CROSS FERTILISATION THROUGH ALIGNMENT, SYNCHRONISATION AND EXCHANGES FOR IoT

H2020 – CREATE-IoT Project

Deliverable 03.08

Roundtable at Ars Electronica 2018

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1. EXECUTIVE SUMMARY

1.1 Publishable summary

This document details the work undertaken to deliver a round-table at the Ars Electronica festival, details of the materials discussed and key outputs. The round-table itself is the deliverable output, numbered D03.08 as part of WP03.

FutureEverything (FE) were tasked with the development and execution of a round-table at the 2018 Ars Electronica festival in Linz, Austria. Ars Electronica is the preeminent arts and technology festival in Europe, this year attracting more than 105,000 individual visitors. The festival offers a rich mix of entertainment, innovation and insight comprising of over six hundred individual events from individual talks to hands-on workshops, from art exhibits to technology demonstrators.

A critical risk is related with the lack of connection between IoT Art, Science and IoT communities, and it is with these communities that the round-table at Ars Electronica sought engagement.

An appropriate round-table proposal and method was developed by CREATE-IoT partners. A series of expert participants were invited, accepted and briefed on the format and content of both their lightning talks and the round-table discussion. The round-table event was conducted at the POSTCITY site of Ars Electronica, which is the location where most of the activity of the festival took place. In the lightning talks delivered by the expert participants details of artistic and innovation practice were shared with the participants of the session. Experts included two artists working in the IoT field, two representatives from LSP projects, and digital curators from FE and the V&A - the world's leading museum of art and design.

Key Outputs:

- Information and insights from the LSPs were shared with a large group of interested parties, including young people from the u19 CREATE YOUR WORLD [1] group, and representatives from the Waag and Ars Electronica.
- An extensive round-table discussion on pertinent issues around market acceptance and user data was conducted at a significant Arts and Technology festival.
- Proposed as a workshop for up to forty participants, more than 60 attended the lightning talks, and more than a dozen participants worked together to co-create the first draft of a manifesto for Art in the IoT.
- A first draft a Manifesto for Art in the IoT was synthesised. Tangible outputs from discussions at events like Ars Electronica can sometimes be difficult to document, with an emphasis being placed on show-and-tell demonstration, so bringing together even a brief statement of intent was something of an achievement.
- Participants expressed interest in continuing the work, along with others, to prepare a more detailed and considered manifesto document. Links were also proposed between LSP representatives and other activities at the festival, in particular the Future Innovators Summit [2].
- The day after the round-table a short talk was given by a FE representative, as part of the Ars Electronica STARTS Day. This talk detailed some advantages of artistic collaborations told through direct experience of the FE team, and briefly touched upon the outputs of the round-table.
- A blog was published on the websites of FE and CREATE-IoT [3].

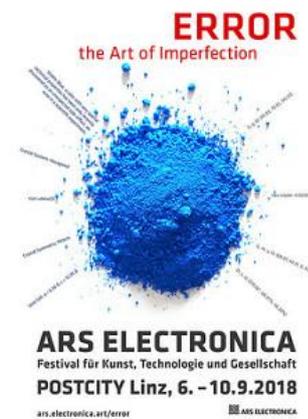## 1.2 Non-publishable information

None.

Figure 1: Ars Electronica Center Linz (Credit: Ars Electronica / Robert Bauernhansl). Error the art of imperfection - theme of 2018 edition.

2. INTRODUCTION

2.1 Purpose and target group

'The objectives of WP03 are to address the creativity factors that will influence the IoT innovation, adoption and market penetration in different application areas covered by the pilots and across the various application domains. The activities in this WP start from principle that the IoT innovation creation, innovation adoption require different skills, knowledge, resources, business models, and "cultural domain" background'
                    - DoW, Coordination and Support Action Technical Annex H2020 IoT-02-2016

This report details the action taken in regard of the amended DoW deliverable: D03.08, *Round-table at Ars Electronica: A round-table organised with the IoT European Large-Scale Pilots Programme at ARS Electronica.*

In the DoW several challenges are outlined as part of the support and coordination role of CREATE-IoT. Two in particular are, at least in part, addressed by D03.08. Viz: (1) the (continued) development of a methodological approach to the "exploitation of the combination of ICT and art for stimulating innovation and *societal and ethical acceptance*", and (2) preparation for the next stages of IoT deployment through a "platform for exchanges between projects".

The objectives of WP03 are concerned with creativity as a catalyst to activate innovation, adoption and market penetration of IoT technologies developed through the *IoT European Large-Scale Pilots Programme* and also those developed in the wider IoT landscape.

Within the scoping of CREATE-IoT, there is also an acceptance that issues around "data protection, user acceptance, standardisation, interoperability, creativity, societal and ethical aspects, legal issues and international cooperation" require a coordinated, horizontal approach across the IoT ecosphere. In particular, engaging with the *IoT European Large-Scale Pilots Programme* projectsin these areas presents the most effective route for visibility and exposure of ideas developed through the actions that form the backbone of WP03. Direct exchanges of insightful information and current thinking between IoT ecology stakeholders in the form of workshop style activity is cited as an effective method to "encourage interaction and iterative consensus building".

It is becoming apparent that issues around trust are core to the acceptance of IoT technologies in the marketplace. Whilst it is clear that innovations in technology have the power to revolutionise markets and bring new and exciting opportunities to bear, it has not gone unnoticed that accompanying this technological revolution there is a commensurate rise in the visibility of societal issues around privacy, security and governance, to name but a few. Addressing these concerns is as vital an element of the development of a healthy and widely adopted IoT ecosphere as the development of the technologies themselves.

From Kranzberg's Laws of technology:

"Technology's interaction with the social ecology is such that technical developments frequently have environmental, social, and human consequences that go far beyond the immediate purposes of the technical devices and practices themselves" - M. Kranzberg (1986) [4]

The roundtable was designed to connect the activity of STARTS projects to foundational debates around trust and transparency, to be of interest to an Ars Electronica audience, and relevant to the festival's theme of *Error*. Within the session the value of artistic intervention as part of innovation practice was demonstrated and articulated through lightning talks given by speakers from across the sector. Particular emphasis was given to existing projects drawn from the *IoT European Large-Scale Pilots Programme*, with representatives from both *ACTIVAGE* and *IoF2020* drawing on their experience to speak to the themes.

Given context by the lightning talks, much of the time allotted to the round-table was given over to a discussion in which all participants - be they artist, *IoT European Large-Scale Pilots Programme* representative, curator, innovator or casual attendee of the festival - were fully engaged. In this way the roundtable brought together key IoT ecology stakeholders and facilitated collaborative learning and active engagement through discussions around core issues of ethics, governance, literacy and transparency in the IoT.

As a primary output, the round-table sought to create the starting point for a *manifesto* for Art in the IoT. Other outputs included: expansion of art science networks through discussion and other opportunities for networking, increased visibility of issues around creative innovation and market acceptance for participants and participating organisations, opportunities to voice issues from a wide range of expertise - from the experience of the consumer through to that of an LSP project lead.

2.2 Contributions of partners

FutureEverything (FE) operate on the intersections of art and technology, applying an artist-led approach to research and investigation around the ways new technologies impact end users, businesses, governments and society. In an artist-led engagement with new technologies there is a clear opportunity to consider and challenge their use in unusual ways, or at least in ways that are not necessarily part of a pre-supposed usage pattern of the technology provider or system designer.

FE supplied design expertise in creating the structure and the materials for the discussion. Drew Hemment, founder of FE, provided expert moderation skills and worked constructively at the end of the session to create a basic synthesis of the areas discussed. Working alongside the FE team, Hemment used this approach to sketch out several potential manifesto points to consider for future development.

Ars Electronica staff, and in particular our Project Manager Florina Costamoling, provided considerable assistance with the development of the round-table. They provided valuable insights into round-table formats which would optimise audience and interaction, specifically in respect to duration and number of attendees. Ars Electronica provided advance marketing of the event through their website, brochure and supplementary materials.

Two of the expert panellists acted as representatives for the *IoT European Large-Scale Pilots Programme projects* and were kind enough to also bring their considerable expertise to the round-table. Dr J. Martin Serrano and Alexander Berlin gave insightful talks which highlighted their experiences working as part of the ACTIVAGE and IoF2020 projects. They also took active roles in the round-table debate, bringing relevant and specialised perspectives into the discussion.

ARTS supported the organisation and provided the link with STARTS initiative and the projects involved.

SINTEF supported the organisation of the event and made the link with the VERTIGO supported projects and promoted the event.

2.3 Relations to other activities in the project

The Arts are gaining prominence as a catalyst for an efficient conversion of science and technological knowledge into novel products, services, and processes and as a catalyst of open approaches in society, research, and business. CREATE-IoT, and in particular the actions of WP03, serves to increase visibility for this approach as a successful methodology to provoke innovation and to address issues around market acceptance.

This round-table provided its participants with an introduction to some of the ways in which artistic practices can be used to interrogate complex issues, furthermore, it allowed representatives of the LSPs to disseminate information and key findings of their projects.

In addition, by involving the round-table participants in an engaged, non-hierarchical discussion on core issues affecting user perception of IoT technologies, the round-table exemplified an approach that combines ICT and Artistic strategies and is both user-centric and bottom-up. Each of these elements drew inspiration from key WP03 objectives.

The work conducted at the round-table has been documented as a blog post on the FE website and is also replicated on the CREATE-IoT site. The short talk given as part of STARTS day has been recorded and will be uploaded to the FE website.

There is a commitment from participants to continue the work on the Manifesto for Art in the IoT by means of further strategic activities.

The round-table method used will be reflected on and refined, and, if applicable, be used in further workshops such as that proposed for deliverable D03.10.
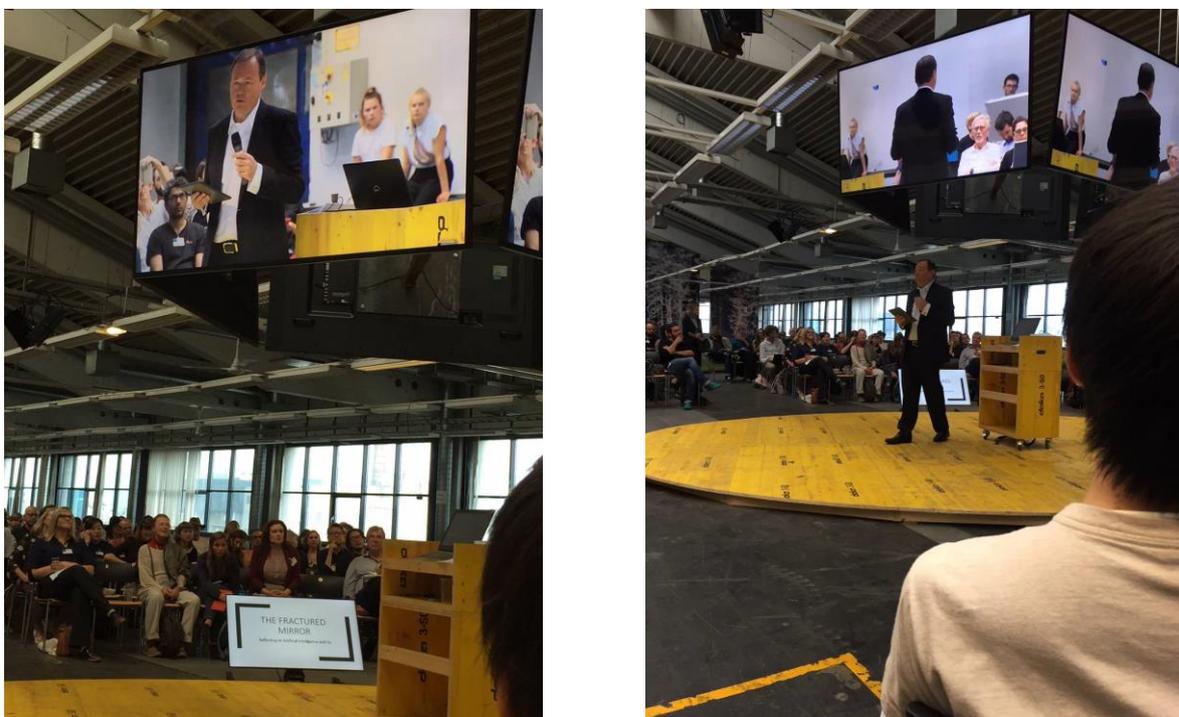

Figure 2: Ars Electronica STARTS DAY Conference AI in Art and Science, Strategy for responsible Innovation. Roberto Viola, Director General of DGCONNECT at the European Commission.

3. ROUND-TABLE EVENT

This round-table session set its sights on investigating the value of artistic intervention as a key element of innovation, in particular focusing on how arts practice can question and inform tangible, practical projects. The roundtable also sought to collide the Ars Electronica theme of *Error* with FE's ongoing exploration of *Trust* in the IoT ecosystem, exposing how Error might be understood when interactions and processes are themselves hidden.

Framing the round-table in this way served to effectively utilise the experience and insights of the organising partner (FE) and to prompt a vigorous and cross-discipline discussion between participants. The roundtable is part of Future Sessions, which puts into practice the FE action research method 'festival as lab' [5] - a series of conversations, workshops and events designed to explore the collision between the art and tech sectors.

3.1 Proposal and execution

An abstract and proposal were submitted to Ars Electronica for inclusion in their programme. For reference the abstract is published here:

Abstract:

Session: Trust in Invisible Agents, a round-table at Ars Electronica

A challenge facing the Internet of Things and Artificial Intelligence is the transparency, explainability and tangibility of data systems. The purposeful drive to make computing invisible, that can be traced back to Mark Weiser and Ubiquitous Computing, is compounded by the sheer complexity of today's interconnected systems, people and things. These systems can be difficult to understand even for experts in adjacent domains, and when accessing an IoT or AI service it can be difficult to determine where data and algorithms originate from and who is accountable when things go wrong. Artists are creating imaginative interfaces and open infrastructures that create visibility and awareness for the capabilities and consequences of these systems, enable people to experience future scenarios, and address the ethics and governance of data systems. Long standing, and profound debates arise, about the critical distance of art, its disinterest, its use and function. Where this entails collaboration between art and industry, critical distance can be rethought through multiple fault lines, boundary crossings and liminal spaces.

The round-table was split into two broad sections: expert presentations and participatory discussion.

In the first instance, and lasting approximately 45m, the expert participants gave lightning talks. Here, IoT stakeholders were invited to engage with the broad topic of Trust in the IoT. Multiple perspectives were presented by a diverse list of speakers: Dr. Drew Hemment (Founder, FE), Kasia Molga (Artist, STARTS), Irini Papadimitriou (Digital Curator, V&A art and design museum), Alexander Berlin (Berlin Thinking/IoF2020), Dr J. Martin Serrano (Insight Centre for Data Analytics/ACTIVAGE), Giulia Tomasello (Artist, STARTS Prize winner 2018).

Secondly, a viable and vibrant dialog was developed as participants engaged in quick-fire, curated debate. Participant attendees engaged in moderated discussion around the four foundational topics of ethics, governance, literacy and transparency in the IoT, spending around 30m on each topic.

Some Definitions were proposed to assist with the discussion:

- Ethics: moral principles that govern the behaviour of a person, organisation or society in the pursuit of an activity

- Governance: enforcement of existing rules or the creation of new ones
- Literacy: understanding relevant processes and systems at a human level
- Transparency: openness and accountability of processes, human and mechanical actors, and the data that flows between them

The format made maximum use of all of the expertise in the room and leant on two of the *Open Space* [6] principles: *Whoever comes are the right people*, and *Wherever it is, is the right place*. In this way, the round-table created a rich experience for all the participants, be they invited expert or casual attendee.

The event was grounded in practical examples of IoT technologies, with representatives of some of the EU-funded IoT Large-Scale Pilots projects bringing to the table their experience of these hugely complex, sector-wide projects. Artists and curators drew on their own detailed conceptual and technical understanding of their practice to add nuance, raise questions and help the conversation break out of silos.

Materials were provided by FE to assist the group in making their discussions visual - several design canvases with post-it notes. The results of these visual clusters were photographed, and the materials archived. Each topic was introduced by a different expert panellist, and the resulting conversation was moderated to ensure all participants were able to have their say.

After the round-table was completed, and the session closed to the public, Drew Hemment undertook to make a best-efforts synthesis of the materials gathered on behalf of FE. In this way, a starting point for a Manifesto for Art in the IoT was co-created from the discussions in the room and the synthesis exercise that followed. It should be made clear that the statements and questions brought to light through this process are the very first steps in this process.

The day after the round-table Ars Electronica played host to the STARTS Day micro-conference. This full day event features artists, creative professionals, scientists and industry representatives who present STARTS collaborations and art-science residency programmes from around the world. FutureEverything were invited to talk about ideas for artistic intervention in the IoT, drawing on experience and future plans, and to present the results of the roundtable: the work-in-progress manifesto.

Figure 3: Trust in Invisible Agents at Ars Electronica. IoT European Large-Scale Pilots Programme round-table.

4. CONCLUSIONS

In the first instance, Deliverable *D03.08 A round-table at Ars Electronica* has been fulfilled. As part of this journey, and on behalf of CREATE-IoT, FE have engaged with the largest Art Science festival in Europe and created a successful event which has made an impact on the participants and the organisations they represent.

Representatives from the LSPs were given the opportunity to present information on their projects to an engaged audience from the Art/Science cross-over community, and as such the methods and methodologies of CREATE-IoT were given increased visibility to a core target audience.

Productive discussions were undertaken with a variety of stakeholders to develop key themes around Trust in the IoT.

Key themes emerging from the manifesto draft
- Give people agency over how they are represented in data
- Suspend disbelief in order to create and test new worlds
- Discover and illuminate the limits of intimacy
- Show how to be more open and less vulnerable
- Use technology to create awareness and understanding of our bodies
- Do not shy away from the wildest scenarios
- Give a voice to quiet people, and people without a voice
- Build a data commons
- Preserve data interfaces for future generations
- Jump start literacy through experimentation

4.1 Contribution to overall picture

Using the round-table as a testing ground, and the wider scope of Ars Electronica as a backdrop, FE's investment in the Festival as Lab process pays dividends in the diversity of stakeholders engaged in vital debates at the heart of the IoT. Bringing together the communities necessary to make good progress, and to break the debate away from potential silos.

Indeed, the idea of *lab* as a place to come together and creatively think, create and innovate has been gaining much traction in the wider IoT ecology.

'The concept of lab, from OpenLab, to FabLab and Living Lab, has been instrumental in the diffusion of techniques of digital fabrication and physical prototyping, allowing everybody to go, learn and create' [7]

With this style of engagement, it is clear that multiple subjective impacts can be brought to bear to ongoing debates and creative interventions.

4.2 Other conclusions and lessons learned

The delivery method used for the round-table has been recorded and reflected upon. A revised, and flexible iteration of the round-table method will be utilised in similar events. It is anticipated that the workshops to be delivered in Deliverable D03.10 will take advantage of the process learning offered through this Deliverable.

5. REFERENCES

[1] Ars Electronica (2018) 'u19 Create Your World (about us)' [Accessed on 30 Nov 2018], online at: https://ars.electronica.art/u19/en/

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[6] Herman, M. (1998) *Working in Open Space: A Guided Tour*. [Accessed on 2 Jul 2018], online at: http://openspaceworld.org/wp2/explore/guided-tour/

[7] Girao, L. M., et al (2018) 'CREATE Your IoT' in Vermesan, O., and Bacquet, J., Eds., "Next Generation Internet of Things - Distributed Intelligence at the Edge and Human Machine-to-Machine Cooperation", e-ISBN: 9788770220071, River Publishers, Denmark. pp. 303, online at: https://european-iot-pilots.eu/next-generation-internet-of-things-distributed-intelligence-at-the-edge-and-human-machine-to-machine-cooperation/

[8] IoT European Large-Scale Pilots Programme, online at: https://european-iot-pilots.eu/