The following positioning paper creates a vision based on my experience of acting as enabler for a global cross-domain grass roots community of nearly 8000 members.

background

1. Standing next to my father's work at the critically acclaimed Concrete Utopia exhibition at MoMA – the Museum of Modern Art - in New York, in 2019. My father's design for the stadium Poljud in Split was set as the opening piece. The model was specially commissioned by MoMA and is now in the MoMA collection.

I was brought up on Walter Gropius and Mies van der Rohe, while sitting on Marcel Breuer Cesca chairs and skipping over "Paus Papier" filled with my father's drawings, which were usually covering the entire living room floor of our apartment, in an exceptionally beautiful award-winning 6-apartment block on stilts, designed by my father. This was a very unusual setting for what was then communist Yugoslavia.

At the age of 10 I was added to the official documentation as Assistant to my parents' design for the Faculty of Civil Engineering[1]. While my mother was in charge of precision work with Rötring pens, I was in charge of Letraset for all project technical descriptions and proudly graduated to the extremely delicate and detailed work with Letratone.

Later, as the first ever Croatian to graduate from the Royal College of Art in London, I would help my father with his digital setup, and later still, we would share AutoCAD drawings in a live connection over the iPad. My father passed away in 2013, having published his life's work as Professor of Theory of Architecture in a huge volume which was displayed across an entire window of the library of the main square in Zagreb. In 2019 five of his projects went to the Museum of Modern Art in New York.

A remarkable story of innovation

The opening exhibit of the highly acclaimed Concrete Utopia exhibition at MoMA is a story of a marriage of technology, engineering, design and ingenuity. My father's design for the stadium Poljud in Split, seen in the image above, broke new ground on several counts, and held the record for the largest self-supporting curved roof structure for around 10 years. My father had calculated that this was possible to achieve using Mero Systems – a structure of node and synapse components by the innovative German company Mero. In 1974 the company had decided to invest in a "supercomputer" and in 1976 it was able to verify my father's calculations, under supervision by Herbert Klimke, *head of the data center* at the time[2]. The company had been founded by Dr Max Mengeringhausen in 1928 in Berlin.

2. I was recently asked by the Getty Foundation for the permission to use my father's photograph of his History Museum in Sarajevo, because it was selected for their 'Keeping it Modern' conservation funding. On the right a quarantine photo on an LC4 – the Rolleiflex camera used for the photo on the left is visible on the top right.

[1] *This has been fully documented and has been verified by a journalist from Dagens Industri. Available at: https://weekend.di.se/reportage/nytankaren-ska-ge-svensk-industri-en-injektion.*

[2] *See https://de.wikipedia.org/wiki/Mero-TSK_International.*

vision

Europe has three key strengths: industry, creativity and social conscience. Nowhere else in the world are those three strengths so closely interlinked and such an integral part of the social fabric.

The Bauhaus was particularly innovative at combining these three elements. The same combination of strengths allows us to address the current societal challenges.

sustainability

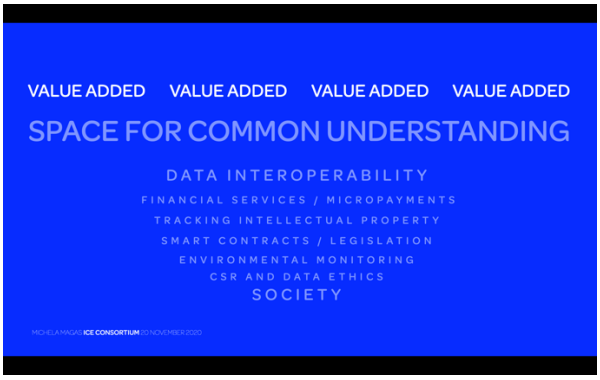
Understanding that our main tools of production have radically changed requires a new cultural awareness and design considerations. Strategic repositioning of design in the light of affordances of data-driven systems, allow us to unite across disciplines to solve grand challenges.

Creativity enables cross-domain data-driven innovation. The culture and creative sector has the tools to act as connector between disciplines at the centre of cross-industry collaboration. The CCS is ideally placed as early adopter of new technologies, as it naturally operates close to emerging cultures and markets. It is therefore uniquely positioned to connect industrial and knowledge domains into value ecosystems.[3]

System design is instrumental for a stable future. In order to ensure sustainability we need to address underlying structures. It's not our objects or lifestyle that are in urgent need of (re)design any more – it is the institutions and the processes.

[3] *I have recently expanded on this subject in a Green Paper presented to the German Federal Ministry for Economic Affairs and Energy during the European Creative Industries Conference in October 2020. Available from https://ecis2020.ecbnetwork.eu/bos3*

Sustainability is now supported by dynamic digital systems. Effective system design takes a holistic view of data marketplaces that drive productisation, and allows for constant adaptation to environmental conditions.[4]



Horizontal enablers must support cross-domain data exchanges. Starting with society as the foundation, horizontal enablers for cross-domain data marketplaces build upwards conditional on the layers below.[5]

We can move to an EU Common Data Market. Establishing an EU Common Data Market will take us into a union that is unprecedented for Europe. Bauhaus's "Art and Technology: A New Unity," and "Art into Industry" resonate with our initiative which has scaled the creative maker ethos into an Industry Commons for industrial interoperability[6]. We recently completed the Study for the Expansion of EOSC where Industry stakeholders suggested FAIR data verification (or "FAIRification") of commercial industrial datasets as a standard[7]. I suggested a new project for an EIC Marketplace that registers retrospectively all IP from EU projects in a chain[8]. Should each of these platforms focus on its USP, combined with a strong GAIA-X ICT infrastructure, Euro-HPC processing, and the sustainable global nodes of Max Planck's bloXberg[9], we could move from a fragmented data markets "Bazaar" to an EU Common Data Market.

---

[4] *In 2010, my thesis on the "Open Product" considered a product that is open to changes within its ecosystem. See Magas, M., 2010. Open Product: The Art of Making, available at http://openproduct.blogspot.com*

[5] *The presentation during the R&I Days 2020 is available at https://www.youtube.com/watch?v=Ewpdq5pfla8. This holistic view of horizontal enablers for cross-domain data exchanges is integral part of our work on the Industry Commons. I coined the concept in 2015 while Alternate Chair of Innovation Ecosystems for the AIOTI. The concept evolved from grass roots experimentation by our global community of innovators from all areas of expertise, which is currently approaching 8000 members.*

[6] *The Industry Commons is now a track within the Horizon programme. Our first Industry Commons initiative Ontocommons aims to establish an ecosystem of industrial ontologies and bring all industrial domains into a space of common understanding. The project scored 15/15 and has gathered a great deal of momentum even before its start, demonstrating initial characteristics of a global movement, with in-kind demonstrators from Japan, Korea, China and Brazil, and high level advisors from the US.*

[7] *Magas, M. and Dubber, A., 2020. "Expanding EOSC: Engagement of the wider public and private sectors in EOSC". Available at: https://www.eoscsecretariat.eu/sites/default/files/0087_expanding_eosc_study_final.pdf*

[8] *R&I Days 2020. Available at: https://www.youtube.com/watch?v=aB7XloMHjqc&feature=youtu.be&t=108*

[9] *bloXberg is a research infrastructure for the registration of research IP. Available at https://bloxberg.org*

3. The MTF community aiming for moonshots from diverse perspectives during the High Level MTF Labs in Stockholm, in 2018. Ninety participants from all over the world collaborated during a week of collaborative prototyping driven by grand challenges. Photography: Andrea Cerrato.

quality of experience

The effect that novel technological solutions have on human beings is at the centre of all of our considerations. Placing the human in the loop means not only gathering data from participants, but allowing the participants to train with the system, discover new modes of expression and new capabilities. Before the invention of a piano there was no pianist virtuoso; before the invention of a racing car there was no racing champion.

People discover extraordinary abilities. Our community has experimented with brain computer interfaces for years. A real breakthrough happened when a blind participant proved much more "able-bodied" than the others with brain computer interfaces. Technology is best understood as a form of human empowerment and a means to inform the future of work.

Narrative is part of the product aesthetic. We can now track and trace each individual Marcel Breuer chair by using data-driven systems, each becoming a different product through the virtue of its unique use and resulting product narrative including its long-term, environmental impacts, reappropriation and reuse.

Public architectural structures should be a user interface with citizens. When I was representing the European Commission at the G7's "i7"[10] we were asked: "How can governments use digital technologies to communicate with the citizens?" I recommended considering data-enabled bicycle sharing schemes, and data-enabled cultural heritage buildings, as large-scale interfaces between the government and its citizens.

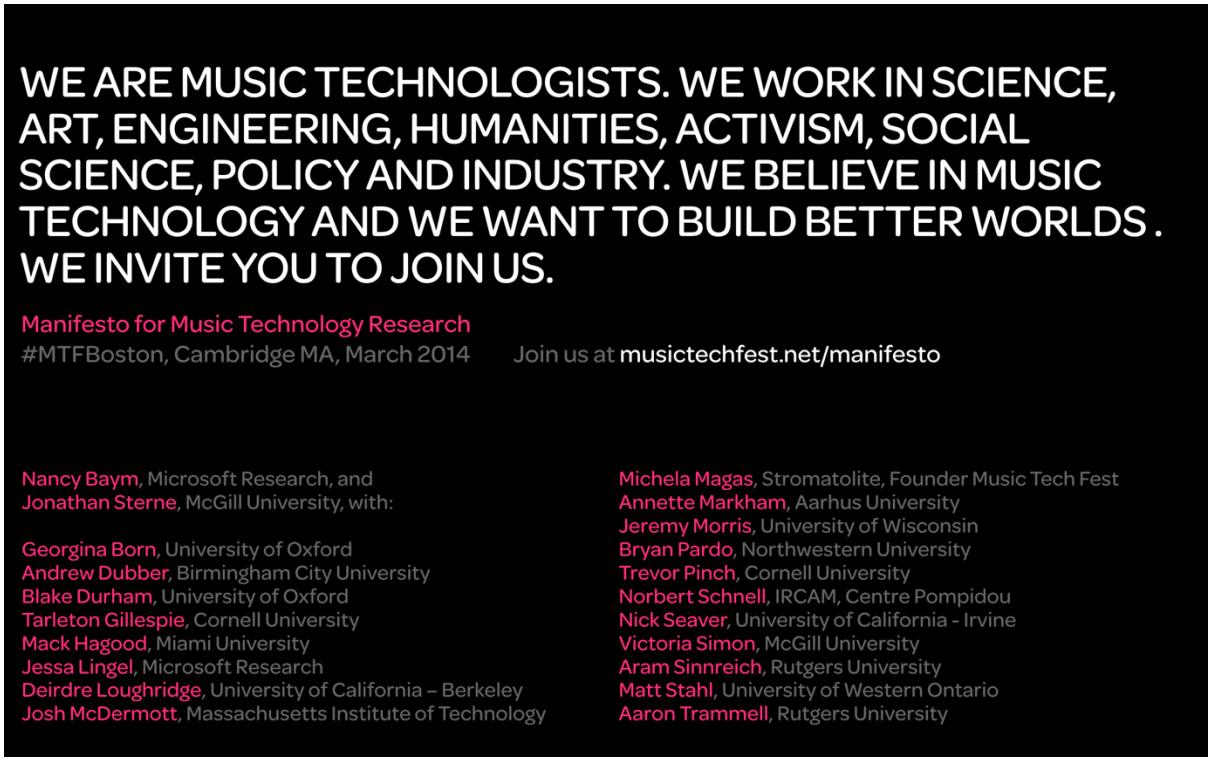
A toolkit of data-enabled "Lego bricks" stimulates innovation. Tangible User Interfaces that connect data with products and services must be functional, versatile, modular, and attractive to lower the entry barrier to data and stimulate breakthrough solutions at application level.

The beauty of design lies also in the clarity of the vision. We recently trademarked "Software-as-a-Method". Transitional Targets are underpinned by strong ethical and moral considerations and then millions of climate data points[11] map the pathway *backwards*, setting milestones, to track behavioral changes.

Europe has the potential to increase the quality of interaction with our digital world through highly evolved visual literacy. We have the opportunity to redesign and reimagine the usability and the beauty of the platforms which are now central to our society.

[10] *The Innovators' Strategic Advisory Board on People-Centred Innovation to G7 Leaders, Available at https://teamdigitale.governo.it/en/i7.html*

[11] *Provided by our partners ClimateView. Available at https://www.climateview.global*



4. The MTF Manifesto was initiated by an international group of multidisciplinary researchers in 2014 in Cambridge MA. See https://mtflabs.net/manifesto/.

inclusivity

In February 2018 I authored '7 ingredients for the Industry Commons'[12]. The legacy of the Bauhaus is echoed in this updated way of designing the future through integration of industrial practice and form into making, art and craft in the context of new technologies.

We need a space for common understanding. As the Bauhaus united all branches of the arts under one roof, our community unites all domains of knowledge inspired by grand challenges, inclusion, accessibility, gender equity and using music as a social glue for a level playing field.[13]

We "get our hands dirty" with experimental prototyping

The Bauhaus fashioned itself as a craftsmens' guild, and stressed experimentation and problem-solving as part of the artist's research process towards a functional solution. Experimental prototyping translates thought into practice, enabled by cheap and widely available digital prototyping tools.

---

[12] *Available at https://michelamagas.com/7-ingredients-industry-commons/*

[13] *By placing women as role models in charge of all technology areas at an 800+ participant prototyping event in Stockholm in 2018, we attracted 53% women participants. Statistics were gathered across 4 gender types.*

We empower creators to build on the shoulders of their peers. In a hyperconnected environment modularity gives us the opportunity to build upon others' creations. We have tested live tracking of IP from the point of creation.

We don't predict the future. We invent it. Dennis Gabor, Nobel laureate for the invention of holography was educated at TU Berlin, during the time of the Bauhaus. In 1963 he published *Inventing the Future*, inspired by grand societal challenges. The citation "The future cannot be predicted, but futures can be invented" became a great influence on several American figureheads including Alan Kay. Our community's motto has always followed Gabor with a clear intention to deliver on its promise.