

The Arts Within Enterprise

A guidebook supporting artists' critical engagement with enterprises for a more inclusive digital transformation'

edited by Fiona McDermott, Christian Fieseler, Ana Alacovska, Tom O'Dea, Harun Siljak, Radek Przedpetski, and Matt Jones



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Introduction

The intricate entanglement of art and technology

The dynamic and entangled relationship between art and technology has inevitably reflected major changes over time in the roles and status of artists, scientists, technicians and industrialists. In earlier periods and cultures in which art has served as the primary medium of communication for religion or state power, for example, technologies have in turn served the purposes of the arts. At times when the lines between artists and scientists have been more blurred and exerted a stronger mutual influence on technological developments, the results have often been spectacular – seeming almost to shape the ethos of whole civilisations. With the growing division of labour and specialisation of disciplines throughout modernity, however, artists and scientists have come to pursue their professions in increasingly separate worlds.

This disconnection between the spheres of artists and technologists and producers became especially strong from the late nineteenth century onward as power shifted still further in favour of capital and industry. And while artists responded in myriad ways to industrialisation, with some celebrating and others critiquing – or even ‘romantically’ rejecting – the technologies driving this revolution, the distance between artists and scientists has only widened ever since.

In our own age the rapid advent of digital technologies has so far intensified this divergence, not least because the complexity and opacity of digital technologies makes it difficult for most artists to keep pace. In addition, the ongoing ‘digital transformation’ has coincided with a period marked by reduced public funding for the arts and correspondingly heightened levels of socio-economic precarity for artists.

Of course, many artists always have and always will explore whatever materials and means they can within the constraints and strictures of their cultural environments to create, enhance and amplify their works – including through the increasing use of digital technologies. After all, such inventiveness on the part of artists itself goes a long way to explain the entanglement of art and technology in the first place.

For designers, producers and marketers of technology, meanwhile, artists and the arts are not just another commodity but a rich source of ideas for inventing and framing new and existing products. Like many other trades and industries in the past, today’s tech enterprises strive to draw on art and artistic methods in their relentless quest for innovation and competitive edge. Such efforts extend well beyond design and branding, encompassing attempts to borrow the ‘cool’ image of contemporary art to attract and retain young talent, for example, as well as ‘artwashing’ practices aimed at building social license and diverting attention from the lack of accountability and often destructive effects of digital products and services.

Whilst no less intricately entangled, the present relationship between art and digital technology and between artists and the owners of this enhanced means of production is thus extremely asymmetrical, with knowledge, capital and power now concentrated to an unprecedented extent in the hands of tech enterprises and billionaires. The influence of art on the development of technologies and the underlying direction of corresponding socio-economic developments has simultaneously continued to wane, with results many decry as deplorable.

As should be evident even from this briefest and simplest of accounts, we see an urgent need for efforts to bring about a rapprochement between art and science to avert the worst consequences of digitalisation.

Fundamental tensions between art and tech enterprise

Exploring how closer critical engagement and/or collaboration with scientists and tech enterprises can best be achieved ‘to mobilise the arts for a more socially inclusive digital transformation’ was the challenging task we took on as Working Group 3 of the EU’s Artsformation project – a challenge made all the more daunting by the paucity of prior research in this direction.

Before presenting our findings and recommendations, we first highlight some of the fundamental tensions that need to be tackled in any attempt to

influence the trajectory of the digital transformation for the greater social good through the critical engagement of art with digital technology and tech enterprises.

First and foremost these tensions arise and persist because the widescale adoption of all modern technologies has primarily been driven by the aim of optimising production regardless of the detrimental consequences for individuals, society, and the environment. Left to their own 'devices', the designers and owners of digital technologies take this rationalising industrial logic to an extreme, sacrificing all other values to the priority of maximising efficient production for profit.

By any definition, artists and their practices are inherently in conflict with any such reductionist, valueless, deskilling and even dehumanizing logic. And since we know of no force more potent than art itself to assert, amplify and critique values, the overall strategy we advocate for policymakers and artists alike is not to avoid but to grapple head-on and pragmatically with the power asymmetries and tensions in this latest stage of the ever-entangled relationship between art and technology. In short, we proceed from the premise that the power of art must be supported and harnessed to interpolate values in the design and production of digital technology for a fairer digital transformation.

Insofar as the market-based logic and powerfully rationalising tendencies driving today's unsustainable digital transformation not only reduce our planet to resources for extraction but our very selves to consumers and suppliers of data, they further clash with the value placed by many artists on individual expression. This indeed presents an obstacle to a more fruitful relationship between art and tech enterprises, since individual artists are often highly reluctant to 'compromise' or collaborate with forces they see as antithetical to their deepest values and profession.

Yet artists can neither escape from nor should seek to disengage with digital technologies. Already creative work has been transformed by the digital economy even more than most professions, not least through the growing 'platformisation' of artistic labour. Romantic opposition is even more futile in the face of the digital transformation than it proved to counter the industrial revolution. The proliferation

of digital technologies is irreversible and time has run out for futile gestures.

While none of this is to assert that digital technology is inherently bad and art the panacea, it seems clear that the spread of digital technology unconstrained by any human values will lead wherever profit and growth may beckon – all the way to mass extinction. And since we posit that art is unique in its capacity for expressing and amplifying, critiquing and juxtaposing values, the overarching question we sought to address in our inquiry was as follows:

How can the power of the arts be harnessed and mobilised to help prevent the worst excesses of unrestrained technology and steer the use of digital technologies towards a more sustainable and socially inclusive transformation?

Outline

Below we present our findings through illustrative cases and best practices as the basis for practical recommendations for policymakers, enterprises and artists. Our inquiry has led us into several areas underexplored in research, hence we raise almost as many questions as we answer – including the open question of how to measure the 'success' of art-enterprise collaborations and the impacts of artistic interventions. For this reason our recommendations include the need for further research into how collaborations and 'artistic interventions' can be supported to interpolate human values in the design and application of digital technologies.

We organise our key findings according to three broad categories of art-enterprise relations. First, we review various types of historical and contemporary artist-in-residence programmes. Second, we look at the role of artists as 'consultants' to tech enterprises and within hybrid artist-engineer collaborations. And third, we highlight examples of how artists have simulated tech enterprises for the purpose of critique or even expanded art projects into alternative and more ethical forms of tech enterprise.

Artist-in-Residence Programmes

The term ‘artist-in-residence’ (AIR) is quite familiar and the idea of providing artists with temporary space and access to materials for producing new works within an organisation seems relatively straightforward. At first glance such arrangements would appear to be a promising – and hopefully financially rewarding – way for artists to influence tech enterprises. And since industry actors increasingly initiate AIR programmes themselves it seems enterprises too must envisage them as some kind of ‘win-win’ situation. If these programmes can also generate benefits for wider society in the form of more sustainable products and uses of digital tech, surely the case is strong for supporting efforts to scale them up. What could possibly go wrong?

Quite a lot, of course. Just a moment’s reflection on the power dynamics involved in such programmes and the myriad motives organisations might have for initiating them raises more questions than we could hope to address in our project, including the puzzle of how to assess their ‘success’. Again this challenge is all the more difficult not only because of the clash between market versus non-market logics but also the paucity of previous scholarship on these issues.

Our own investigation of historical and contemporary examples of AIR programmes in industry revealed a wide spectrum of residencies, with differences especially marked in terms of the aims of the enterprises and artists involved, the degree of freedom allowed to artists, their room for engaging meaningfully with employees, their duration, and their ‘audience’ and reception – or lack thereof – in the artworld and/or the public sphere.

At one end of this spectrum we found AIR programmes restricted in their scope for creativity, critique, and wider social contributions, amounting to little more than commissions for decorative artworks with limited relevance beyond the commissioning organization. Although we review some of these limited programmes for the sake of reference and contrast, our main interest is in residencies at the more ambitious end of the spectrum. Among these are several influential AIR programmes from the 1960s and ‘70s whose wider aims accord to large degree with those of our Artsformation project and

whose denouements perhaps also suggest the extent to which these aims can hope to be achieved within contemporary private enterprises.

Historical examples of ambitious AIR programmes

A salient early (and indicatively problematic!) AIR initiative, the Artist Placement Group (APG), was set up in the UK in the mid-1960s by artists Barbara Steveni, John Latham, and Joan Hills. The Group was inspired by Steveni’s idea that artists working alongside employees within organisations could help narrow the growing social divide between artists and workers and amplify the influence of art on society (and vice versa). Importantly, APG’s focus was on the benefits arising from the process of such collaboration rather than on specific products, with an accordant emphasis on the freedom that should be afforded to artists:

The artist would become involved in the day-to-day work of the organisation and be paid a salary equal to that of other employees by the host organization while being given the new role of maintaining sufficient autonomy to acting on an open brief. (Tate Gallery Archives)

By ‘an open brief’ the APG meant no less than that artists should be ‘paid a wage by the host organisation regardless of the material output of their placement’ (emphasis added), with no precondition ‘except for a general compliance with the organisation’s rules’. Ultimately the Group’s aim was that it would become ‘common practice for all large organisations to have a realistic economic relationship with artists, equivalent to other professionals’.

The Group arranged for placements of artists in various industries, including the then nationalised UK aviation, chemical, coal and steel industries and the state media. Much of the output took the form of theoretical debates, but also included specific proposals for organisational changes based on suggestions by workers, as in the case of Brisley’s residency with Hille Furniture, whose management indeed adopted some of these proposals.



Joseph Beuys and John Latham at the Kunsteverein in Bonn, Germany - image: APG/Tate Archive

Other artists placed by APG produced works in film and design for art exhibitions, the most prominent of which took place at London's Hayward Gallery in 1971 (alternatively called Inno 70 or Art and Economics). This exhibition attracted negative criticism both from the public and APG's primary funding body, the UK Arts Council, eventually leading to the withdrawal of funding and the breakup of the Group. According to the Arts Council, the APG was 'more concerned with social engineering than with straight art'. And with this denouement the Group perhaps exposed the limits of such intervention.

At around the same time in the United States, and with some very similar aims to APG, artists Robert Rauschenberg and Robert Whitman, together with engineers Billy Klüver and Fred Waldhauer, launched Experiments in Art and Technology (E.A.T.). This initiative had the ambition of closing the distance between modern technology and the arts through collaboration. According to its founders, E.A.T. would achieve 'a constructive climate for the recognition of the new technology and the arts by a civilized collaboration between groups [now] unrealistically developing in isolation':

Rauschenberg and I always said that if E.A.T. was successful it would automatically disappear,

because once everybody understands the idea of artists and engineers working together then there's no reason for E.A.T. to exist. (Klüver, Experiments in Art and Technology)

After emerging from the engineering and technology base of Bell Laboratories in New York, E.A.T. set out to achieve its ambitious goals through a 'Technical Service Programme' created for matching artists with engineers. Notably, the group sought to ensure independence from any single company by obtaining funding from various private benefactors, corporate contributions, and arts-funding sources like The National Endowment for the Arts and the New York Arts Council.

By facilitating collaborations between artists and engineers in new types of artistic projects within enterprises, E.A.T. aimed to 'give human scale' to the design of technologies. Through encouraging 'industrial initiative in generating original forethought, instead of a compromise in aftermath', E.A.T. hoped to 'avoid the waste of a cultural revolution'. As a notable parallel with the project of Artsformation to 'mobilise the arts for a more inclusive digital transformation', E.A.T. believed that facilitating artists and engineers to 'operate freely within [their] own environment'



E.A.T.'s Pepsi Pavilion for Expo '70, exterior view (detail) - image: Fujiko Nakaya

would create 'an intersection of these environments' that in turn would generate 'new possibilities which will benefit society as a whole'. These benefits would ensue from efforts to

eliminate the separation of the individual from technological change and expand and enrich technology to give the individual variety, pleasure and avenues for exploration and involvement in contemporary life.

These ideas proved remarkably popular with practitioners. Only two years after its foundation, over 2,000 artists and more than 2,000 engineers had expressed an interest in collaborating with E.A.T.'s Technical Service Programme. To meet this demand, local branches of E.A.T. were formed throughout the United States.

By contrast with the negative reception that led to the breakup of APG, the exhibitions mounted by E.A.T. also proved popular with the public, especially its project funded by Pepsi for Expo '70 in Osaka. However, the construction costs of this large-scale artist-engineer collaboration greatly exceeded E.A.T.'s original estimates, leading to a breakdown in relations with Pepsi and the loss of its reputation as a mediator between art and enterprise.

Other examples from this time include an AIR programme initiated by the curator of the Los Angeles County Museum of Art, Maurice Tuchman, in which high-profile artists worked for periods of three months within the facilities of Los Angeles' newly emerging aerospace, computing and entertainment enterprises to produce artworks for exhibiting at the museum. This case is interesting in its model of structuring and again in its limitations. Like E.A.T., the LACMA acted as an intermediary between artists and enterprises and defined the relationships and expectations of each participant. Enterprises would generally put forward the money to pay for the AIR programme, including artists' wages and production costs. In terms of limitations, this project shared with E.A.T. a lack of inclusiveness in the racial and gender diversity of the artists it selected.

Following the decline in the late 1970s and '80s of what had become known as the Arts and Technology movement, the next historical initiative relevant to our interest was set up in 1993 during the first wave of internet companies: the PARC AIR programme at Xerox's Palo-Alto Research Centre (PARC). This research centre was already based on interdisciplinary collaboration among scientists, researchers and engineers with the aim of 'creating a conglomerate

able to build new technologies, including hardware and software, from the basic idea up to the final product'. The idea behind PAIR was to include artists in this scientific community 'as a starting point for collaborative exploration and creation of ideas'.

Organised by technologist and artist Rich Gold, the PAIR programme was less ambitious than its Arts and Technology predecessors in the societal benefits it envisaged ensuing from art-enterprise collaboration. Indeed this is not surprising given that the main impetus came from enterprises rather than artists. However, it shared a similar focus on process rather than product. According to Gold, the aim of these residencies was

to alter, nudge, and in a minor way redirect the creative forces of PARC by providing alternative viewpoints, theories, personalities, and methodologies within the halls, offices, and long corridors and around the steaming coffee pots of the community.

As part of Gold's PAIR ethos, the artists chosen for the programme were generally based in the San Francisco area rather than artists with international reputations. In this respect the programme set a precedent for many present-day AIR programmes run by tech companies in Silicon Valley that also tend to use local and low-profile artists.

Contemporary AIR programmes initiated by private enterprise

The past two decades have seen a resurgence in artist residencies, including initiatives by Facebook, Microsoft, Google, Adobe, and other tech companies at the centre of the digital transformation. In particular, our research identified a growing number of programmes focused on involving artists in specific types of technological developments such as machine learning and artificial intelligence. A common assumption more or less implicit in the declared aims and predicted benefits of these contemporary programmes is that the mere presence of artists in the workplace will somehow help generate more innovative approaches, including by encouraging employees to think of their own work as 'creative' – an aspect of the so-called 'Bohemianisation' of the workplace that critics have problematised as a way in which companies seek to dissolve the boundaries between life and work for the optimisation of productivity.

In terms of their social aims and the degree of autonomy they allow to resident artists, many of the programmes launched by leading Silicon Valley firms are at the less ambitious end of the spectrum of all the residencies we researched. Here an inevitable tension arises from the limited scope afforded to artists for critiquing the host organisation. This can be seen in the history of Facebook's AIR programmes first organised by shareholder Drew Bennett in 2012.

Facebook's AIR programme

Bennett's mission in bringing artists to Facebook's Menlo Park campus and later to the company's global offices for fixed-term periods was primarily to create a 'corporate environment rich in art' in the hope of 'positively impacting the work experience of employees'. For this rather limited and quite nebulous purpose, resident artists were supplied with materials and a stipend to produce artworks for Facebook's offices, mostly in the form of murals, prints, posters, and wall-mounted and hanging sculptures. Since their inception, the company's residency programmes have switched increasingly to an even more commission-based model, with artists selected by Facebook AIR's inhouse curation team currently led by former commercial gallerist Josephine Kelliher.

According to Bennett and Facebook/Meta's CEO Mark Zuckerberg, an additional benefit of these programmes beyond mere decoration is that the presence of artists working in Facebook's environment should instil among staff a sense that their own work is a creative and ongoing 'work in progress' (Zuckerberg). Although artists are permitted to converse with staff, however, they do not co-create or engage in collaboration. Unlike some otherwise similar contemporary initiatives, Facebook's residency excludes any mechanism for facilitating interactions between artists and technical staff and their products.

Further limiting the impact of Facebook's programme not only on society but on the enterprise itself, resident artists are discouraged from producing works critical of the company. This can be seen in the fate of artist Anthony Discenza's proposal for a work exploring the final posts made by people before shutting down their Facebook accounts. This intriguing project was swiftly abandoned because of the difficulties encountered by Discenza in engaging with Facebook staff to produce a work that could be perceived as critical of the company's products.

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These limitations have led to accusations of Facebook's engagement with artists as a form of 'artwashing' intended to present a positive image of the company to its workers and the public that distracts from the negative social impacts of its business practices. These accusations include charges of outright hypocrisy, with critics citing the incongruity of Facebook's outward championing of activist artists who fight for human and workers' rights whilst the company itself (now Meta) pursues anti-union policies, presides over a closed data environment, and exacerbates socio-economic inequalities through biases in its algorithms regarding gender, race and socio-economic status.

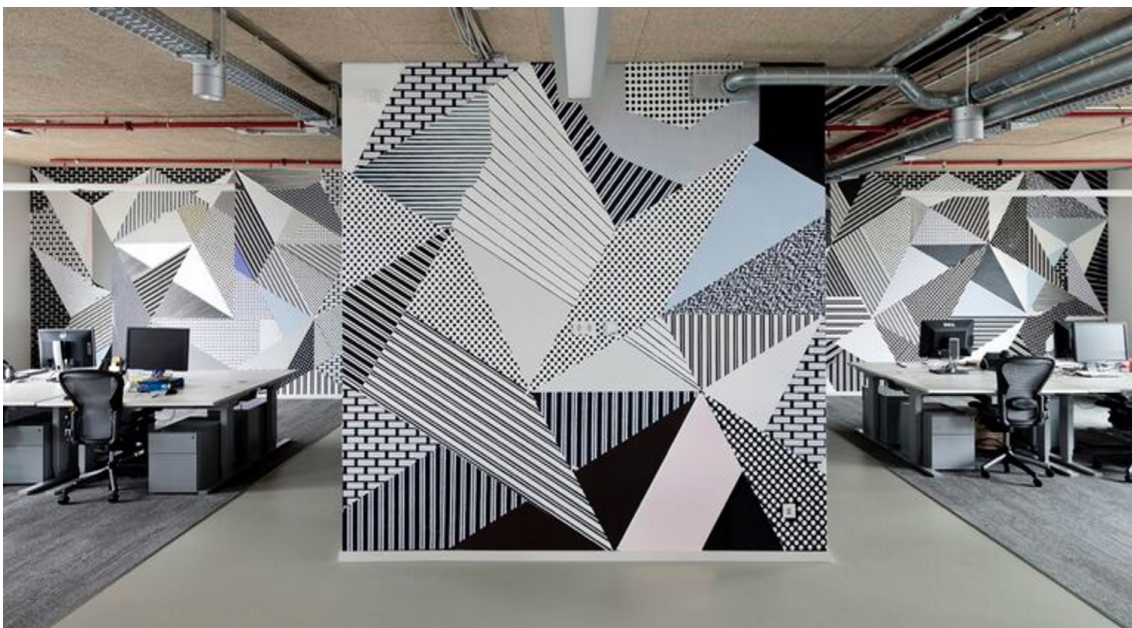
More critically still, Facebook's AIR programme has been described by Fred Turner as intended to create 'an aesthetic infrastructure for surveillance capitalism'. According to Turner, the real purpose of artworks produced for display inside Facebook's offices is to convince workers that the needs of Facebook are aligned with the needs of the public and that individual self-expression rather than political or social organisation is the sufficient limit of political engagement.

Here it should be recalled that a major obstacle to greater engagement with business among some artists is precisely the fear of being exploited for dubious purposes and of compromising – or being seen to compromise – their art. For this reason, whilst

we urge artists to overcome any irrational antipathy they might have to working with business, we also caution artists against the very real risks of their exploitation. We further urge businesses to engage with artists on more equal terms.

All these criticisms of Facebook's AIR programme highlight some of the constraints often imposed in art-enterprise engagements that diminish the effectiveness of AIR programmes to benefit society or even exert much influence on the culture of tech enterprises. As we shall reiterate in our recommendations, artists, policymakers and enterprises thus need to be mindful of these limitations whenever they design, organise or enter into such collaborations.

Many of these constraints inevitably ensue from the power asymmetry inherent in any artist residency initiated and funded by private enterprise. This is not only a matter of financial but also knowledge asymmetry, since artists positioned temporarily within the workings of a large enterprise are inevitably at a disadvantage compared to the organization's employees. While this power imbalance is inevitable, it is also a matter of degree depending on the intentions of the enterprise and the design of each programme. Moreover, policymakers could help to mitigate some of the asymmetries in residencies by funding artists, supporting their training in digital literacy, and promoting best practices in the design of more equitable AIR programmes.



Michael Conrads, Hamburg. Photo by Michael Pfistere

Such power imbalances persist even when resident artists are afforded more autonomy in the artworks they pursue. In the case of the 'Creative Residency Programme' established by Adobe in 2015, for example, artists are 'given' the freedom to follow their own ideas. The way in which the company frames this relationship is very much that of a patron-artist relationship, however, with the company providing a stipend and access to Adobe's software resources 'in return for' their creative contributions to the enterprise. According to the company's description:

Adobe Creative Residents receive access to the best creative tools and resources, along with guidance from advisors and a compensation package. In return, residents proactively pursue their own personal creative projects while sharing their processes, insights, and inspirations with the community along the way.

Since the tools and resources to which artists at Adobe 'receive' access are already 'finished products', moreover, resident artists clearly have no direct input in the process of their production. While it is possible that the work of resident 'creatives' serves as a kind of feedback that may indirectly influence the work of Adobe's engineers, the relationship is certainly not one of mutual exchange.

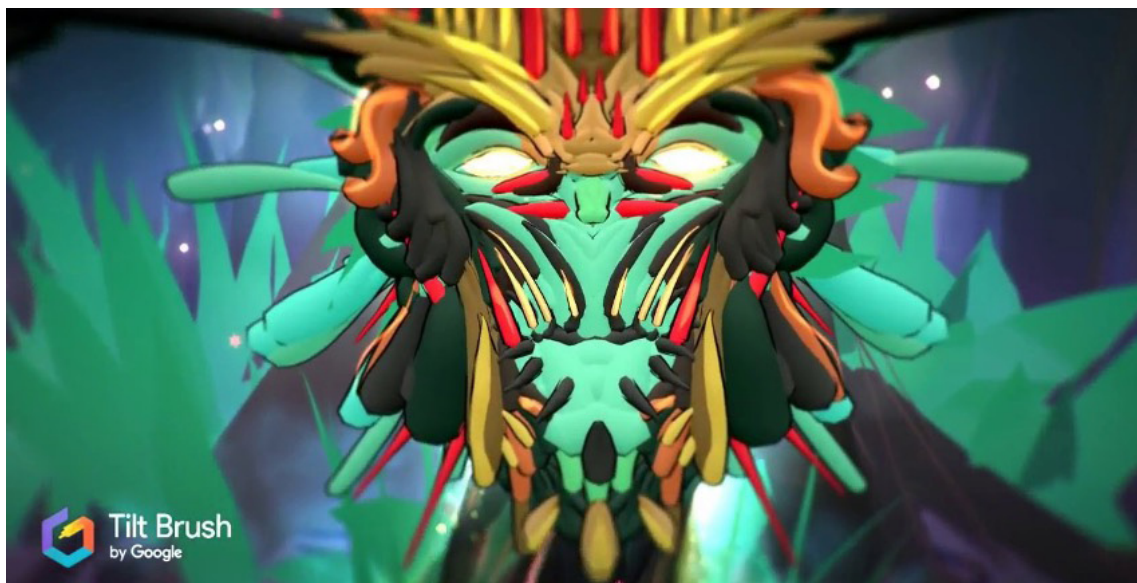
Google's AIR programmes

While Google's 10-week residency programmes allow for closer engagement between artists and researchers than the other contemporary program-

mes reviewed above, the focus is again on artists employing Google Lab's already existing technologies to produce audio-visual spectacles such as tiltbrush.com. Nevertheless, the greater proximity of artists to research processes and the high profile of the actors and institutions involved in this programme, including curators Hans Ulrich Obrist and Simon Castets and the Musée d'Orsay and Guggenheim, mean that resident artists at Google have greater status and scope than artists in Facebook and Adobe's AIR programmes. Moreover, the closer collaboration of artists with technicians and the documentation of the work undertaken in these collaborations on Google's Cultural Institute website (Artists + Machine Intelligence Grants) arguably result in greater impact on Google as an enterprise.

According to Google, the aim of bringing artists and engineers together to realize projects using machine intelligence within its Artists + Machine Intelligence AIR programme is to 'open our research to new ways of thinking about and working with intelligent systems'. More specifically, Google claims the 'AIR programme is motivated by a number of questions, including:

What do art and technology have to do with each other? What is machine intelligence, and what does 'machine intelligence art' look, sound and feel like? What are the emerging relationships between humans and machines? What does it mean to be human? And what can we learn about intelligence, human or otherwise, through art?



Google Tilt Brush - image: tiltbrush.com

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Ambitious as these aims may be, the short duration of most of Google's residencies would seem an important limitation on achieving such impacts. As a general observation in this regard, we found that longer term engagements are generally associated with greater ambition in terms of intended impacts on enterprise or society or both.

More ambitious contemporary AIR programmes within private corporations

While accepting the inevitability of power asymmetry in AIR programmes run by private enterprises, we can nonetheless point to contemporary examples of corporate residency programmes that allow artists greater freedom, encourage greater collaboration on more equal terms, and are more ambitious at least in their declarative aims, and seemingly more impactful on the host organization, including its design of tech. Here the Microsoft Research Lab's programme provides an illustrative case.

Microsoft's AIR programme

According to an earlier description by Microsoft Research Lab of the company's AIR programme, the residency is 'designed to influence culture within the company' by 'merging the strengths of art with cutting-edge scientific research to expand audiences' understanding of humanity as the rightful center of technology'. On Microsoft's website at the time of writing (2023), these ambitions are reformulated with less emphasis on the aim of influencing corporate culture:

The Microsoft Research Artist in Residence program brings together artists, scientists, and engineers to reflect and create across the vast unexplored possibilities at the intersection of humanity, culture, and technology. This program merges disciplines to powerfully showcase cutting-edge research, convey higher concepts, and expand public perception of computer science and what computer scientists do.

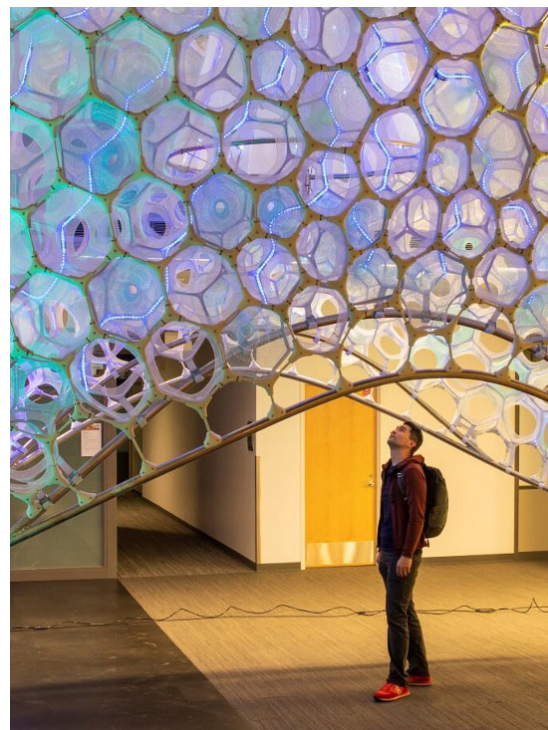
Evidence suggests these are not merely empty words and that resident artists at Microsoft are indeed able to engage directly with technical specialists. Some of the artworks produced by these artists are the result of long and close collaboration with senior Microsoft researchers, most notably in the case of Jenny Sabin's Ada (2019), announced as 'the first architectural pavilion project to incorporate artificial

intelligence'. According to the Principal Electrical Engineer at Microsoft Research:

Microsoft having programs like this is hugely valuable. If we were to make decisions solely based on the financial, there would be missed opportunities. The Artist in Residence program encourages people to think in new directions. People get to try new things, do experiments with technology that would not be possible elsewhere. (Jonathon Lister of Microsoft Research on Ada).

At the same time, Microsoft's description of its AIR programme emphasises a division of roles between artists and technicians that is more or less implicit in all contemporary corporate-initiated residencies:

The nature of this collaborative program underscores that the relationship between artist and industry is based upon what each does best—researchers pursue their intellectual curiosities, theories, and questions; artists observe, question and then sculpt and distill those elements into a public space that creates room for dialogue, iterative prototyping of ideas, and even for beautiful failures that come from inspiring and idealistic ideas.



Ada: a collaboration by architectural designer Jenny Sabin and Microsoft Research, embodying performance, material innovation, human-centered adaptive architecture, and emerging technologies. <https://www.microsoft.com/en-us/research/project/ada/>

Although the framing of this division is positively worded, it could also be seen as putting artists 'in their place' as compared to the more integrative aims of AGP and E.A.T. As such, it reflects the far narrower social ambitions of most contemporary programmes compared to the socially 'idealistic' aims of earlier artist residencies. Insofar as this reflects a wider shift in political culture and the even greater power exercised by corporations since the 1960s, it is a condition and constraint that efforts to influence the digital transformation through art-enterprise collaborations must largely accept and strive to work within. In their work *The Return of the Art and Technology Lab*, Beck and Bishop conclude pessimistically as follows:

Without a politically utopian driver, it is hard to see what innovation in art and technology collaborations can be other than more product and more spectacle. The belief in experimenting a way out of any problem was both the best and worst aspect of 1960s labs and a fantasy that remains in the twenty-first century.

Again, while accepting the force of this argument we nonetheless contend that it is a matter of degree, with some corporate programmes at least declaratively aiming at wider impacts. For example, the 'ArtScience Residency' programme organised by Ars Electronica and Deutsche Telekom since 2021 specifically calls for submissions from artists who 'work at the interface between art, technology and science and who are particularly interested in researching the social impact of technological developments' (emphasis added).

This programme not only aims at creating 'a space for encounters in which artistic practice and scientific research can be combined in the best possible way' but is also designed so that 'the public will be included in the discussion and the process' through access to 'a blog that transparently documents the various steps involved in the creation of an artistic/scientific work'. Public engagement is further facilitated through the presentation of the artworks completed within the programme at the Ars Electronica Festival in Linz. In further contrast with the majority of enterprise-initiated residencies, the programme openly invites critique, specifying that 'the aim of the artwork should be to critically question technological developments including technological tools but not limited to it.'

Similarly, Accenture's flagship R&D and Global Innovation Centre 'The Dock' has set up a residency in

partnership with the Science Gallery Dublin in which artists work closely with the Dock's Human Insights Lab team on collaboratively developing an original commission for a Science Gallery exhibition. This AIR programme's call for submissions specifically invites artists 'interested in exploring a systems perspective on addressing big societal challenges – one in which business, technology and society are interrelated as a problem-solving system.' According to design historian Jess Majekodunmi, the Managing Director of Accenture's Human Sciences Studio:

The ambition of the residency was to invite in fresh radical perspectives into conversations about innovation. The role of artists in the world is to fearlessly challenge the world around them. And that's exactly what they did in the collaboration with us [Accenture]. And they really pushed our thinking forward, and I think if we really want to innovate for people and for society then we have to figure out better collaborations across boundaries.

Examples of other more socially ambitious residency programmes can otherwise be found mostly among contemporary initiatives run by research institutes and universities, often in cooperation with multiple SMEs.

Audience, 'success', visibility and critique

A notable feature of the last two AIR examples cited above is the intended impact of their outputs on more or less specified audiences and communities through public exhibitions or local interactions. This stands in marked contrast to residencies within enterprises where the audience is often unclear, with the artwork produced sometimes displayed only on office walls and any response only recorded in company publicity materials. Indeed, the majority of the work of contemporary residence programmes is neither expected to nor garners much if any attention either from the public or the 'art world'.

These issues of 'audience' and 'response' inevitably relate to wider questions regarding the aims and impacts of residency programmes and the purpose of individual artists' labour in producing works within these projects. In turn these questions raise the matter of what constitutes success or failure in such contexts. Where the focus is more on the impact of artistic processes on organizations rather than products, of course, there is likely to be less

visibility of programme outputs, though this does not apply to earlier and more radical initiatives that actively engaged in public discussion and debate about technology and art.

Where the focus is on highly visible or spectacular artworks, however, such as Google's Tilt Brush works, the AV shows of Microsoft Research, and the screen-based works of Adobe AIR, there may be an interesting inverse relation to impact on the host organisation. According to Turner, for example, the presence of artistic work within the organisation is in itself impactful yet less as a form of critique than a way of evading and diffusing criticism of the organisation.

As in the case of Facebook's AIR programme, the positioning of resident artists within a private enterprise generally leads to the production of acritical works or spectacles that serve primarily to promote the image of the company in the eyes of the public or its staff. According to Gustav Metzger, the inherent power inequality of residencies means any attempt to steer two unequal knowledge systems and intentions towards a "third way" invariably leads to the right'. Our recommendations thus seek to mitigate this power imbalance while accepting its inevitability.

Ways of supporting AIR programmes

Our general criteria in offering guidelines and recommendations for organizing or supporting artist-in-residence programmes is based on our assessment of which features of such programmes are likely to have the greatest impact on the social inclusiveness of the ongoing digital transformation. This assessment is based in turn on the findings of our desk-research and our case studies of best practices.

Given the scarcity of previous research on contemporary residencies from this perspective, and in part due to the inherent difficulties of measuring such impactfulness, our guidelines centre on issues for artists, organizers, enterprises and policymakers to consider, including open questions that call for further research. While it would perhaps be an easier option to identify one type of residency as the most impactful and thus most worthy of support, this would fail to provide advice on how to help augment the impactfulness of the diverse range of existing programmes.

The need for clear parameters

It should go without saying that all parties involved in any artist-in-residence programme should strive to be as clear and transparent as possible about their own and each other's intentions and mutual expectations. Even when a residency initiated by a single private enterprise has a specified and tangible 'end-product' in the form of a material artwork, however, there is more potential for mutual misunderstandings and disappointed expectations than in the case of a straightforward commission or artist-patron contract.

Besides the subjectivity involved in assessing the 'success' or 'effectiveness' of any artwork in fulfilling a given purpose, thorny questions arise as to the temporary role of resident artists vis-à-vis the host organisation and the degree of freedom they are 'allowed' for interpreting their 'brief' – especially in terms of the scope for artworks critical of the practices and products of the organization. Where private enterprises anticipate less tangible outputs from the processes involved in having artists work alongside or collaborate with employees, meanwhile, the difficulties of assessing success and impact are even greater. As we have seen in the case of Anthony Discenza and Facebook, for example, fears among regular employees of appearing critical of the organization by engaging with a resident artist and their work can lead to the abandonment and perceived failure of a project. (Indeed, this outcome would explain why Facebook has since shifted to a more commission-based model.)

Underlying these potential misunderstandings and the corresponding need for contractual clarity are not just the myriad and often conflicting motives of artists and private enterprises for respectively engaging in and initiating residencies but the inherent power asymmetry in this relationship. Beyond emphasising the need for clarity on both sides in such arrangements, however, the question we must address in view of such constraints is whether any impact on the digital transformation can nonetheless be achieved through AIR programmes funded by private enterprise – and if so how such impact might be supported.

As we have seen, critics have argued that little if any social good can come of corporate-driven AIR programmes, with some contending that even

programmes purporting to invite critical perspectives from resident artists ultimately serve as ways to evade and diffuse criticism of the organisation. Again, however, while accepting the force of such criticism we advance the pragmatic counterargument that not all aspects of residency programmes can be predicted or contained, meaning employees' and organizations' exposure to artists' methods may have indirect but potentially lasting impacts notwithstanding all attempts at control, including broadening the perspectives of engineers to encompass social and ethical questions.

A role for supportive policy frameworks and intermediary bodies

We propose that policy frameworks and measures providing external support for artists engaged in private AIR initiatives could mitigate the power imbalance in residencies. Besides potentially providing external funding to reduce the financial dependence of artists on host organisations, such measures could include the establishment of intermediary agencies to help artists navigate the asymmetric relations in such collaborations.

For example, agencies could play an advisory role in clarifying the intentions and expectations of all parties and negotiating fairer contractual terms, including matters of intellectual property, access to company resources and communications with personnel, latitude for critique, and higher stipends for artists more commensurate with the salaries of an organisation's employees. Moreover, intermediaries could help better define the values that artists can bring to companies that are otherwise unavailable within the enterprise, including a questioning approach, stimulating innovation, contributing to company culture, and testing out new technologies. As many enterprises have recognised, artists can offer valuable 'outsider' insights to an organisation in addition to bringing experimental and speculative approaches that may serve as predictors of future trends.

The need and rationale for providing external support in clarifying contractual terms again stems from the very different perspectives and logics of artists and for-profit organizations. From the perspective of companies, of course, there is a need to justify any investment of time and money, which is inherently problematic when outputs are not measurable according to the usual metrics for quantifying business

success. This suggests that the typical demand for demonstrable outcomes within a specified timescale must be substantially adapted when enterprises engage artists beyond the mere commissioning of specific artworks. Above all, companies need to accept that any benefits from residencies will most likely be indirect and accrued over longer timescales. Acknowledging and adapting to these challenges should inform crucial aspects of the design of residencies, including their duration.

For artists, too, the benefits of engaging in residencies with private enterprises often differ significantly from those usually associated with success in the traditional artworld. While such residencies can provide valuable opportunities in terms of access to cutting-edge technologies and at least a temporary reprieve from financial precarity, few contemporary residencies with private enterprises bring public or critical attention. Meanwhile, the constraints imposed on artistic freedom in such programmes can be a major disincentive. Again here the support and guidance of an intermediary body could at least help clarify what artists can and cannot expect to gain from engaging in residencies and relieve artists of some of the burden of negotiating terms.

In addition to supporting the empowerment of artists in residencies with private enterprises, external agencies could identify and actively promote those programmes most likely to have beneficial impacts within and beyond organisations towards a more socially inclusive digital transformation. Effective promotion of 'model' AIR programmes and best practices would in turn incentivise other corporations to design residencies with fairer terms for artists and wider social impacts.

While such promotion could include support and guidance on amplifying the impact of artwork produced in residencies through exhibitions and other forms of public communication, it should be borne in mind that public-facing outputs are less likely to incorporate explicit critique of a host organization. As with all forms of support we advocate, careful consideration is needed to identify which approach is most likely to serve the ultimate social goal of bringing about a more inclusive digital transformation. Put simply, in each case the question needs to be asked whether more impact is likely to be achieved through raising public awareness or through affecting

the internal workings of powerful tech corporations. Last but by no means least, supportive policy frameworks and intermediary bodies should also encompass measures for encouraging greater diversity in the selection of artists residencies and greater inclusivity in the potential 'audiences' of the work produced in these programmes. Regarding this and other key issues to consider in organizing residencies, much can be learnt from best practices outside of exclusively private initiatives. Here we can also draw on findings from the case studies we conducted as part of our working group project.

Best practices from artist residencies in research institutes and tech campuses

In highlighting the following 'best practices', we by no means intend to imply that the ambiguities and issues outlined above apply solely to AIR programmes initiated exclusively by private enterprises. Questions of intention, outcomes, duration, creative freedom and license to critique always need to be considered, though it is fair to say these potentially cause less tensions from cross-purposes where public enterprises and funding are involved. Meanwhile, other considerations arise in any projects involving public funding, including a stronger need for transparency and accountability.

The following two cases were selected as illustrative of residencies whose aims resonate with the focus of the Artsformation project.

An 'open and flexible' approach: Dublin City University's 'AIR in Technology and Innovation Scheme'

Launched in 2020 by Dublin City University in partnership with the Arts Council of Ireland, this residency offers artists the 'opportunity for an artist to work within an innovative co-working environment and to engage with a community of researchers, engineers, innovators and entrepreneurs' at the university's Alpha Campus to 'explore the possibilities that arise at the intersections between art and technological innovation'. According to Maureen Kennelly, Director of the Arts Council, the programme provides crucial time, space and resources for an artist to develop her practice' (emphasis added).

Notable aspects of this programme that make it an interesting case and a potential best practice include its 'open and flexible approach' with 'no set amount of time required from the artist' and 'no set deliverables'. In addition to the use of an office/studio space on the Alpha campus, resident artists are paid a flat fee of €20,000 and a budget of up to €5,000 to support project-related costs. As the call for submissions specifies:

It is anticipated that the residency will naturally lead to a range of exchanges or interactions with the DCU community during the period. This could simply be a talk or a workshop or some other type of intervention appropriate to the artist's practice.

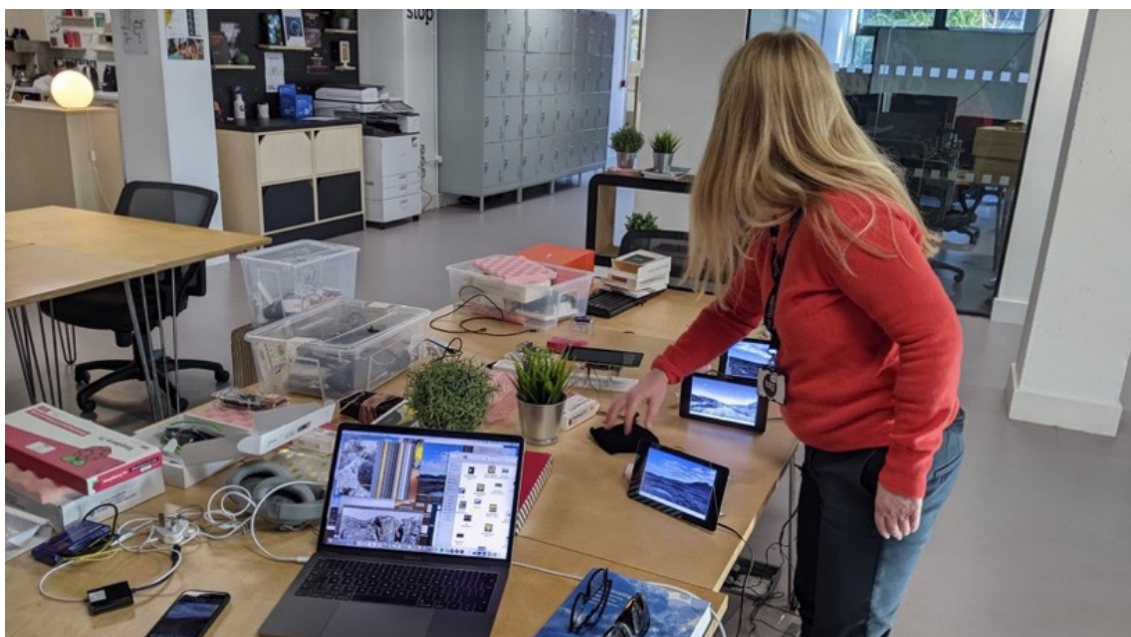
Aside from being expected to 'maintain regular contact with the university's Visual Arts Development Officer and 'contribute to monthly reports (written or verbal)', resident artists are thus free to pursue their own projects. As the first artist to be selected for this residency, Fiona McDonald welcomed this freedom as an opportunity to explore machine learning and AI applications and 'to engage in the dialogue around AI ethics, deductive and reductive algorithms and how these systems affect how choices are being made in the world'.

Both McDonald and the organiser of the call, Marcella Bannon, emphasised the value of the residency not just for artists but for SMEs. According to Bannon, the value for companies is the potential to see their technologies applied in a way completely outside of what they had previously thought about, while McDonald likewise emphasised the positive response she experienced from collaborating with companies as a matter of alternative perspectives and approaches:

Engineers might be working towards one predefined goal. Then artists come to the same idea or field with a different set of questions [...] looking forward to play around and break things. So that allows them to do things differently.

This emphasis on 'play' was echoed by Campus Manager Machaela O'Leary in her description of the programme and how it fits with the aims of Talent Garden:

We aim to create an ecosystem where creative and digital minds collide. [...] We want Talent



DCU Alpha Artist-in-Residence Fiona McDonald working with sensor technologies at Talent Garden, 2022.

Garden to be seen as a playground for digital entrepreneurs to explore and be inspired by [...] and this residency is the perfect opportunity to achieve this ambition.

From our desk research and our interviews with artists and organisers of different types of residencies, we found the kind of open-ended approach pursued by Dublin City University elicited more positive responses from all involved than programmes based on highly specified outputs. Feedback from participants strongly indicates that allowing the direction and outcomes of an AIR programme to evolve from artists and their interactions with technicians seem to generate more meaningful and impactful engagements with issues surrounding the digital transformation. In this sense the contractual clarity we advocate is less about detailed pre-definition of outputs than transparency of intentions and expectations.

Engaging the public: The Digital Hub Development Agency's AIR programme

The Digital Hub Development Agency has succeeded in creating 'the largest cluster of digital media, technology and internet businesses in Ireland' in Dublin's District 8, by all accounts achieving its mission of creating a 'diverse and creative technology quarter' that also provides digital-related learning and training

opportunities geared to the local community. The Hub's CEO, Fiach Mac Conghail, emphasises that artist-in-residence programmes have played a crucial role in this mission, 'bringing artists 'unique perspectives to life' to contribute to 'community initiatives as well as the artistic and cultural life of the area'. According to Mac Conghail, residencies are a 'vital element' at the 'intersection between innovation, art and technology' that have 'allowed to engage in a more sustained and creative way' with issues surrounding the digital transformation.

One of the Hub's previous resident artists, Elaine Hoey, welcomed her six-month residence as an opportunity for creating works 'exploring our relationship with the digital world' and the 'politics of digital humanity'. As part of her residency, for example, she curated a series of public Zoom webinars exploring the 'affecting and transformative nature of emerging technologies' and the discourse surrounding the ethics and challenges of AI in art and business, presenting these at the National College of Art and Design.

The Hub's open call for submissions highlights the opportunities provided by the residency for artists 'to develop a better understanding within The Digital Hub ecosystem of the importance of data in solving problems and decision making' while also stressing the importance of working with the community:



Fiach Mac Conghail, CEO of The Digital Hub, and artist-in-residence Elaine Hoe.

Source: <https://www.thedigitalhub.com/press-release/the-digital-hub-launch-latest-artist-in-residence-programme/>

The Artist can make use of an existing network of sensors in The Digital Hub together with big data in a collaborative process of engagement with communities which should include local residents and may also include technology and creative start-ups and businesses, academia and other organisations.

The Artist should plan on hosting a number of events or workshops over the course of the residency, with the primary target audience being Dublin 8 residents, but open of course to a wider audience.

Although the Hub actively helps resident artists to network and collaborate with businesses, the programme is quite open-ended. According to the Head of Strategy and Partnerships, Stephen Brennan, 'We'd like artists to be around and engaged, but that's very much on their own terms' (emphasis added). At the same time, Brennan acknowledges the challenges this flexibility entails:

Sometimes there's a lot of misunderstanding as to just how difficult it is to justify spending when

there is no possibility to define an output [...] you have to be able to pitch to a board or a funding entity and it may look like this is risky investment. But it is investment nonetheless, and over time the benefits will accrue. But they will be [...] be much more indirect.

Brennan believes that a key way of mitigating such misunderstandings and of creating value over time would be through the establishment of intermediary bodies to mediate between the various parties, acting as a neutral space between private companies and creative practitioners:

I do think that over time we might see the emergence of entities that are able to sit between the commercial space and the creative space. For example, an entity that has a sufficient level of autonomy not necessarily to provide these ethical challenges to the creatives alone.

Of particular relevance to our Artsformation focus, Brennan's experience has led him to conclude that the way in which art-industry engagements could achieve most impact on the digital transformation

would be through scaling up, ideally in with the support of funding and expertise – in particular from the EU in this geographical context:

What I feel would be very interesting would be residencies of scale that would facilitate multiple artists and multiple technologists working in a location or in a lab or in an environment where they could collaborate in a sort of an organic way. And then that laboratory could in itself be very open to the unexpected conversations and engagements with enterprise and research, public and private entities [...] This requires time and scale [...] we would need to have five or six artists and five or six technologists working on individual projects but with enough curated overlap that there would be unexpected consequences. And that's not something that we could achieve or that any individual project could achieve. So one of the things that the [EU] commission could help with, would be the possibilities to support the connection of some of these residencies to try and get to that scale.

We align with and incorporate this call in our concluding recommendations.

Three recommendations for supporting more impactful AIR programmes

1. Mitigate the inherent power imbalances in private AIR programmes:
 - by developing a policy framework for actively promoting AIR programmes within private enterprises that (a) specifically include freedom for artists to critique the host organization, (b) aim at societal impacts, (c) aim at ethical impacts on organizational practices (d) immerse artists in the organization and facilitate relationships with engineers and other employees
 - by supporting training for artists in digital literacy
 - by providing partial funding to reduce financial asymmetries
2. Support the establishment of intermediary bodies:
 - to help artists negotiate AIR contract terms
 - to identify, support and promote best practices, especially in the case of publicly funded programmes (including within institutes and tech campuses, hubs, etc.)
 - to match artists with appropriate AIR programmes\
 - to coordinate further research
3. Support further research:
 - To identify the specific mechanisms by which AIR programmes can impact organizational practices and the design of technologies
 - To explore how the impacts of AIR programmes could be amplified, including by scaling up existing best private and public practices
 - To theorize and model ways of defining the value artists can bring to enterprises and thus how best to assess the success of AIR programmes
 - To inform policymakers and decision-makers on how best to support impactful AIR programmes

Artists in ‘Consulting’ Roles and ‘Artistic Interventions’

In turning from artist-in-residence programmes to various examples of art-enterprise engagements we group together as forms of ‘consulting’ and ‘artistic interventions’, it bears reiterating that our focus is not on such engagements per se but on those with the potential to have a significant impact on the practices and products of tech enterprises and/or on people’s awareness and critical understanding of these enterprises and products. Our overriding interest is in how the unique powers of art and artists to express, amplify and instil or question and even ridicule values might be harnessed to intervene in the currently unsustainable trajectory of the digital transformation. This is important to repeat since – as we have seen in the case of artist residencies – the motives for tech enterprises to engage with artists in ‘consultancy’ roles are manifold and often incongruent with the social aims of the Artsformation project. Just as AIR programmes can be insidious forms of artwashing or mere office decoration, so too can ‘consulting’ be overhyped and of little or no enduring impact.

We use the term ‘consulting’ here to refer to cases where enterprises employ artists on a short-term basis to achieve some specified goal such as triggering innovative thinking or changing business processes. However, such engagements also reflect more general trends in business and management since the 1980s to gain somehow from incorporating aspects of ‘creativity’ and ‘art’. This growing interest on the part of managers and enterprises has come to encompass the following efforts and aspirations:

- to boost competitiveness by harnessing the innovative and ‘disruptive’ qualities associated with artistic methods and more experimental approaches to problem-solving
- to increase efficiency by re-imagining organisational routines through the adoption of creative, improvisatory and ‘subversive’ approaches
- to reinvigorate corporate purpose and organisational culture by co-opting the dynamics and artistic discourse of ‘vision’ and inventiveness
- to attract and optimise human capital by reframing work and careers within the affective discourse of ‘passion’, ‘inspiration’ and ‘calling’, extending to the ‘Bohemianisation’ of work

- to reconceptualize management and entrepreneurialism as a kind of artistic vocation, including borrowing from Renaissance notions and literary tropes of the artist as an idiosyncratic hero and visionary

If and insofar as any such efforts can be shown to have achieved their goals in the sphere of private enterprise, our interest is again in whether they can be adopted and adapted to help attain the societal goal of bringing about a more equitable, humane and sustainable digital transformation. Below we first outline some of the ways artists have responded to the increasing demand from business for their ‘services’ through various types of ‘hybrid’ consultancies and how these have expanded or crossed over into forms of ‘artistic intervention’ with public impact.

Conexiones improbables: A best practice in ‘hybrid consulting’

Singled out as a best practice in the 2018 report of an EU project focused on ‘The Role of Public Policies in Developing the Entrepreneurial and Innovation Potential of the Cultural and Creative Sectors’, *Conexiones improbables* was described in this report as

a platform that promotes and develops open innovation projects by implementing a hybrid methodology, combining the needs and challenges of companies or organisations with the creativity and expertise of artists or creators to obtain alternative results. It encourages responsible innovation in terms of impact, sustainability, commitment, deep-rootedness and radicalness.

The ‘hybridity’ of this Spanish initiative and its approach to consulting derives from bringing together scientists and engineers with artists, designers, philosophers and other ‘improbable’ thinkers in what it describes as a community of collaborative and co-creative research initiatives. Directed by a core team comprised of experts from ‘diverse but complimentary’ disciplines’, these initiatives include projects such as training for entrepreneurs and artistic interventions to develop and ‘boost creativity and innovation’ not only in creative industries but



Image from collaborative project between artist Paola Guimerans and industrial company Siliconas Silam, 2013. Image source: <https://conexionesimprobables.es/v2/Silam-Paola-Guimerans--eng>

in other social and economic sectors, typically in consultancy work with SMEs.

The ultimate goal is to encourage exploration processes to innovate and transform organisations through artistically and culturally based experiences. It does this by creating an environment of high added value, diversity and creativity that is applied to both companies/organisations and their projects. This is converted into meaningful change and innovation.

Consistent with this goal, recent projects led by or participated in by Conexiones improbables have focused on the 'transition from STEM to STEAM' through the inclusion of Art and artistic skills alongside Science, Technology, Engineering, and Mathematics in education and practices. Indeed, Conexiones improbables was selected as one of the participants in a major project funded by the EU's Erasmus+ programme. Entitled STEAMProcess, this project announced its 'ambition to foster disruptive innovation for research and science, promoting the use of artistic soft skills in science/tech'. Among the recommendations of its 2022 report are two specific proposals we fully endorse as a means of interpolating human values in the digital transformation:

- to support programmes integrating the arts into STEM curricula as well as cross-sectorial projects blending the arts with STEM disciplines

- to develop of a Cultural and Creative Sector literacy policy to help stimulate creative thinking focused on specific policy issues.

From our Artsformation project perspective, these proposals to enable artists 'to play an increasingly significant role in addressing societal challenges' are all the more relevant in catering precisely to the need to help prepare artists for the 'consulting' roles discussed in this section, including for participation in initiatives such as Conexiones improbables. Before presenting our first two recommendations regarding consulting, however, an important distinction should be clarified between the needs and roles of artists in AIR programmes with enterprises and the needs and roles of artists in consulting practices.

Thus, whereas our focus in the case of residencies was on the need to help mitigate power imbalances between artists and host organisations, the relationship between artists and business is far less asymmetrical in the case of consulting and requires a different form of support. In short, this is because consulting essentially comprises what we describe as 'the professionalized provision of arts services and techniques in a financial arrangement whereby the artist operates entirely in the enterprise market and no longer in the cultural market'. Unlike AIR programmes, 'consulting' artists are hired by enter-

prises as service providers who are valued within and according to the terms of the enterprise. Inasmuch as consulting can serve the aim of helping bring about a more sustainable and socially inclusive digital transformation, therefore, as indeed we find in the case of Conexiones improbables, we advocate that a key form of external support should focus on artists' education, hence our following recommendations:

'CONSULTING' RECOMMENDATION 1:

Policymakers should continue to intensify efforts to support the integration of Art in STEM and STEM in Art. These efforts should include measures targeted not only at further integrating these subjects within formal graduate and postgraduate education but also at providing opportunities for combining these subjects within programmes of lifelong learning, including for non-graduates from diverse backgrounds.

'CONSULTING' RECOMMENDATION 2:

Policymakers should make efforts to keep updating and expanding careers advice and training for artists in the newly emerging roles of consulting enterprises.

These recommendations again align with the following rationale of the STEAMProcess report:

Art school students and graduates are also having a huge impact on social innovation by bringing to light and helping to solve important global issues. Architects and designers have a unique and ethical responsibility to develop, for example, environmentally creative solutions. And artists play an increasingly significant role in addressing societal challenges as many shift toward work that is collaborative and community-based.

While fully subscribing to this ambition, we also identify a potential source of tension in the burden this proposed role imposes on artists as the bearers of enormous ethical responsibility. In our own investigation of how the arts can be 'mobilized for a more socially inclusive digital transformation', we do not proceed from the fanciful assumption that art is or should be always morally good but from the premise that artists have unique capacities to cast light on ethical issues, including through consulting roles with tech enterprises. This is all the more reason why we recommend supporting learning opportunities that not only integrate Art in STEM but STEM in Art. The ethical burden of redirecting the current

trajectory of digitalisation should not fall solely or mainly on artists but primarily on the designers and producers of new technologies. Our focus is thus at least in part on how artists can shift this burden onto other actors through the perspectives they bring to collaborations – including AIR programmes and consultancy roles. Exploring these issues and how this burden can be shifted should be a vital element in the educational efforts we propose in our first two recommendations.

Further to this point on the need for sharing the ethical burden of building a more equitable digital future, we also advocate the further expansion of art within business and management education. The rationale for this proposal stems precisely from the claims made for the potential of artists and artistic methods to influence business through consulting roles. In short, if it is accepted that exposure to the arts and ways of thinking and practices associated with art can beneficially influence organizations, managers and employees, then the case seems self-evident for exerting this influence as far as possible in the training of future managers and entrepreneurs. If indeed art has the capacity to stimulate critical reflection on values and ethics among actors in business long accustomed to think according to a market logic, surely it can be hoped that such stimulation might have an even more enduring impact on students and their future business practices. For example, even if it is too ambitious to hope for the inclusion of artists on boards of directors or board committees dedicated to CSR, we can at least realistically hope that future directors might be influenced in their decision-making by early exposure to art in their business education.

'CONSULTING' RECOMMENDATION 3: Art should be much more closely integrated in courses on business and management, with the explicit aim of stimulating critical reflection on ethics and values and promoting alternative ways of thinking and speculation. This integration should go well beyond the currently limited use of drama and literature in business and management courses or the requirement to include separate humanities subjects in business courses.

Our first three 'consulting' recommendations all align with the EU Commission's avowed intent as part of The New European Bauhaus since 2020 to 'bring together the scientific, social, technological,

artistic and cultural fields in the search for solutions to contemporary challenges'. According to Roberto Gómez de la Iglesia, the founder of Conexiones improbables, 'the New European Bauhaus must also engineer the capacity for disruptive innovation that is required by education'. This is essential, he argues, since

Today more than ever we need to construct transversal, complex visions to respond to complex problems, incorporating scientific, technological and humanistic perspectives in a cross-cutting manner, making creativity a vital component of this new knowledge that will lead us to societies that seek solutions focused on people and nature, posing new questions that help to endow the tools we use with new shared meanings.

This focus on learning brings us to our second example of best practice, in this case in the form of a 'centre for digital creation' that combines creative consulting services for executives with public learning:

Le Cube: A best practice in combining public learning opportunities with corporate consulting on digital technology

Established in 2001 on the outskirts of Paris at Issy-les-Moulineaux, Le Cube describes itself as a 'creativity laboratory' with the mission of educating all audiences about digital technology', including families and companies alike. As a hybrid exhibition and education centre also offering consulting services, Le Cube employs artists and experts from multiple disciplines to provide innovative training and immersive experiences for corporate actors and the public with the aim of widening access to 'the tools needed to make digital an open, creative and inclusive tool'.

The range of activities organised by Le Cube is too extensive to consider in full here but has encompassed the provision of over 5,000 hours of training and the staging of over 2,000 events. These public events include learning workshops and exhibitions using digital art to highlight ethical issues surrounding digital technologies for as wide an audience as possible. Among the many digital education programmes it offers to young children, for example, Game Factory 'explores the representation of gender in video games where female characters are often sexualized while male bodies are muscular and virilized to the extreme'. In one of Le Cube's recent thematic exhibitions of digital art – AI, who are you? – visitors are offered an immersive experience of interacting with a robot that 'raises existential questions such as Can you fall in love with an artificial intelligence? Can a robot feel emotions? Is it capable of introspection? Can an AI create art?'

Le Cube also hosts a permanent display of digital artworks, again stimulating critical perspectives on technology. One such display by Heather Dewey-Hadbord featuring '3D sketches of strangers using DNA found in the street' – a reconstruction practice authorized in the United States that again raises ethical questions about privacy and datafication.

In addition, Le Cube also organizes 'augmented conferences' that bring together a wide range of experts and artists, researchers, activists, and organizations linked to technological developments to discuss the impacts of digital technologies on society.

In terms of consulting services, Le Cube has developed a dedicated training institute offering companies 'experimental and team-building workshops', and 'immersive training' focused on digital and human issues and aimed at 'helping managers and



Exterior image of Le Cube. Source: <http://retro.newmediafest.org/16-april-2012/>



Image from collaborative project between artist Emilio Vavarella and a group of entrepreneurs, 2019. Image source : https://www.sineglossa.it/en/portfolio_page/amazons-cabinet-of-curiosities-eng/

their employees to master digital uses and develop their capacity for innovation' with the overall aim of 'providing the means to shape the organizations of tomorrow'.

The success of Le Cube not only confirms a remarkably high level of public interest in learning about digital technologies and exploring ethical issues around the digital transformation but also indicates the viability of combining corporate consulting and training with popular events as a business model. From our Artsformation perspective, this case further highlights the scalability of such a business model and thus the potential for amplifying the social impacts of fruitful collaboration between artists and experts from other disciplines. Of these impacts our interest is especially in the power of such multi-disciplinary collaborations to stimulate more informed public discussion about technological developments from multiple viewpoints, hence our fourth 'consulting' recommendation:

'CONSULTING' RECOMMENDATION 4:
Policymakers should explore ways of supporting artists and technologists involved in corporate consultancy to extend and scale up their training activities for wider and more diverse audiences.

Our rationale for this recommendation is based on (re)conceptualising 'consulting-type' collaborations that involve artists and artistic methods as forms of 'arts-based interventions' that need not be confined solely to short-term engagements with enterprises but can be expanded to achieve greater impact. Among the many examples of consultancies organising such interventions we identified in our research, Sineglossa can serve as an illustrative case.

Sineglossa: A best practice in matching artists to calls for 'artistic interventions'

Now an official partner of the New European Bauhaus project launched in 2021, Sineglossa is a non-profit association that describes itself as a 'cultural organisation' and 'research centre' that 'fosters new sustainable development models in response to global challenges by applying the processes of contemporary art'. Founded by two artists in Ancona, Italy, Sineglossa declares its aim as being 'to satisfy the needs of private and public organizations through artistic interventions'.

As part of the Sineglossa association, Creative Ground is a co-working space that also runs an online plat-

form matching some 450 artists with organizations seeking innovative solutions, including for private enterprises, universities, public bodies and scientific research centres. Responding to open calls for artistic interventions, Sineglossa first identifies the specific needs of the organisation and creates 'artistic models' based on these needs. Once a model has been agreed upon, artists are assigned to the project 'to adopt the given model and interpret it with their artistic languages'. Sineglossa 'mediates the artists' interventions in the organizations during the whole process'. In this way, Creative Ground 'helps artists to develop new audiences, to explore new research contexts, and to find new private resources'.

In addition, Sineglossa has also organized projects for festivals and exhibitions that highlight issues surrounding the digital transformation. Artworks for such exhibitions can emerge from collaborative consulting projects, as in the case of the 2019 installation Amazon's Cabinet of Curiosities (Algorithmic Inquiry n.1) created as part of a workshop in which Italian artist Emilio Vavarella and 12 entrepreneurs investigated 'the delicate relationship between the skills of human and those of machines'. The import of this work was captured in an essay on the exhibition entitled 'We will not leave artificial intelligence to computer scientists!'.

This message tallies with Sineglossa's mission to find 'beautiful, sustainable and inclusive solutions' by bringing together 'humanities and science'

to experiment and share new tools for interpreting and transforming the present, capable of confronting its complexity [...] To redefine the values that guide our choices and imagine, together, other possible and more humane futures.

The Role of Artists in Urban Regeneration and 'Smart Cities'

The most enduringly visible and familiar form of arts-based interventions in which artists act as 'consultants' or even 'culturepreneurs' in collaboration with private and public enterprises are found in the sphere of urban planning and real estate development. Indeed the past two decades have seen a remarkable proliferation of such collaborations, driven originally by the widespread observation that even the mere concentrated presence of artists in an area can drive 'urban regeneration'. Given the general familiarity of these projects, our interest here

is specifically in the capacity of art to steer urban regeneration schemes in the direction of greater social inclusion in the context of 'smart cities' using digital technologies. Here then we briefly consider the question Can artists play a role in creating smart cities that optimise social inclusion and reduce the detrimental effects of digital technologies?

Based on most examples of arts-based urban regeneration prior to the advent of smart cities, the net effect of such projects is rather to exacerbate than reduce social exclusion. For all the benefits claimed by developers, 'regeneration' too often spells 'gentrification'. Naturally, this is welcomed by property developers and all those in the so-called 'creative class' who can afford to live in 'Bohemianised' and aesthetically pleasing environments. (Ironically this typically does not include most artists!) And while the pros and cons discussed in this wider debate are not our focus here, the risks of gentrification at the expense of social inclusion in smart cities are accompanied with new dangers from digital technology, not least in the form of surveillance. Many socially engaged artists – or 'activists' – have long been involved in raising awareness of these dangers and initiating forms of resistance. Can artists' engagement with enterprises help avert the neoliberal corporate utopias that for many portend dystopian futures?

The main players in the rapidly expanding – yet often spectacularly faltering – 'smart cities market' are again powerful corporations like IBM (which has trademarked the term 'smarter cities'), Cisco Systems, Microsoft, IBM, Huawei, Siemens, Google, etc. As Robert Hollands already observed in 2014:

Serious urban problems like poverty, inequality and discrimination appear to be largely absent from these neo-liberal urban visions and projects, and there appears to be little or no recognition that smart developments might contribute negatively to social polarisation in cities.

Artists have been almost entirely left out of the decision-making processes of smart city planning projects to date, with art exploited largely as an add-on for the purposes of superficial 'vibrancy'. That such neglect constitutes a fatal oversight can be inferred from expert explanations of the expensive failure of high-profile projects such as the Quayside neighbourhood in Toronto planned by Sidewalk Labs



Site of the failed Sidewalk Labs project in Toronto. Source: <https://www.azuremagazine.com/article/good-bye-to-all-that-toronto-after-sidewalk-labs/>

(a subsidiary of Google) and abandoned in 2020. For example, artist and professor of design Chris Salter argues that in addition to failing to overcome public fears of privacy breaches, 'Sidewalk Labs' two-and-a-half-year struggle to build a neighborhood "from the internet up" failed to make the case for why anyone might want to live in it'. From her extensive experience of working with tech companies and local governments on smart city ideas, architect Camilla Siggaard Andersen has reached the following conclusions:

I have seen a lot of great ideas emerge, and been fortunate to meet many passionate people motivated by a genuine desire to make the world a better place. I have also come to believe that the problem is not a lack of prospects, but a lack of perspective. By allowing one sector to dominate the discourse, we have inevitably come to ask what the city can do for digital technology, instead of what technology can do for the city and, even more so, what the city can do for a digitally transformed society.

In addition to a 'lack of perspective' and corporate domination, Andersen attributes the failure of smart cities to attract public support to the inability of prevailing smart city models 'to incorporate socio-political parameters'. Quoting from Schumacher's *Small is Beautiful* (1973), she argues that what is needed

are clear priorities:

There is no need to consult economic experts when the question is of priorities ... It is due to the fact that, as a society, we have no firm basis of belief in any meta-economic values, and when there is no such belief, the economic calculus takes over. This is quite inevitable. How could it be otherwise? (Schumacher, 1973)

Applying this to smart city design, Anderson makes the case that what is needed is bold leadership and confidence in values, since

There is no need to consult (or pretend to consult) data experts when the question is one of priorities. We already have both the data and the technology we need to build more equitable and sustainable cities—the fact that we are not doing this is not the computer's fault nor its problem to solve.

Accepting the force of these arguments leads us back to our starting point for investigating the potential role of artists in redirecting the digital transformation in the first place, i.e. our premise that artists are precisely those who can offer the kind of critical and speculative perspectives currently lacking in smart city models. Evidence for this contention can be found in the case of Copenhagen, where

In a collaboration between Professor Jan Gehl, from the Royal Danish Academy of Arts School

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of Architecture, and Copenhagen Municipality, the city's public spaces were evaluated based on the state of public life. This spurred a series of interventions to redirect space away from cars and towards the pedestrianisation of the city centre. Today, the Municipality is still looking at measures such as how much time people spend outside of the city to determine future planning decisions. Copenhagen has also, incidentally, been awarded as the most liveable city in the world.

Finally, regarding the need for greater diversity and social inclusion in urban regeneration schemes, it is satisfying to note that the new Waterfront Project in Toronto (established in the wake of Sidewalk Lab's failed project) has now selected the Black Speculative Arts Movement Canada for its first-ever 16-month residency. According to the CEO of Waterfront Toronto:

Real inclusivity must go beyond physical access to the waterfront, and we must bridge gaps for racialized communities as we contribute to building Toronto's future. We look forward to seeing how BSAM Canada animates the waterfront in a way that sheds light on the lived experience of the Black creative community.

Again it is the unique capacity of the arts to amplify and critique values, including by revealing the absence of human values in neoliberal visions, that we contend can most powerfully incite a quest for identifying priorities to inform the use of technologies for building fairer societies and places to live – hence our final recommendation in this section:

'CONSULTING' RECOMMENDATION 5:
Corporations and city governments should be urged to engage artists in decision-making processes about urban planning, especially in 'smart city' projects.



Biography images of BSAM Canada team: Queen Kukoyi, Nico Taylor and Quentin VerCetty. (CNW Group/Waterfront Toronto and The Waterfront BIA)

Artists 'Embedded' in Experimental Artworks and Alternative Tech Enterprises

As well as exploring how artists might contribute to inducing a socially inclusive digital transformation through exerting a more or less direct influence on tech industries via artist-in-residence programmes and various forms of consulting and arts-based interventions, we also looked into artworks that (a) prefiguratively enact more inclusive alternative uses of technology, (b) expose tensions of digitalization by simulating and parodying prevailing practices (e.g. of datafication), or (c) expand from arts-led projects into full-blown alternative and more sustainable tech enterprises.

Given the challenge of formulating any comprehensible yet comprehensive definition of these diverse works, we present a description of each illustrative case before discussing the potential of such projects for impacting the trajectory of the digital transformation.

Case 1: YQP Art Collective's Datenmarkt (2014), Hamburg

Appearing out of the blue in one of Hamburg's high-end shopping districts, Datenmarkt was a meticulously constructed and eerily generic low-budget grocery store selling only four basic food products that announced itself as 'The first supermarket where

you pay with data'. On entering the store, bemused customers were faced muzak-filled aisles of blandly packaged milk, bread, tinned fruit, and dumplings all tagged with 'prices' in an alternative currency. A litre of milk in Datenmarkt was sold not for money but for '10 Facebook posts', for example, while a can of fruit cost '5 Facebook photos'.

Taking their items to the checkout point manned by one of the three members of the YQP art collective, shoppers were asked to register with an app on a store-owned iPad that permitted Datenmarkt to access all of their Facebook history. Following a 'liquidity check' to ensure they had sufficient data to pay, the app then randomly selected the number of photos, posts, messages or 'likes' from their historical data needed to cover the total price of their goods. Customers were then presented with a receipt showing all the data used for their purchases. As recalled by one of the three members of the YQP art collective and Datenmarkt 'staff', Manuel Urbanke:

When they looked at the receipt some of them were frightened, like 'Oh my god! That's one of my old pictures from years ago! Some of them were embarrassed... or when they bought the dumplings there were messages printed out and they were like 'Oh my god I totally forgot that I



Datenmarkt (installation view), YQP, 2014 - image: yqp.computer

wrote that to somebody! And that was exactly the point we wanted to get into people's heads – that by just clicking this one 'accept' button they'd given us permission to look into all their Facebook history.

Explaining their 'art experiment' in a later TEDX presentation, Manuel and his fellow artists Florian Dohmann and Maximilian Hoch emphasized that the visualisation of data on the customers' receipts was 'crucial to make it graspable because data is usually so abstract' even though we exchange it knowingly and unknowingly in return for the 'free' use of digital technologies a hundred times a day:

So the experiment was partly to see if people are still willing to pay with their personal data in exchange for physical products – and if they are more skeptical about this exchange when they see the receipt [...] And we specifically decided not to do this in an art gallery because then people are aware of fictionality and we wanted to catch them off guard as walk-in customers.

The seven-day 'experiment' yielded some unexpected results. The usual 'posh' shoppers in this upmarket district soon cottoned on that Datenmarkt was 'some kind of art'. And while of course they had no interest in the bland staple food products on offer, they nonetheless started buying them 'to see their photos on the receipts' and 'to feel cool' as part of an artwork. After this strange shop-cum-artwork was featured on the popular German news channel RTL, however, 'people came from all over thinking it was a great way to save money because the report did not say it was an art experiment'.

We'd thought hardly anyone would just allow access to their Facebook data for these products – but they all did! Not only that but they even tried to pay by giving access to the accounts of their friends and family! [...] Children came too and they understood immediately and they weren't critical but thought 'Oh this is cool!'. They didn't think how the data will be used and how it could affect their future.

Like many of YQP's 'interactive storytelling' artworks using digital tech to explore issues around digital privacy, the uses of AI, and the exchange and value of labour, Datenmarkt triggered intense and wide-spread political and philosophical debate – in this case on the ethics of our individual production of

value for technology companies through exchanging our data for the use of their services.

What we want to highlight with this case is not just another example of the unique impactfulness of art to expose and critique digital practices but more specifically to illustrate the powerful use of simulation and 'speculative design' to prefigure and thereby potentially – hopefully! – avert a possible dystopian future. Art alone, we dare to posit, has this capacity to stimulate public discussion of complex and pressing topics like value and commodification in the context of digital transformation. (The popular TV series Black Mirror includes other examples, though of course less interactive as a form of storytelling.) It is through such experimental and critical works that art-enterprise engagement has arguably the greatest potential to impact the digital transformation. And while the case for public funding of artists can be made on many grounds, we cite this work as an especially clear example of how such funding is needed to facilitate the mobilisation of the arts for a more inclusive digital transformation. To quote from our own report on this project for Artsformation:

As private funding gains increasing traction within artistic communities across Europe and elsewhere, it becomes of ever greater importance that artists working at the intersection of arts and new technologies be cared for by the steady governmental provision of independent public funding.

In conditions of ever-greater precarization and the wholesale discounting of artistic labour, it is inevitable that private arts funds are gaining ever-greater attraction for artists. Yet it is precisely because of these conditions that governments must be held ever more intensely responsible for providing care to artists and for ensuring the arts are not co-opted by tech industry interests.

RECOMMENDATION 1: European governments must start practising an ethics of care towards artists and the arts, especially to provide practising artists with the economic and professional means and space they need to attend to the malign effects of digital transformations as autonomous and critical thinkers. This is only possible by cultivating public spaces of care in which artists in collaboration with citizens and communities can undertake autonomous and critical 'tinkering' with existing and future technologies.

While Datenmarkt was a temporary seven-day experiment, albeit demonstrating a highly feasible if undesirable future business model, other works in this vein have been designed or subsequently emerged as ‘going concerns’ in which artists and technologists engage in commerce as artist-led enterprises or social organisations producing goods and services outside the sphere of traditional art production. As in the following case of Fairphone, many of these hybrid practices blur or even cross the lines between ‘doing art’ and practising alternative and more ethical yet viable forms of commerce.

Case 2: Fairphone, WaagSociety / Futurelab

Founded in 1994 by Internet pioneers Marleen Stikker and Caroline Nevejan, WaagSociety takes the proposition that ‘technology is not neutral’ as the tagline for its mission to ‘empower as many people as possible to design an open, honest and inclusive future’ by stimulating and informing ‘critical reflection on technology, developing technological and social design skills, and encouraging social innovation’. Through hundreds of projects at the intersection of art and technology, Waag’s trans-disciplinary team of artists, designers and scientists ‘contributes to the research, design and development of a sustainable, just society’ by

- collectively researching emerging technology, and questioning underlying cultural assumptions;
- experimenting with and designing alternatives on the basis of public values;
- developing an open, fair and inclusive future together with civil society.

Now a foundation with 12 labs, Waag is supported by the ‘Cultural Basic Infrastructure’ programme of the Dutch Ministry of Education, Culture and Science, and the City of Amsterdam, with additional funding for projects from various public institutions, including the European Commission.

In 2010, Waag initiated a research project to investigate the question ‘What does a smartphone actually contain?’ Meeting resistance and lack of transparency on the part of smartphone producers, Waag scaled up this research into a campaign called Fairphone ‘for honest electronics and awareness of the consequences of current production methods’. Using art to amplify its message, Fairphone held workshops highlighting the destructive effects of smartpho-

ne production processes, including unfair labour conditions (including child labour for mines in the Congo) and politically destabilising practices in the extraction of source materials, the environmental damage caused by electronic waste, and the lack of transparency and accountability in global supply chains. From this campaign emerged a proposal and prototype for a smartphone built of recycled and fairly sourced raw materials.

Having decided that the best – or only effective – way to exert a serious impact on the global smartphone industry was to become a market player selling its own products, Fairphone developed the first marketable version of its smartphone in 2012 as part of its participation in the Social Innovation Incubation Programme at Bethnal Green Ventures in London. One year later, in 2013, Fairphone launched a company directed by designer and engineer Bas van Abel to make ‘the first fair mobile phone’. In addition to fairly sourced and recyclable materials from a transparent supply chain, its phones follow a modular design that makes them easily repairable by users, thus increasing their longevity.

Fairphone quickly became the fastest-growing tech startup in Europe, raising some 20 million euros through crowdfunding and winning multiple awards for sustainability. By 2022, some half a million Fairphone devices had been sold, generating a revenue of some 30 million US\$ a year, with a significant share of its profits directed to higher wages for factory workers along its supply chain.

This success story is perhaps the most spectacular but not untypical example of how collaborations between artists and engineers can expand from initial efforts to influence the digital transformation into fully-fledged enterprises that incorporate ethical and sustainable practices as viable economic alternatives to prevailing practices of the digital transformation. As such, the public support and funding of Waag and its projects provides a model for other governments across Europe to follow.

RECOMMENDATION 2: Policymakers should intensify efforts to support the scaling up of initiatives by arts-led social organizations to provide sustainable alternative tech products and services.



Fairphone publicity image, Fairphone - image: fairphone.com

Conclusions

Mobilising the arts for a more socially inclusive digital through the critical engagement of artists with digital technology and tech enterprises will require concerted efforts to mitigate the power, knowledge and financial asymmetries inherent in the relationship between artists with tech enterprises.

Future policies designed to support artists' engagement with enterprises thus need to support general critical education for artists in advanced digital technologies as well as providing independent funding support to allow critical engagement with enterprises. Since technical skills are essential to engage meaningfully with advanced technologies, such policies should encompass measures for incorporating STEM in formal art education and for providing lifelong learning opportunities for artists to improve their levels of digital literacy. Public funding of artists involved in approved AIR programmes should also be provided to reduce the financial dependence of resident artists placed in tech enterprises.

Intermediary bodies should be formed to identify

and promote best practices in AIR and consultancy work and to help clarify contractual terms and help mitigate the power imbalance in art-enterprise engagements. This should include the design of 'model contracts' and provision of advice on how to ensure fair terms regarding ownership of artworks, expected outcomes, licence for criticism, etc.

As a general guideline for best AIR practices, for example, we stress that artists need to be immersed for longer periods not only in the projects of the host enterprise but also in the organization so that they are not treated as outsiders or spectators. Here we can cite the aims of Nokia Bell Labs' reinstated Experiments in Art and Technology Programme from 2017 as an example of best practice in terms of duration and embeddedness:

Our AIR program involves deeply embedding the artists within our research community for the best part of a year. We provide studio space, access to world leading scientists and access to world leading technology. The artists take part in team and project meetings where there is an overlapping interest and

they become extended team members to foster the greatest levels of collaboration.

Intermediary bodies should also commission research to explore how best to support more fruitful art-enterprise engagements that bring social benefits, including new ways of measuring and describing success and failure that can address the complexities of differing timescales and different intentions involved in art-enterprise engagements. Defining the relationship between artists and enterprise will further require theorising the terms of exchange beyond those explicit in current descriptions of AIR programmes and contracts between consulting parties.

The proposed intermediary bodies we propose should further identify impactful critical 'art experiments' by artists and engineers such as Datenmarkt that can powerfully increase public awareness as candidates for public funding. Such collaborations between artists and engineers should look outward to explore new possibilities rather than focusing solely on specific problem-solving. They should be

speculative and tentative, rekindling our sense of wonder about what technology can achieve while prompting us to view familiar technologies with fresh eyes and to think critically and imaginatively about the implications of newly emerging technologies.

Policymakers should consider how best to scale up promising collaborations between artists and engineers on alternative tech enterprises such as Fairphone.

Corporations and city governments should be urged to engage with a diverse range of artists in decision-making processes about urban planning from the outset, especially in the case of 'smart city' projects.

Finally, we recommend that arts organizations pay particular attention and dedicate sufficient resources to initiatives, collaborations and communications aimed at broadening art-tech audiences to include a more representative range of ages, ethnicities, geographic and cultural backgrounds, educational levels and socio-economic status.



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