- and uni-disciplinary projects run by the Swiss National Science Foundation). I would like to know more about the origins of the project: What vision and what urgencies gave life to the original idea? What are its developmental strategies?

Jeffrey Huang & Alex Barchiesi: The idea of setting up a hybrid-culture Lab meant something different to everyone in the core team. It can be read as the natural prosecution of the idea of building a third culture back in the 1960s by lord CP Snow who suggested that a new "Third Culture" would emerge and close the gap (Snow, 1963). It consists of those scientists and other thinkers in the empirical world who, through their work and expository writing, are taking the place of the traditional intellectual in rendering who and what we are (Brockman, 1995).

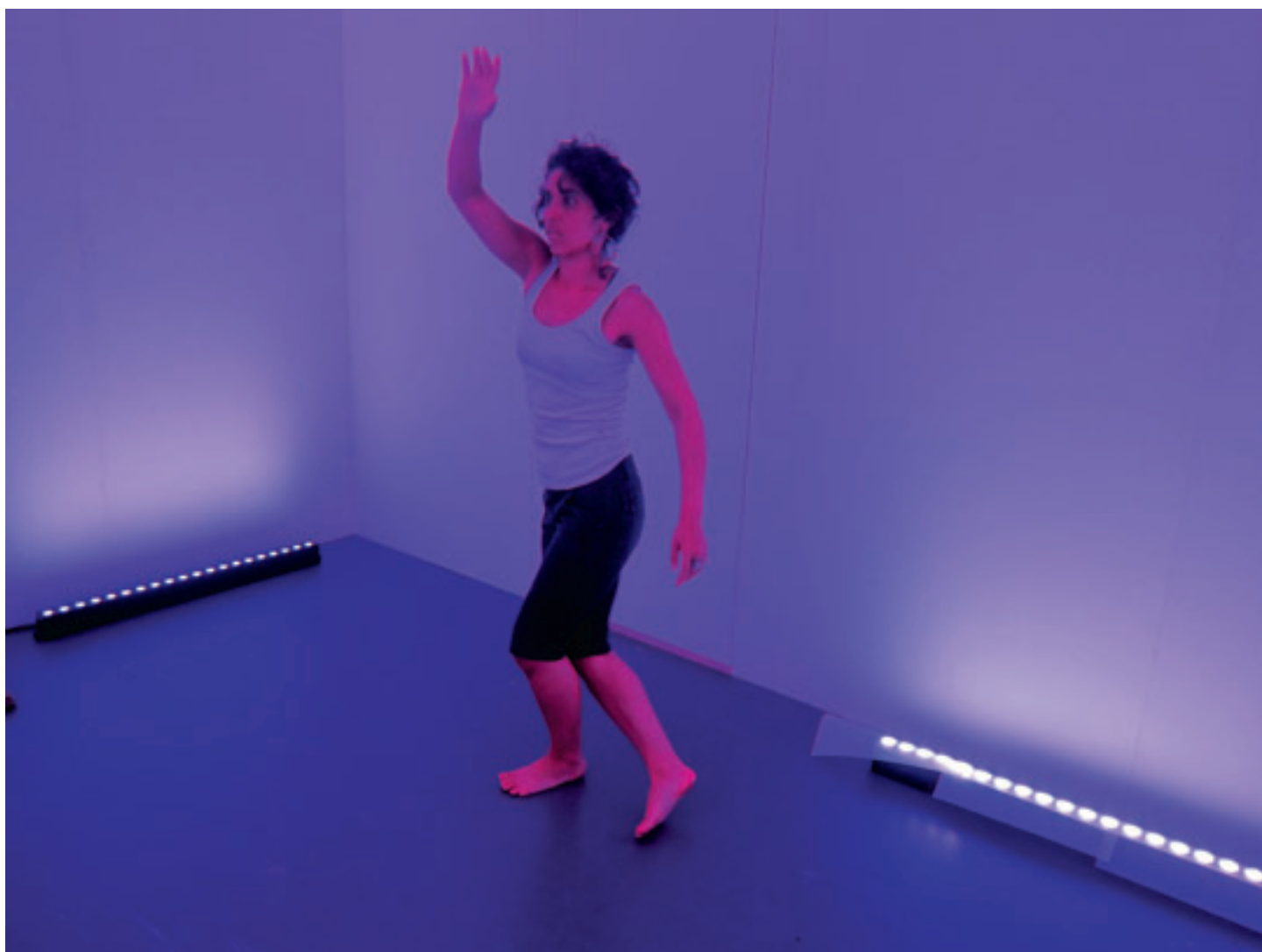
The SINLAB project aims to develop a long term strategy for building a Creative Arts, Technologies, and Culture Network at the heart of Europe, catalysed by EPFL together with the other partners. We can identify a number of key points that oriented the design of the framework:

The *University as a catalyst* for change and creativity, practices, and exchange of ideas and expertise.

The *Practitioner* – extending the traditional academic mission to include those who create and will be the practitioners in existing and new artistic forms, and creative and cultural enterprises.

New "offspring" of Students with a broader skillset to produce interdisciplinary competencies coming from a programme connecting the Arts and the Sciences.

New *Connectivity* – encouraging a major change in the approach to the Arts, the Sciences, new media, and technologies creating a platform that will be a catalyst for new ideas, new forms of connectivity with-



Performative colour environment (reacting to body tracking).

in the disciplines and between the university and the territory.

We intend to: promote a dynamic collaborative and extended network of learning and *practitioner-ship* between EPFL and other cultural institutions.

(re)connect relevant disciplines and digital technologies in the Sciences with the creative Arts and Culture that will produce (graduates and PhDs) engineers/scientists skilled in the Arts, or artists and humanists skilled in Technology.

Develop the holistic paradigm of education and research into a LAB which would be one node of a network encompassing all activities across Europe and operating potentially under a global umbrella to really make Snow's "Third Culture" a reality.

MM: At SINLAB in particular you are using technologies originally developed for other fields, mainly industrial ones: from robotics, telematics and light

technologies to biomedical interfaces, interactive architectures or computational acoustics. For this purpose, you have a long list of partners coming from the industrial world. How do you decide to work with a specific partner?

Why are partners interested in working with SINLAB?

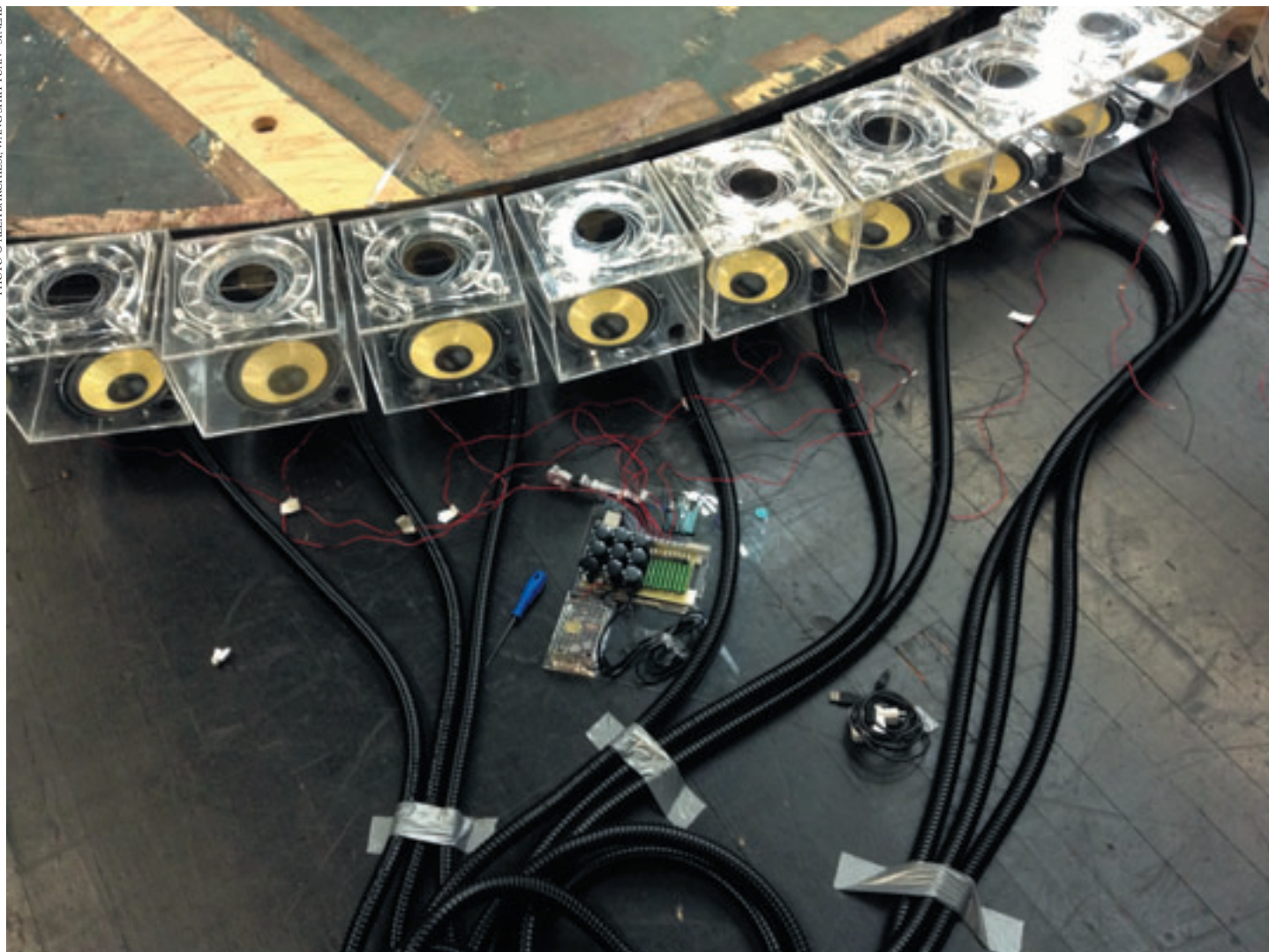
JH&AB: Let us not forget that the target is not a single artistic project, but the process of creation itself which is the focus of the paradigm change that we are exploring. SINLAB is both conceived as a bridge and as a source, thanks to established academic strengths in the university. A number of Labs and partners were singled out for the first phase of the initiative because of their potential connections with creative practice and their interest in extending the field of their research towards "an alliance between performing arts and science". A well understood cultural dimension is often neglected in projects where technol-

ogy or science are only instrumental to humanities and performing arts.

The motor driving our choices towards a partnership is the possibility of exploring a field so as to push the limit of our understanding and to share a vision. We aim at maximising the porous interface which represents the creator/practitioner domain between the university core disciplines and cultural institutions and the creative industries. It is the area of greatest opportunity for development in terms of creator/practitioner programmes in education and research. *Interconnectivity* is the most important ingredient of this concept. The practitioner's activities form an evolving web of interlinked creativity and collaboration, contributing to a kaleidoscope of new ideas.

MM: Could you tell us the story of a project you have developed (or you're still working on) at SINLAB? How does SINLAB facilitate a process of encoun-





Digital clouds, detail of the machine.

> **ters between artists and scientists encouraging artistic, scientific, and technological research?**

JH&AB: Mostly everything happens in the most diverse and *natural* way: we have designed a framework that can host multiple paradigms of collaborations. It partially is the scientific lab framework where all members first talk together and then, in working groups, refining the subject of brainstorming sessions into prototypes and investigations that usually launch a chain of research projects and often refine the direction of current works also catalysed by external inputs and investigations. For example Pablo Ventura came with his dance company and pushed the experimentation by using gesture tracking devices, which was inte-

grated and reflected into students' (including PhDs) projects, and influenced Mark Coniglio's formalization of his swarm-like piece later on.

The last collaboration with the French theatre director Gildas Millin drove him to a theatre script and some interesting developments. We met with him about one year ago to talk about the script he wanted to write. The result was *CYBORGAME* where there is an interesting approach to the concept of super-human and the conflicts of a hybrid individual, influenced by an aspect of neuroscience coming probably from our initial debates. Formally the "mise en scène" matched our interest in immaterial architecture and Gildas' need of an immaterial cage for his show drove to the creation of a

machine (used on stage) which was the generalization of the initial interest catalysed by the director. The prototype was able to digitalize and control an *immaterial* fog structure and involved a wonderful cross-disciplinary research between fluid dynamics, chemistry, optics, engineering and electronics and required a long work of aesthetic integration and customization at the moment of deployment for the stage environment. The overall process lasted for some months and gave an extraordinary results in terms of mutual inspiration.

MM: How do scientific and technological skills coming from the industrial partner are transferred to the artist? How does the collaboration between an

artist and SINLAB influence the development of market use of that technology? How is even possible to create novel possibilities of expression in close connection with scientific and technological research and development?

JH&AB: History has proved time and again that technological innovation leads to new cultural practices and new ways of perceiving and conceptualising the world. Performing art has always broached the issue of technological development in a double sense as a creative instrument and a reflection topic. It is difficult for the performing arts to create novel possibilities of expression in close connection with scientific and technological research and development, while scientific and technological research remains mostly deprived from opportunities to engage in a cooperative, artistic driven research.

We read the lab as a bridge to initiate a process that facilitates systematic encounters between artists and scientists, encouraging scientific and technological research in tune with the needs and constraints of both sides. Of course if you want to seriously push research towards this intersection you need to *embody* the tools, which translates into a technology able to extend the capabilities of the human body or the brain towards more complex or completely different domains. This is the edge where interesting research (also from a cultural point of view) takes place. This is the motor driving our choices and generating the cultural impact and the possibility of opening up towards new fields.

MM: In the structure of SINLAB researchers from different fields work together with local theatre performers and students, in close collaboration with various EPFL Labs and partner institutions (ZHdK, LMU, Tsinghua) as well as external artists in the performing arts. This collaboration creates a network of professionals, students, local institutions, and industries that seem to be the future of economical investments in the arts and culture, particularly in these times of crisis and cuts. According to your experience, which are the strong points, the difficulties and possible further developments of this strategy?

JH&AB: Research at SINLAB means exploration with the goal to produce knowledge, from a theoretical, practical or aesthetic point of view. We explore these research dimensions through a strategy that combines iterative prototype development and theoretical investigation on mediatisation and digitalisation within the context of per-

forming arts and stage. It is a delicate mission to be in between disciplines that are themselves in a delicate relationship. The greatest danger is for artists to seek interpretations of scientific data in theoretical circles and then further reinterpret their versions without checking back with scientists. This is to suggest that any working relationship needs to be based on mutual respect and dialogue. The other danger facing those working "in between", on creating 'something else' is the general assumption (both present in humanities and science) that theory is above practice. At this stage the freedom to make assertions beyond rationality is intrinsic to the practice of art. Our recipe entails a practice informed by theory, utilising a methodology which makes it accessible to both worlds.

Our work largely depends on an active dialogue with scientists and humanists while performing the important function of bridging and synthesising many worlds to compose *something else*. The challenge is to learn the language of various disciplines without losing the intuitive, *wild* aspect. What we have learned is that if scientists want to bridge both cultures, they have to get used to a lot of noise and more than a fair share of nonsense. More seriously, bridging the gap cannot mean extending the results of science everywhere but discovering a *creative side of science*. Without a market this is most naturally discovered within environments that encourage experimentation.

Interactive light and fog wall in the form of a Bezier curve.



PHOTO © ALEX BARCHIESI, WANG SHIH-YUAN - SINLAB

We think of these environments as laboratories and we have developed the SINLAB keeping this in mind.

MM: On the SINLAB website is written that theater has been one of the prominent cultural sites reflecting the impact of cultural changes. As a microcosm of reality, theater has always broached the issue of technological development in a double sense: technology has been used as an instrument for expression as well as a topic to be investigated aesthetically.

How do you think the inner structure of the SINLAB reflects the contemporary society in which we live in?

JH&AB: We do not support the specialisation of knowledge and particular attention to this idea of "art and science" could be nonsensical. But it is not. In recent years, environments where artists and scientists collaborate to produce unusual works of art and design have appeared in many cities and contexts. What we want is to overcome the division of the fields of knowledge, to make culture evolve towards a new Renaissance where research could be one and where there is no need to make a "creative vs science" distinction. Interdisciplinarity is spreading in every field nowadays, nevertheless what we are doing here is intrinsically different from what is happening in our society, which is acknowledging the usefulness of single expertises working together. The *Creative Science* approach is the simultaneously imaginative and analytical process that underlies all creative thought. Creativity is hard to transmit in the classical way of teaching. The division of knowledge is still a pillar of our education and society.

We embrace a creative process that mixes two ways of thinking that we encourage in different settings. The first one is an aesthetic process – we embrace uncertainty and complexity, indulge in ambiguity, induce and pursue the non-linguistic logic of images. This especially thrives in artistic environments. The second one is an analytical process — we simplify a complex world, reduce its challenges to resolvable problems, deduce, pursue the logic of equations. This prospers in scientific environments. We fuse both within the SINLAB intellectual who *dreams* and embraces complexity and simplifies our intricate world into a problem we can solve. This hybrid intellectual of a new renaissance belongs to the future, where we see an increasing turnover of investments in culture. ■

interview by **Marco Mancuso**
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MIT SENSEable CITY LAB

Interview with Architect Carlo Ratti

Carlo F. Ratti is an Italian architect, engineer, inventor, educator and activist who teaches at the Massachusetts Institute of Technology, USA. Founder of CARLO RATTI ASSOCIATI, a rapidly growing architectural practice based in Torino, Italy, with branches in Boston and London. Drawing on Carlo Ratti's research at the Massachusetts Institute of Technology SENSEable City Lab, the office is currently involved in design projects at different scales and in different continents.

■ The MIT SENSEable City Laboratory aims at investigating and anticipating how digital technologies are changing the ways people live and their implications at the urban scale. Director Carlo Ratti founded the SENSEable City Lab in 2004 within the City Design and Development group at the Department of Urban Studies and Planning, as well as in collaboration with the MIT Media Lab. The Lab's mission states that it seeks to creatively intervene and investigate the interface between people, technologies, and the city.

Marco Mancuso: What is the MIT SENSEable City Lab workflow? Where do projects come from? Which are the topics studied and which are the emergencies? Which are the skills covered by the inside team and when/why do you decide to work with external creative people?

Carlo Ratti: In the SENSEable City Lab a lot of different ideas circulate. Over 40 people, coming from all over the world, compose the team. Each researcher has a different personal history, different skills and a different

cultural background. Most of them come from architecture and design, but we have also mathematicians, economists, sociologists, and physicists. I think that "diversity" is a really important aspect in any team activity. I'm noticing more and more, also in other fields. For example, different authors with different origins write the most quoted articles of an important magazine such as *Nature*.

Regarding the projects, I try to build on the researchers' suggestions; it is very important to be open to everyone's ideas. Together we



Ciudad Creativa Digital. A project for Guadalajara Ciudad Creativa Digital A.C. on behalf of the Secretaría de Economía, ProMéxico, SHF, Gobierno de Jalisco, Canieti and the City of Guadalajara. Developed by Carlo Ratti Associati, together with Prof. Dennis Frenchman, Accenture, Arup, Engram Studio, Fundación Metrópoli, Mobility in Chain, MIT Senseable City Lab and Studio FM Milano. > www.ccd-guadalajara.com > <http://youtu.be/SGvjcnMG34>

decide what are the main problems facing citizens, we focus on how we can address this and we develop a project aiming to be a solution. During these last years we have concentrated on topics like energy use, traffic congestion, health care and education. But we also develop technologies that could be useful to generally solve different problems and we integrate them within the urban environment, collecting data and information.

MM: How important are the supporting role and the collaborative actions of private investors and industries to work on and develop a new project? Do you usually search for specific industries according to the project or, on the contrary, does the project input come from an industry subject/proposal? How do the MIT professional networks influence and help the creation of a positive synergy?

CR: It's very important to work with industries and private investors, because they usually give us all the instruments we need for our project, so that we only have to think

what's the best way to develop the research. It doesn't matter how the synergy with the industry begins, if the input comes from us or from them; what it's truly important for the team, it's to do exciting research. Our aim is always to focus on civic empowerment, so we need to be free to investigate problems and to start giving answers.

MM: In some projects like *CopenCycle*, *The Wireless City*, but also *The Connected States of America*, *United Cities of America*, *Trains of Data*, you worked with real-time technologies to visualize and study human behaviours in public places, cities, and transportations. Artists and hacktivists faced the same subjects in recent years (Traves Smalley, Constant Dullart, Heatch Bunting, Etan Roth and others). Don't you think it could be interesting to work also with them in the idea to have a more critical reflection about the topics studied?

CR: Surely, we actually often collaborate with artists and we are really really interested in synergies between different fields. However, I must say that we believe in the

autonomy of the built environment – as posited, among others, by John Habraken – and in the autonomy of the 'artificial world' in general (as Herbert Simon would have put it). As such, we believe that the issues of adoption and critical reflection should be left to society. The idea that it should be designers, engineers or artists to decide what is good and what is bad is utterly arrogant.

MM: The theme of Open Data is today a very hot topic and it will surely affects our lives in tomorrow's hi-tech and networked cities. So, why do private industries, investors or even Municipalities should be interested in investing in a project like *Wiki City*? How could artists and designers work on web platform for storing and exchanging data that are location and time-sensitive? The recent experience of Salvatore Iaconesi, or even Christian Nold's emotive maps are quite interesting and potential...

CR: Based on our experience, I believe that civic institutions all over the world are interested in collecting and sharing real-time data. We strongly believe in a bottom-up approach ➤



Digital Water Pavilion, Zaragoza 2008, a project by Carlo Ratti Associati, with Claudio Bonicco, Matteo Lai, MIT Media Lab / Smart Cities Group - William J. Mitchell, MIT Department of Urban Studies and Planning - Dennis Frenchman, MIT SENSEable City Lab, ARUP, Agence Ter, Studio FM Milano, Typsa, Lumiartecnia International and Siemens.
> www.carloratti.com/project/digital-water-pavilion/

> and urban data can provide citizens with information that empowers them to take better informed decisions or even have a role in changing the city around them, which result in a more liveable urban condition for all. For instance, the Boston municipality is promoting the "New Urban Mechanics" project, which gives citizens rapid access to city government information and services, as well as the ability to report about everyday issues. These systems tend to evolve into wiki-like information repositories that allow citizens to team up and take urban action.

MM: Network & Society, Current City, NYTE, Kinect Kinetics are all projects focusing on large-scale digital data sets and urban life, digital networks, communications and people behaviours. It could sound obvious to think about software artists and graphic designers able to draw beautiful 2D big data visualizations/animations in which private

industries and agencies are interested. Have you ever imagined a further development on this topic? And, what do you think about 3D visualizations and the so-called "urban internet of things"?

CR: Again, I prefer to focus on citizen empowerment. Visualizations are important, as they allow us — and citizens in general — to "put their hands into the data". We have just installed at the National Museum of Singapore our "Data Drive", an installation by SENSEable City Lab Live Singapore's team: an intuitive, accessible software tool for visualizing and also manipulating "urban big data". Like a big iPad the installation reveals data and the hidden dynamics of the city, and also becomes an interactive instrument.

MM: Talking about energy and environment. I can trust that industries, agencies, investors, start-ups, and media are placing big budgets and investments on energy and waste management and sus-

tainability. You worked on projects like Future Enel, CO2GO, Local Warming, TrashTrack in which real-time sensing technologies, pervasive mobile technologies are used to create a direct connection between citizens and environment. I imagine a society in which institutions, scientists, local business and artists work together on cross-disciplines commissioned projects that could visualize, share and expose data and behaviours for a better understanding of the energy and the waste problem. What do you think about?

CR: Our research aim, among others, is to collect and to diffuse data, to discover and to explain what happens in our world, in order to make the citizen more conscious of the process that goes on in the places in which they live. This is really important when we speak about problems linked to energy and waste as it can promote "behavioural change"...



PHOTOS © R.E.

Future Food District, curated by Carlo Ratti, Director - MIT Senseable City Lab and Partner - Carlo Ratti Associati, in collaboration with Favero & Milan Ingegneria, Capatti Staubach Landschaftsarchitekten, Systematica, ecoLogic Studio, Cesare Griffa Studio, ENEA and Ceres srl. > www.carloratti.com/project/future-food-district/

MM: In the "expanded cities", public interactive services, community information and entertainment systems, geotagging and drones technologies, robotics applications and embedded systems are applied to everyday life and problems. EyeStop, Smart Urban Furniture but even SkyCal, Geoblog or Flyfire, Makr Shkr are all examples of these practices. How important is a growing merging of skills and approaches to the subject, both from the world of architecture, design, art and innovation? How do Hi-tech and ICT industries could be able to talk and work with such complex professional networks?

CR: First, I was not chosen to lead the lab, but actually I was given the task to start it up. So it is well possible that my biases are reflected in the ones of the lab. More generally, our field is at the intersection of bits, space and people. Hence the disciplines you need to bring together are architecture and design, science and technology and — last but not least — the social sciences. Such diversity is a key characteristic of our lab. Technology should never be in the driving seat: we think that technologies must always start from addressing everyday life and problems.

So, while researching, we always work towards concrete applications. If we are not able to do this, technical skills are totally useless. Another important thing is to be convinced that we can truly "invent our future", as Alan Key would say. Finally, we develop projects with networks of profes-

sionals (companies, cities) because we need them to make an impact at the urban scale. And they need our lab, as a catalyst of ideas and urban actions. ■

interview by **Marco Mancuso**
WWW.CARLORATTI.COM
[HTTP://SENSEABLE.MIT.EDU](http://senseable.mit.edu)

The Copenhagen Wheel, available to order from *Superpedestrian*, a project developed by MIT Senseable City Lab.
> www.superpedestrian.com
> <http://youtu.be/S1oGMfG2NMY>



AALTO MEDIA FACTORY

Aalto Media Lab at the Department of Media interview with Professor Philip Dean

Philip Dean is currently Head of the Department of Media, Director of Aalto Media Factory, and Professor of New Media Management within the Department of Media at Aalto University, School of Arts, Design & Architecture.

■ Philip Dean worked as a freelance photographer, journalist and editor until 1993 when he was appointed to lead the development of the new Media Lab department at TaiK, a relatively new school at the University of Art and Design in Helsinki, Finland. Today the Media Lab is a renowned unit in the Department of Media, within the School of Arts, Design and Architecture as part of the new Aalto University (www.aalto.fi/en/). The lab provides education and research frameworks for studying digital media products, contents and technologies, their design, development and the effect they have on

society. The work is characterised by the collaboration of people from a wide variety of disciplines and cultures, with students and staff coming from all over the world.

Marco Mancuso: You established the Media Lab back in 1993 with the mission to explore and study digital technologies and their impact on art, design and society. At the same time, you are the head of Aalto Media Factory with the aim of being on the productive side of the Network itself. Could you explain how the whole system works, if you had the whole vision since the very beginning and how everything is related with the world of industrial and scientific research?

Philip Dean: The Media Lab was established originally as a separate unit of the University of Art & Design Helsinki in 1994 (earlier known as University of Industrial Arts Helsinki) and in 1998 was given full departmental status. When the Aalto University School of Arts Design was created in January 2010 — from the merger of the University of Art & Design, The Helsinki School of Economics and the Helsinki University of Technology — there was a reorganisation of departments and the Media Lab became

part of the new Department of Media. In January 2012 our school was joined by the Architecture department (originally in another School of Aalto) and was renamed as the Aalto University School of Arts, Design and Architecture.

The Media Factory is a relatively new Aalto initiative, a cross-school platform of Aalto university which gives resources for multidisciplinary academic and artistic activity in the broad area of Media. The Aalto 'factories' are not production platforms, they are merely units which attempt to create better collaboration between the schools of Aalto and the surrounding society and industries. When Media Lab was launched in 1994 we did not really have any models to work to. We were at the forefront of a new field of study within an academic art & design context and were pioneers in Finland in the development of our own education and research. At that time it was difficult to predict what would become of our efforts, and maybe it still is! In the days before the internet, the industry was uncertain as to which of the new digital technologies would have had the most profound effect on our lives. At that time we realised that our role was more than dealing with the 'digitilation' of professional practices in any media field; we knew that the new digital possibilities



Media Factory AV production team producing web videos to promote university research groups and their projects.

would actually result in new forms of media, new creative practices and alliances, and new forms of business. From the point of view of professionals in the visual arts, many of the initial realisations of our new media were unconvincing. Film makers would laugh at the first QuickTime movies, moving images only a little bigger than a postage stamp! *Where is the future in that?*, they were asking.

We developed our initial research operations alongside the new MA in New Media programme that we had launched in September 1994. Our initial exploration was made as part of applied research involving Finnish companies and, because of the influence of Nokia, we quickly gained valuable insight into the coming world of broadband and mobile media. Our students were also very active in the development of the Finnish New Media industry in those early years. This closeness between our education, research and the new media-related industries in Finland enabled us to ensure we were a future-oriented community with a valuable role in our country as the voice of design within an otherwise engineering-dominated effort.

MM: As part of the Aalto Media Lab and Media Factory ventures, you give importance to the idea of creating a virtual platform in which the educational world (students, professors, researchers) can be in contact with private investors on one side and professionals (artists, designers, hackers, fabbers/ curators, festival and cultural events organisers) on the other. How important is the concept of an open platform whereby projects, research and ideas can be shared, in which investments are made in specific technologies as a tool to give life to artistic and cultural projects and all participants and industrial/scientific networks can be involved in the creation of "value"?

PD: In the case of Media Factory we do not really have any direct action in which investors are looking to be part of our efforts. Aalto University is a big institution and has separate service units dealing with many specific functions, including industrial relations, fundraising, entrepreneurship, research support, alumni relations etc. In the factory we also try to make links whenever needed between students and

faculty that are working with us and any of these service units. So, for example, if a group of students comes up with a brilliant idea which could lead to a new product or business, then we can advise them to speak to the experts at Aalto who have the best knowledge and experience to help them move forward.

However, we are also able to work independently, like in the case of our collaborations with the various organisations and movements related to open knowledge, open design, open source etc. As an Aalto-level unit we were able to bring together all the local expertise needed for us to successfully host the Open Knowledge Festival 2012, for example. So, Media Factory can be understood as an open platform not only here within Aalto but also nationally and internationally. It's all about enabling people to do valuable, worthwhile things, according to the Aalto mission: combining art & design with business and technology.

MM: How does Aalto Media Lab and Factory work with industries and private investors on specific projects? According to your experience, how has the





Local school children from Helsinki on a week long robot design workshop in the Aalto Fab Lab at the Aalto Media Factory.

> **manner in which cultural works are created within the Universities changed? Are the curriculum and classes oriented according to specific commissions or needs of industrial partners?**

PD: This is quite a complex question and there is no easy, black and white answer. In Finland the funding of cultural activities is handled at many levels, by public and private institutions and agencies. Universities cannot apply for all such funding as, for example, charities. The Finnish Arts Council typically provide funding for individual artists and artistic groups, not to universities or their departments. In technology, research and development funding is typically aimed at industry, universities and research institutions, not to individuals. National and EU funding differ in how they provide it for work like ours which typically involves both artistic and technological efforts.

Our approach in the Media Lab has been to organise our research into multi-disci-

plinary research groups who apply for funding either in the name of our University or as individuals, depending on the funding agency in question. We have a very active role in doctoral education in our School. Our Doctor of Arts degree is equivalent to a PhD in other fields and typically involves both the writing of a scientific thesis as well as the production of an experimental and creative production or artwork. So, research groups apply for major project funding from relevant national or EU R&D programs and any doctoral students working within the groups may also apply for funding from the more culturally oriented agencies in support of their personal productions etc.

Direct funding from industry is rather rare in our research-oriented context as the national technology funding agency, TEKES, provides very good support for industrial research into which the industrial partners contribute approx. 20% and TEKES 80%. There is also an increasing

demand on universities to cover part of their own contributions but, due to the high level of overhead costs at universities, companies are not very interested in providing direct research funding to universities outside of these national programs for obvious reasons.

In our educational activities we do attempt to work directly with companies and external organisations. The scale of funding in these is much lower than in R&D and we have several producers on our staff who help to build projects, often according to the brief of an outside partner. We have strict rules as to the legal conditions for this work, IPR and other issues of ownership and exploitation. Our students are protected and the aim is for these projects to be mutually beneficial and for the potential future employment of our students after graduation. During these educational projects it is important that the industrial partners play a strong supporting role throughout, taking part in workshops and feedback sessions etc.

MM: I would like to know more about the Funding and Projects section. You say that all faculty members and students from Aalto University are welcome to propose media related projects for our consideration at any time. The idea behind our seed funding is to help the kind of novel multidisciplinary activities which may not currently be covered financially by existing budgetary frameworks of Aalto University. Where do the budgets come from for these projects?

PD: In general a reasonable amount of study projects in our school's BA and MA programmes are funded internally by the annual departmental budgets and do not need additional funding. The Media Factory is geared towards helping those with multi-disciplinary projects involving departments of two or more schools, experimental projects or projects that might have more risk involved. In the other Schools of Aalto it had previously not been so common to work on real-life practical projects during studies at Bachelor and Masters-levels. As the Aalto strategy stresses the need for more inter-disciplinary collaboration it's also a challenge to know how to create the context for multi-disciplinary, project-based studies in many departments. The Aalto Media Factory and Design Factory both clearly support efforts to increase project-based studies. Media Factory reserves part of its annual budget derived from Aalto-level strategic funding, towards the seed funding of educational and research projects.

MM: Would you describe two or three projects in which the relationship between industries, investors, research and artworks can be clearly demonstrated - which you believe could have the most potential for cross-border technological research between education, art, design, science and industrial investments, that you have yet to develop or that you feel could find more potential in the future of media art?

PD: I'd prefer to just offer a few links in answer to this question. In reality we have over 20 years experience of working with industry in research and creative contexts. Many of our students and alumni have been involved with major local industries (Nokia, Finnish Game companies etc.) and we also work with public organisations, agencies and city administrations. Media Lab Helsinki projects via: <http://medialab.aalto.fi> - look under "works" and also links from research groups' pages. Media Factory project examples here: <http://mediafactory.aalto.fi/funding-and-projects/>

MM: Finally, how is the role of art professionals (artists, curators or critics) changing in terms of management of artistic and cultural projects according to growing industries relationship, social communication systems, technological and scientific development? And, how could the educational programs, from schools and academies, drive the social change of paradigm?

PD: These questions might require a book to answer them properly! The concept of "creative industries" is one starting point for these considerations. We could, and should, make distinctions between artistic practice, design, the applied arts, and even artistic or practice-based research. There are a myriad of contexts and conditions that need to be considered and the mapping of these fields might need to be done from many points of view: local, regional, national, EU, international etc. As our world becomes increasingly dependent on new technologies I believe it is incredibly important that people, i.e. the citizens, have a role in development - in deciding what sort of future world they see as desirable.

There are a huge amount of challenges to be tackled and we know that technology alone is not the answer. The worst case scenarios,

for example those stemming from the recent Snowden revelations, require that technological and scientific development is also understood as a central theme of the politics of democratic countries around the world. There are clearly some massive dilemmas which need to be tackled for the sake of "the 99%". Artists, designers and related researchers need to have a role in the critical debates surrounding technological development and globalisation. The existence or requirements for the efforts of creative professionals and related scholars within strategic research efforts, nationally and in EU, is one of the pre-requisites for avoiding overtly technocratic development policies and implementations. I believe that, for example, the leading art & design schools around the world are active in standing up to the current challenges and in ensuring that their education is developed so that their graduates are capable of dealing with real-world challenges. The Cumulus International Association of Schools of Art & Design, of which we are founding members, has been a global forum for much of this debate during the last years. ■

interview by **Marco Mancuso**

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ART+COM

Interview with Professor Joachim Sauter

Joachim Sauter is a German media artist and designer. From the beginning of his career he has been focused on digital technologies and has experimented how they can be used to express content, form, and narration. Fuelled by this interest, in 1988 he founded ART+COM together with other artists, designers, scientists and technologists of the Berlin University of the Arts and hackers from the Chaos Computer Club.

■ ART+COM was founded as a non-profit organization to explore new media-applied potentials in the fields of art, design, science and technology. Ranging from artistic installations and design-focused projects to technological innovations and inventions, ART+COM's work includes different kinds of formats (autoactive, reactive and interactive objects and installations, and media-based environments and architectures). In 1991 Joachim Sauter has been appointed Professor for New Media Art and Design at the Universität der Künste Berlin, UdK (Berlin University of the Arts) and, since 2001, he has been Adjunct Professor at UCLA, Los Angeles.

Marco Mancuso: ART+COM is a cross-disciplinary group of professionals coming from media arts, design, science and hacking backgrounds, with the aim to explore digital technologies possibilities in contemporary creativity, expression, communication and research. This atti-

PHOTO © ART+COM



ART+COM, *River Is...*,
Yeongsan, Corée du Sud, 2012.

tude is pretty much clear and coherent in all your projects: the aesthetic factor is not merely a tool for visual satisfaction but it's a principle for an integrated artwork that is a piece of design and, at the same time, a territory of technological research. So, how a new commission born at ART+COM, such a liquid structure, such an hybrid attitude to creation, is attractive (and represents a potential) for industries researching and investing in technologies, computing and sciences?

Joachim Sauter: It's true that ART+COM is "hybrid" and interdisciplinary in that all our projects are developed in small teams which include designers, engineers and programmers. In this close collaboration, creative thinking can expand across the borders of the single discipline. It's this kind of free-thinking creativity that our research partners in industry and academia are looking for, and not classic technological research or design work. In fact, it's quite simple: companies and research institutions that come



ART+COM, *Mobility*, World Expo Shanghai, 2010. *Mobility* is part of the permanent exhibition at the Ars Electronic Center in Linz, Austria.

to us for joint research, can't do it by themselves: They are in need of somebody who pushes their own boundaries and extends their imagination. The light fixture *Manta Rhei* is a good example.

MM: *Manta Rhei* is a project from 2012 born as a result of a collaboration between the ART+COM studio and Selux, a light fixture manufacturer operating with OLED technologies. I'm curious about how a joint project between a studio and a technological partner could be born without any mediation. Did they contact you or vice-versa? And how were the brief and the project developed?

JS: In this case, Selux contacted us directly. The company had just begun to employ OLEDs and was looking for a new kind of light fixture that could feature the qualities of this innovative light producing technology. Selux objective was to develop an extraordinary light fixture – a prototype that would demonstrate the potential of the OLED technology for interior design and that would generate attention in the media. The kinetic luminaire *Manta Rhei* achieved that aim when it was presented at the Light+Building fair in Frankfurt in April 2012.

MM: Technically, how did you work with their technologies and why, according to you, your work was impor-

tant for them in terms of R&D (research and development) on that specific technology? How did the creation of *Manta Rhei* result from a coherent collaboration between you and their tech-department?

JS: We worked in close collaboration with Selux, but on separate "work packages": ART+COM designed the fixture including its behaviour and mechatronics, while Selux dealt with the light control. We then integrated everything in the software. There is a lot of technological competence at ART+COM, so we can speak the same language as the Selux engineers, and the process was smooth and beneficial for both partners in terms of knowledge transfer. ➤



ART+COM and Selux, *Manta Rhei*, 2012.

> MM: In the last 25 years you have been involved in many different projects, from independent ones to more institutional (and corporate?) commissions, from private to public, from art to communication. How does the research and creative process change due to a relationship with a private investor? How is the artist/designer free to express his work and creativity and message? How can the research stay coherent with the original idea without any interference by the investor itself?

JS: Maybe the word "interference" already points in the wrong direction. At ART+COM we believe in debate and the culture of constructive controversy. In all our areas, research, art and communication, we want a dialogue with the people we work for and with. The projects that emerge from these conversations are results of an inspirational process which clearly

bears our signature and spirit. The conversations, though, have changed within the past 25 years because technology has become an integral part of the design work. This development not only simplified the communication within the ART+COM team, but also with our research partners in technology.

MM: You and Selux are planning to develop an entire family of kinetic luminaires based on this design concept. Could you give me more details about it? And, again, what's the difference between receiving a commission from an industrial investor and working together with it, i.e. developing projects and researches together? What does ART+COM give to Selux and what does Selux give to you?

JS: Indeed there is the idea to develop more kinetic luminaires whose design are based

on animal behaviour patterns, or more generally movement patterns in nature. The existing one obviously took its cues from a manta ray. Others that we sketched remind of a swarm of birds' orchestrated movements or combine the shape of a snake with the glow of fireflies. To answer the second part of your question: With our research partners we collaborate on a technological level, whereas with our clients we collaborate on non-technological aspects. Take for instance the work we do for museums: Usually we work closely with the museum's scientists who provide us with the content of the installations. They are experts in their discipline as much as we are in ours, which makes it possible for both parties to work on a par with each other.

MM: Which technologies and/or researches could be functional to a new

kind of creative expression in media art, design and science?

JS: I'd say that the two areas that currently interest us most are computational robotics and optics. We have some valuable knowledge of mechatronics, since all our kinetic installations involve the precise and choreographed movement of physical objects in space. Robotics takes this one step further and means more complexity both in hardware and software. Due to this complexity, robotics has not yet been much explored as a mean of expression and communication. Our interest in optics also stems from our first explorations of this science through works like *River* is... which is based on caustics, the way light refracts on water, or *Mobility* which quotes an almost forgotten method of long-distance communication using mirrors and sunlight. Through the combination of computational design and optical phenomena, surfaces and objects can be turned into narrators which tell stories or convey messages.

MM: As a professor and educator, do you think the new cultural production chains (investor - agency - academy - professional - artist) are changing the way in which technological and scientific art pieces are produced, comparing to the classic ones (institution - funding - academy - artist)? How can institutions work within this new cultural system? How can curators and producers supervise the production and exhibition of art projects, also taking into account the opportunity to use new public spaces like new airports, commercial buildings, public squares, etc?

JS: The fact that companies nowadays act as commissioners of art pieces certainly expands the spectrum of contemporary art. Art museums and collectors follow very much the canon of fine arts as theory and the traditional art market define it. Our art installations however grow in the interspace between art and design and cannot be ascribed easily to one of the practices only, and our clients don't seem to have a problem with that. So while there is a lot of openness for technology-based art in the private sector, the fine art institutions are still hesitant to embrace this kind of work. In this situation, strong curators play an important role. It's their credibility as art experts and their voice that is heard in public commissions, and that will help to overcome the old categories in the long-run.

MM: In conclusion, I'm also interested in your feedback on the way the international scene of media art events is changing. From the classic format of big happenings like *Ars Electronica* or *transmediale*, a new typology of media art meetings is emerging, in which digital media are also considered as tools for professionals to work commercially (on the border) between art, design, communication and creativity. I'm talking about events such as *Offff* or *Future Everything* or *Resonate* more recently, not so far from pure marketing events like the *Ted Conferences*, *Momo Amsterdam*, *Seed Design* series and so on...

JS: *Ars Electronica* and *transmediale* have been there for a long time now, and they were truly important for the development of the artistic practice with new media. But with technological progress and proliferation naturally comes differentiation. These new festivals and conferences target special audiences such as the computational design scene, and cover particular aspects of the new media. They are so successful because there is obviously still a strong desire for a personal exchange that is not mediated by a keyboard or a screen, and because they give practitioners the rewarding feeling of belonging to a special community. ■

interview by **Marco Mancuso**
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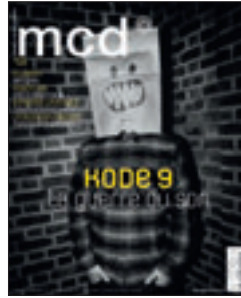
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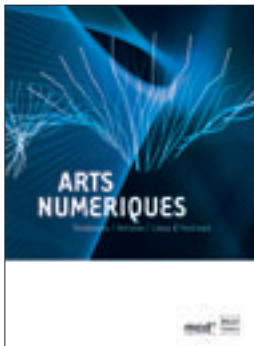
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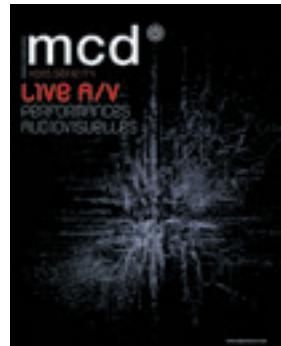
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