THE GRID

CONNECTING ARTISTS AND TECHNOLOGISTS

#GetOnTheGrid

EUNIC
EU National Institutes for Culture

ART + TECH REPORT

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Stakeholder Investigation

Conducted by
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The Grid: Connecting Artists and Tech/nologists

Panel Discussion on "Humanizing Technology through the Arts" at the Launch of The Grid, Dec 4, Gray Area San Francisco © Beth LaBerge

FOREWORD

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The Grid: Launching a European initiative in Silicon Valley

Silicon Valley is one of the world's most productive innovation ecosystems. As the seat of the global tech industry, it spearheads technological and scientific progress, leading in pioneering innovation such as artificial intelligence, robotics, blockchain, AR, VR, XR, wearable technologies, 3D printing, 3D animations, full dome projections, machine olfaction, holography, etc. While these technologies have created enormous excitement and hyped-up expectations, there has also been increasing criticism regarding the lack of artistic content and reflection about the challenges and downsides that these technologies can bring along.

Nevertheless, the San Francisco Bay Area is also a center for numerous arts institutions dedicated to the intersections of science, technology, and creativity. The global tech industry has therefore established numerous arts initiatives, some related to providing content to commercially available technologies, others strongly linked to social impact, yet again others exploring the boundaries of technology and its implications for humanity.

There is a strong need, expressed by many local institutions and actors, to connect all the key players working at the intersection of Art + Tech and help create a vibrant space for creativity with an international and global perspective. Can Europe, drawing on its strong artistic and humanistic heritage, act as an instigator and facilitator by bringing together significant artists, thinkers, and institutional actors from both sides of the Atlantic?

In June 2019, European cultural institutes from Austria, France, Germany, Italy, and Switzerland in the SF Bay Area formed a new alliance, EUNIC Silicon Valley, in order to explore together the intersection of Art + Tech. In the interest of achieving a meaningful collaboration, we wanted to first explore existing partnership models between the worlds of artists and technologists to then map out the full potential of these valuable relationships. In July, the European Union awarded EUNIC Silicon Valley with a grant within the framework of the 'European Houses of Culture' project. This initial funding allowed us to get started and our ambitious initiative 'The Grid' was born.

The Grid was established to share lessons learned from investigating different modes and models of collaboration between artists, art institutions, and the tech industry. It furthermore aims at connecting all these actors in order to encourage a productive dialogue.

The following publication of our commissioned Art + Tech Report will outline the illuminating findings of the thorough stakeholder investigation. Together with the virtual visualization of the stakeholder map, we have laid the necessary groundwork that will inform EUNIC Silicon Valley's cultural activities in the years to come. We are excited to see The Grid grow and evolve into a global movement connecting artists and tech/nologists around the world.

Clara Blume

Clara Blume, PhD
President | EUNIC Silicon Valley

Picture with EUNIC Silicon Valley members, Victoria Beckley, Roel Nuyts,
Barry Threw (Gray Area), Nadav Hochman and Alex Reben
at the Launch of The Grid, Dec 4, Gray Area San Francisco © Beth LaBerge

EXECUTIVE SUMMARY

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European cultural institutes, artists, local art institutions, and tech companies in the Bay Area, launched in early December 2019 a new initiative of collaboration between art and tech. "The Grid" is a global network between multiple stakeholders that wants to improve the relationship between those two worlds and establish successful and replicable collaboration models between artists and technology companies.

At the successful launch of 'The Grid' the initiative was welcomed by artists as well as technologists. Confronted with the preliminary results of this study, representatives of the tech industry expressed their interest in working with "The Grid" in order to make this relationship meaningful for everybody involved.
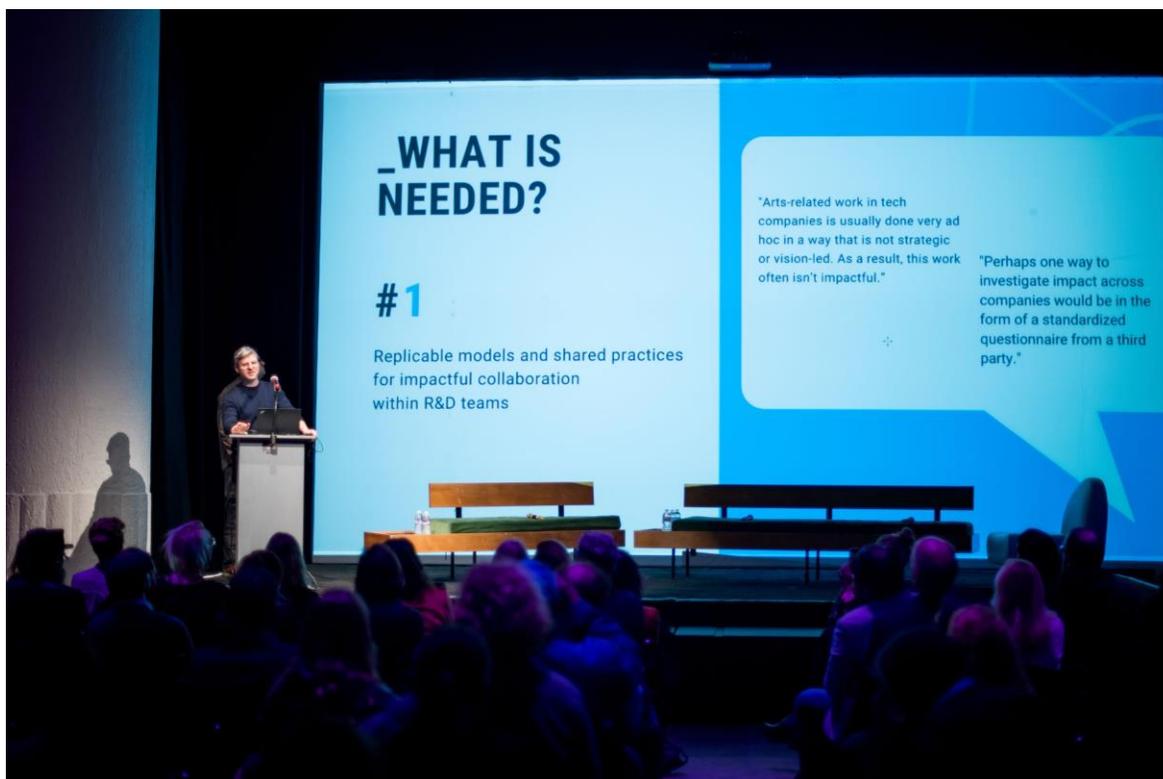
Silicon Valley is the global epicenter for technological innovation. Historically located in the southern part of the San Francisco Bay Area around the city of San Jose, Silicon Valley is home to over 2,000 technology companies - the largest concentration in the United States. In 2018 these companies employed 387,000 people, or more than 30% of the local private sector workforce. Home to six of the world's top 10 most valuable technology companies and recipient in recent years of as much as 46% of US venture capital investment, Silicon Valley has in the last ten years exploded in size as it has grown to the north to include San Francisco, Oakland, and Berkeley - the traditional economic and cultural centers of the San Francisco Bay Area. With a new crop of multi-billion dollar tech companies such as Twitter, Uber, and AirBnB making their homes in San Francisco, the urban core of the Bay Area has seen an unprecedented explosion of wealth - and along with it the forces of gentrification pushing out historical communities.

One group which is feeling the brunt of the tech industry's explosive economic pressure on the region, is the local creative community. Since the city's beginning as a Gold Rush boom town, wealthy San Franciscans have proudly acted as patrons of the arts, such as in the establishment of world-renowned institutions like the de Young Museum and the San Francisco Museum of Modern Art. Since World War II, the region has birthed countless cultural and aesthetic movements that have continued to shape the artistic world today - from San Francisco's Beat Generation, to Berkeley's Free Speech Movement, to Oakland's Black Panther Party, to the region's championing of queer communities and Outsider Art. It is in this incredibly rich cultural backdrop that the Silicon Valley innovation ecosystem has come to thrive in the region, yet it is by its very success that rents have steeply risen and creative communities have been increasingly pushed out. But what if the priorities of Silicon Valley and creative communities were not opposing but instead symbiotic? What if the transformative technologies and resources of Silicon Valley were harnessed to not just support the arts, but instead transform the very role and nature of the arts themselves?

This report serves to identify the myriad extant models of collaboration between technology companies and the arts in the San Francisco Bay Area, both recognizing the ingenuity of current

collaborations and identifying opportunities for deeper, more impactful synergies between these two worlds. Our methodology for this identification includes interviews with key stakeholders within companies which support artists and an online survey released to a wider audience. It outlines insights gathered from interviews as well as suggesting possible roles the EU can take on to help support not only art and technology in the Bay Area, but also abroad to its member countries. It is apparent from the qualitative data gathered that not only are companies very interested in supporting the arts, there is also much an external organization can do to help with the arts in technology.

We identified that artists within tech companies play vital roles in stimulating innovation, contributing to company culture and as a proving ground for new technologies. Some common hurdles companies face include finding internal funding, connecting artists to other companies, educating management on the value of artists and measuring the impact of arts programs in a qualitative way. Our recommendations and insights for the Europe's role in technology and art include providing an organization to connect companies with each other, help companies and their artists with introductions and exhibition opportunities with European cultural institutions and by continuing to support the arts as they have in the past. We concluded that there is great excitement within companies to collaborate with artists who use technology and believe that EUNIC Silicon Valley/the EU can act in the Bay Area through future initiatives to both support current programs and foster new ones.

Co- Lead Investigator, Nadav Hochman © Beth LaBerge

METHODOLOGIES

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In this report, we focus on technology companies who have collaborated with and supported artists, either now or in the past. We were primarily interested in companies who have been involved in the arts in active ways as part of larger corporate business strategies and not in merely philanthropic ways (nor in a purely corporate art collection). This support could vary from individual project support, to a full artist residency program which would involve aspects such as funding, collaboration with employees and access to company technologies and products. We also limited our scope to companies who have some presence in the Bay Area of California.

Co-Lead Investigators Alex Reben and Nadav Hochman
The Grid, Dec 4, Gray Area San Francisco © Beth LaBerge

Our analysis is comprised of three components:

#1 Interviews

#2 Online Survey

#3 Open Source Visualization of The Grid

#1 Interviews

Over the course of 3 months, we collected qualitative, semi-structured interviews with multiple tech employees working, or have worked in the past, in the following 13 companies:
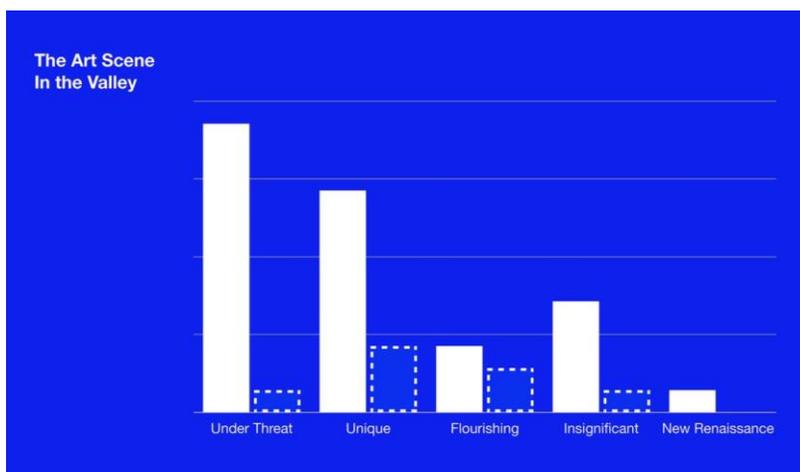

We investigated the following topics in the context of an anonymized interviews with tech employees within these companies:

- How the arts are incorporated into their corporate identity
- Their history of creative practice
- The ways in which they have engaged with artists
- How their work with artists have shaped or changes their practice
- Their motivation to working with artists
- Their value propositions to artists
- Their successes and failures through the creative collaborative processes
- Areas for improvement and support, both internally and externally
- Ways in which the EU could be helpful in the future within the Bay Area

After our interviews, we analyzed the recordings and transcriptions qualitatively looking for patterns in responses and insightfulness using anonymized quotes where applicable.
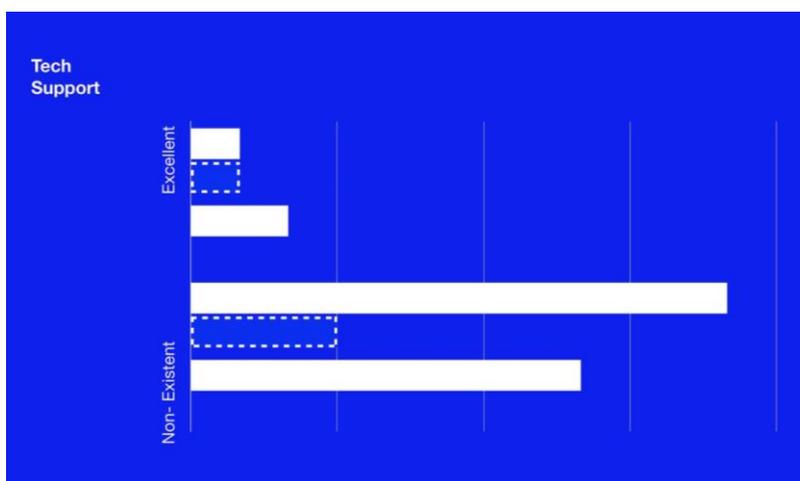
#2 Online Survey

In an effort to start supporting our qualitative findings we're conducting an ongoing quantitative online survey among the larger group of stakeholders working at the intersection of art and the tech industry, including artists, cultural institutions and curators. Our set of questions included, for example, the types of available support for artists and art organizations; the state of the current art scene; and overall values alignment between artists, art patrons and the tech industry in Silicon Valley.

The preliminary results of the survey indicate a significant misalignment between artists and patrons' sense of threat to the art scene in Silicon Valley (figure 1), and the level of support given to artists and art organizations from tech companies (figure 2).

Patrons: dotted line

Artists: white bar graph

Figure 1

In the second phase of the grid this will translate into a series of infographics delving into a myriad of topics focusing on the fragile interplay of aligning both business and arts' incentives.

Figure 2

#3 Open Source Visualization of The Grid

The Visualization is a first step of supporting a constructive dialogue. As with any dialogue you need to know who you're talking to before you can reach any meaningful and mutual result.

To identify our stakeholders and connect them to one another we created an interactive web map that allows users to add themselves as a point linked to information about their work. The visual informs us of who are stakeholders are and enables those individuals to connect based on proximity as well as to explore activity in the greater area. The map was created by cartographer Victoria Beckley

#GetOnTheGrid

divided into
7 color-coded sections:
Every dot represents one stakeholder,
equaling artists with tech giants

https://the-grid.glitch.me/
created by Victoria Beckley

Add yourself to the grid

Add yourself/company/organization to the interactive stakeholders map

Name

Your answer

You are:

✗ Artist

○ Tech Company

○ Art Institution

○ Non Profit Organization

6 CURRENT MODELS FOR COLLABORATION
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Through our interviews, seven distinct models emerged for the current collaborations between Silicon Valley tech companies and artists.

#1 Tech for Art Museums

Museums have long served to expose wider communities to the arts, and in our digital era it is essential that technology is leveraged to help further this mission of exposure. These engagements center around technological solutions to help support museums in expanding access to or deepening interaction with their collections.

1. The **Google** Arts & Culture program began in 2011 through the Google Cultural Institute initiative. In cooperation with more than 200 leading global museums, including Tate Gallery, London; the Metropolitan Museum of Art, New York; and the Uffizi Gallery, Florence, Google Arts & Culture has compiled high-resolution images of museums' collections to allow users to view them online. Utilizing Google Maps Street View technology, the program additionally allows individuals to take self-guided virtual tours of the museums themselves. Available in 18 languages, this program leverages various elements of Google's suite of technologies to massively expand access to the world's greatest cultural institutions.

2. Building on Google's concept and updating it for emerging technologies, **Intel** collaborated in 2018 with the Smithsonian American Art Museum (SAAM) to create a comprehensive Virtual Reality (VR) experience of the museum. By lending their proprietary technologies around processors, cloud-based platforms, and VR, Intel was able to create a fully-3D version of SAAM's collection to allow 24/7 VR access to the museum for use by educators, other museums, and the public at large.

Both of these examples show the power of technology in supporting the broad goals of arts institutions through collaborative applications of their technologies. However, these applications do not engage with the artistic process itself, dealing more solely with arts institutions and as such doing little to influence the functional methodologies of technology companies. Additionally, while these initiatives can directly support the goals of arts institutions, they tend to provide ad hoc solutions and they do not directly engage with creative communities at large.

#2 Art Exhibitions by Tech Companies

Given the pre-eminence of technology companies in our lives today, it is no surprise that many have taken on the role of the art museum themselves. These engagements detail the ways in which technology companies sponsor or create artistic exhibitions influenced by or in service to their core technological offerings. Among the most prominent examples are:

1. In 1962, just four years after the agency's creation, **NASA** created what is considered to be one of the first artist in residency programs when it commissioned artists to create fine art depictions of space walks. This collection of Nasa mission-inspired works now includes more than 2,500 pieces by more than 350 artists, including Norman Rockwell and Robert Rauschenberg. These works are now on display at both NASA offices and prominent national institutions including the Smithsonian National Air and Space Museum.

2. The **Microsoft** Art Collection is a corporate art collection started by a group of employees in 1987. Now comprising more than 5,000 works of contemporary art, the Collection is made viewable not only to employees on its corporate campuses but also guests and local visual arts communities.

3. In 2017, **Uber** held a contest for artists to have their work presented the annual Art Basel Miami art fair. Requiring only that they are either Uber riders or drivers, artists were invited to submit their works for review by a jury. Selected works were exhibited in a pop-up exhibition space during the annual art fair in Miami's Wynwood art district.

These examples show ways technology companies can successfully engage more directly with and support creative communities by commissioning or showcasing their work. Yet the creative works in these examples do not leverage the companies' technologies themselves beyond potentially treating them as subjects, much less grapple with or influence the methodologies by which those technologies are created.

#3 Mission-aligned Artistic Inquiries

While not every technology company has products or services that can be leveraged for the creative process, some have strong missions that can influence artistic inquiries. In this model, a company's mission serves as the inspiration and drive for a range of creative initiatives. Among the most prominent examples are:

1. Every year, **Mozilla** sponsors a range of initiatives to support its mission of ensuring the internet is a global public resource that is open and accessible to all. Out of a recognition that blog posts can only go so far in connecting with people on an emotional level, a large portion of these initiatives are artistic. Throughout the range of artistic works, installations, and experiences Mozilla sponsors, they focus on selecting artists whose backgrounds match the values of their organization. When developing the projects, Mozilla starts with the desired impact (e.g. raising awareness about personal data security), and then works backwards with the artists to develop the project. Ultimately, Mozilla does not care if the work is technologically-powered or not provided that that desired impact is achieved. These works are then exhibited either at traditional institutions, pop-up exhibition spaces, or elsewhere in the public realm. Mozilla's funding for these artistic projects vary from year, and sometimes is buttressed by funds from partnering organizations.

   This model shows how technology companies with strong social missions can support the arts as a means to build awareness of and emotional connection to that mission. These

artistic works also serve the additional purpose of general brand building. Yet this model is only accessible to technology organizations that have salient social missions (which many do not) and does not have feedback loops by which the artists can in turn influence the technology organization.

2. **Thoughtworks** is a global consulting firm specializing in enterprise software solutions with 46 offices in 23 countries. Their artist in residency model consists of both financial and engineering support, with the value of the support from personnel being the most valuable. They have been running the residency for several years supporting art projects specifically in the tech space. They attribute their long-lasting success to the enthusiasm their employees show in wanting to work with the artists and the fact that the program fits well into their corporate identity of social good.

#4 Artist Residencies for Employee Offices

Artist residencies represent the greatest opportunity for collaboration between technology companies and artists. In this model, artists take up residence at technology companies to create and dedicate works based on their current artistic practices, largely for the benefit of company staff and company offices. Among the most prominent examples are:

1. **Facebook**'s Art Program includes both its Artist in Residency (AIR) program and the Analog Research Lab (ARL). The Artist in Residency Program focuses on bringing artists to Facebook campuses where they create works based on their own creative practice. These works are often site-specific and permanent installations on the campus and are intended to provide Facebook staff with exposure to the arts. The Analog Research Lab began in 2010 when two staffers used their own money to create a screen-printing Lab. It has now grown to become a fully-funded print studio at multiple Facebook campuses that creates print work to adorn campus walls and provides other immersive learning experiences to staff. The intent of these programs is to create a corporate environment rich in art in the belief that this will benefit the wellbeing and, ostensibly, the creativity and productivity of Facebook staff.

2. The **Amazon** Artist in Residency program is now in its third year bringing four artists to its headquarters in Seattle. Each artist is given their own dedicated studio space for ten weeks, where they must be present at least 16 hours a week. In addition to hosting one lecture and one workshop for Amazon employees, the artist must create one agreed-upon work that will be placed inside the Amazon campus.

This model of artist residency shows a more direct commitment by technology companies to the artistic process and artists themselves. By bringing creating artists directly into their office spaces, technology companies are validating the belief that artistic thinking - or at least exposure to it - is beneficial to employees focused on business or technical tasks. Yet as the output of these residencies center on what can ultimately amount to office decorations, these residencies constrain

the potential benefits of the artistic process to a more passive environmental influence instead of an active intervention in the methods and approaches of core staff.

#5 Artist Residencies for Product Applications

In this second model of artist residencies, artists take up residence at technology companies to create and dedicate works that specifically leverage new or emergent technologies from that company. Among the most prominent examples are:

1. In 2017, **IBM** invited contemporary artists to collaborate with its new Watson AI Super-computer. Able to answer human questions in natural language, Watson engaged with artists as they created portraits of famous historical scientists, pioneers, and leaders by presenting them with interesting perspectives or insights into those historical figures. The result was a series of portraits shown at a gallery in New York City that synthesized the technical expertise of the artists with the novel influence an AI-powered supercomputer can bring to the process of artistic inspiration.

2. For six months in 2019, **Google** Arts & Culture collaborated with three international artists to leverage their newly-created "Jacquard" technology to create original works at the intersection of technology, art, and fashion. Developed by Google's Advanced Technologies and Projects team, Jacquard is a new type of digitally-networked thread that can be used to create textiles with interactive interfaces. In order to execute on their ideas, artists were able to collaborate with Google engineers, program directors, and the actual factories producing these Jacquard threads. The final works were shown at a private Google event and partnering museums, in addition to being featured for perpetuity in a dedicated section of the Google Arts & Culture digital platform.

These residencies show compelling synergistic models between emerging technologies and the artistic process. By allowing artists to creatively engage with new technology, both the artists' own creative practices and the companies' understandings of the potential applications of their technologies were stretched and advanced. While this boundary-pushing of new tech involved collaboration with the engineers and business leaders who oversaw its initial creation, the structure of the residencies taking place *after* the creation of the technology result in the artists' applications only potentially swaying future iterations of that tech. And as these residencies place a large focus on the public presentation of the artists' final works, tech companies seem to emphasize them as public relations opportunities as opposed to opportunities for deepening their research and development practices.

#6 Artist Residencies for Product Development

In this third and most substantive model of artist residencies, artists take up residence at technology companies to work directly with R&D teams with the aim of leveraging the artistic process to inform and shape the development of new technological products and services. Among the most prominent examples are:

1. The **Microsoft** Research Artist in Residency program brings together artists with Microsoft scientists and engineers to explore not just the applications of existing Microsoft technologies but also collaborate on the iterative prototyping of new ideas. Projects stemming from the residency span a huge range of medium, from more purely artistic interpretations of technology's increasingly dominant presence in our lives to deeply synthetic collaborations between the processes of technological iteration and artistic reinterpretation. Through all of this, Microsoft places a decided emphasis on the importance of artists directly influencing the methodologies of their technical staff, seeing the results as both boosting the company's external profile and supporting high-level R&D objectives.

2. The **Walton Family Foundation,** the philanthropic arm of the Walmart-founding Walton family who now count as the wealthiest non-royal family in the world, have in recent years launched an initiative in collaboration with **The Center for Advancing Innovation** (CAI) to more systematically introduce artistic thinking into tech start-ups. Recognizing artists' ability to expand tech companies' thinking and that newly-founded organizations are more receptive to new approaches, the initiative has paired and inserted 140 international artists into 140 early-stage tech start-ups for 8 month residencies. During these 8 months, artists receive a sort of "mini-MBA" training from the Foundation to allow them to effectively engage with and influence start-up staff on the benefits of artistic thinking for product and business development. The impact is thus two-fold - both bending early-stage start-ups towards the more holistic approaches of artistic thinking and equipping artists with the ability to be successful members of business units.

3. The two year old **Adobe** Augmented Reality (AR) residency was specifically implemented at the beginning of Adobe's R&D process into new AR technologies in order to advance engineers' thinking of what was possible. By placing two complementary artists into R&D teams every quarter, the artists are able to create new works every week that respond to and push the boundaries of what the development team is working on at that moment. The result is a deeply synergistic relationship between art and tech, with artists acting as critical investigators of big picture implications of new tech and lead users in the product development process while engineers uncover where artistic vision can meet technological feasibility. While the success of this relationship requires both practical business training of artists and meaningful buy-in from company staff on the value of artists' participation, the result for Adobe has been a new product vertical for creative applications that since day-one has been shaped by creatives.

4. **Nokia Bell Labs**' Experiments in Art and Technology artist residencies (E.A.T) emphasize long-term, meaningful collaboration between artists and engineers. Artists are matched with existing R&D teams based on background, expertise, and personality, and work full-time with those teams for one year or more. By having these artists physically present in the office with engineering teams for such a long period, a deep knowledge exchange between artistic and scientific disciplines takes place that is not possible with short-term

or remote residencies. The result is engineers that are more keenly aware of the conse-quences of the technology they are creating, and artists that are equipped with business skills that enable them to more fully make a career out of their creative work.

5. **Google** through their Artists & Machine Intelligence (AMI) and other cultural programs, have been supporting artists for the last few years who work with high-technologies such as machine learning. They have commissioned several high-profile public works and also feature artists at their yearly I/O developer conference. They also provide tools for artists to incorporate into their practices as open-source code, such as Tensorflow, Project Magenta, QuickDraw and oth-ers.

> "By supporting this emerging form of artistic collaboration we open our research to new ways of thinking about and working with intelligent systems."

This residency model for product development represents the most fulsome expression of how art and technology can not only intersect but also cross-pollinate each other. By bringing artists into R&D teams as core functional staff in the process of creation and not as post facto collabora-tors on what has already been created, the unique ability of artists to stretch the human imagination of what is pos-sible and then grapple holistically with its potential implications on the world is able to actively compliment engineers' abilities to develop and deploy technological breakthroughs. The result is a model whereby artists' practices are deepened, technology companies' products are critically refined, and the public's desire for innovative solutions without undesired societal disruptions is respected.

INSIGHTS
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Based on the above programs and their experiences, our surveys and complementary research observations, a series of critical insights emerge regarding the potential for substantial, replicable models for collaboration between Silicon Valley and the arts:
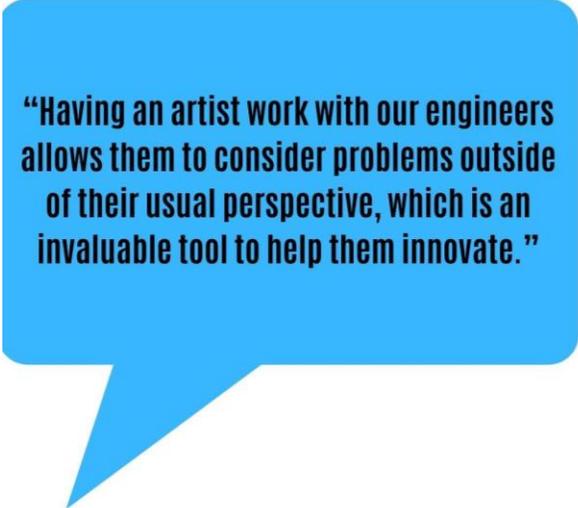
Value Proposition for Technology Companies

As explored above, a large number of Silicon Valley tech companies are engaging with a wide range of methods to combine the arts with their tech research and development processes. This reflects a stark dismantling of the traditional beliefs that engineers have one rigid way of thinking

and artists another. Just as one leader of a tech-arts program said, *"There's no such thing as a creative person; there are creative choices."* And as the challenges facing the tech industry and its products grow hand-in-hand with its increasing dominance over our lives, introducing artistic skill sets to technical teams becomes indispensable:

> "The ability to sit with the unknown, to collaborate, to build structure as you're creating - these assets that one learns as an artist, and are very directly translatable to the issues of the world right now, even in scenarios that have nothing to do with art."

> "Having an artist work with our engineers allows them to consider problems outside of their usual perspective, which is an invaluable tool to help them innovate."

While the nature of these engagements ranges from more superficial publicity initiatives to substantive deep collaborations, there is broad agreement among companies around the types of value artistic thinking brings to their enterprises:

Emotionality

In a distraction-saturated world in which so many interactions have been reduced to reflexive taps of our fingers, the artistic process can help push companies towards developing technological products and services that encourage more authentic emotional connections. Whether this is by leveraging new hardware to help us see the world in a more empathetic way or helping design software that emphasizes our shared societal bonds, artists have a specific ability to see and then respond to the human condition in a way that can help tech companies create new businesses that people feel good about supporting.

Criticality

The rate at which tech has come to dictate so much of our daily lives has surprised even those creating that tech. Digital technology's sudden reshaping of our communities and societies has resulted in a litany of unintended consequences that tech companies are now struggling to address. Solutions to these problems require not only deft business acumen to redirect entire product verticals but also philosophical clarity into what direction they should be redirected into and why. This is a role particularly well suited to artists and their training in holistic, synthetic thinking. *"Artists are particularly good at investigating the bigger picture implications of technologies",* a leader of a tech-art program shared. And as these implications become ever more urgent, the critical need for artistic thinkers in these companies becomes ever more evident.

> "Artists excell at creating emotional experiences, and that's what we're all after."

Exploration

Of the various models discussed above, that of embedding artists into tech R&D teams presents the most substantive collision and cross-pollination between tech and the arts. As one tech-arts program leader stated, *"The most diverse perspectives you can get is when you bring together an engineer and an artist."* And with a handful of such programs successfully running some years now, it is clear that the hypothesized value of bringing together these diverse perspectives has been validated. *"Artist's perspective can be very valuable to innovation groups,"* describe one leader of such an art-tech program. *"Engaging artists is not about discovering solutions but discovering needs. [They] force us to think in a meaningful way about the consequences of our technology."*

> "The most diverse perspectives you can get is when you bring together an engineer and an artist."

Value Proposition for Artists

Beyond supporting the increased parity between tech companies' presence in our lives and their responsibility thereof, artists themselves also stand to benefit from these collaborations. As an often teleologically-focused discipline, artists' roles in society have historically been both under constant threat and open to constant reinvention. The meaningful integration of artists into technology companies represents a radical new role for the arts in our emergent digital economy, one that both cherishes the inherent value of the discipline and challenges it to constructively evolve. On a more individual level, these sorts of collaborations allow artists to not just *comment* on the changing world around us but directly shape its continued reconstruction, deepening their role in public and private life. As one art-tech program leader said, *"It's incredible to see the way artists engage when they're no longer on the sidelines."* And through learning to collaborate with industry, artists gain critical business skills that both benefit their personal artistic practices and augment their potential for continued work with tech companies.

Bridging Ways Towards Success

#1 Tech Executive Training

In order to successfully implement a program of embedding artists into tech R&D teams, it is critical that high-level company leadership buy-in to the idea. This is no easy task, as tech leadership is often solely focused on questions of their company's profitability and longevity. As one leader of an arts-tech program stated, there is a need to *"...[develop] a framework to educate executives in technology companies of the real value of these programs."* This leader continued: "*The value of the arts should be delivered in a business way, not an artistic way. Not exclusively [in terms of] ROI, but nevertheless speaking business language, understanding the business mo-*

> "It's incredible to see the way artists engage when they're no longer on the sidelines."

tivations of executives, and that programs like this will solve their pain points." And the pain points are manifold, as another art-tech program leader explained: *"Technical solutions are being applied to adaptive problems. Adaptive problems are problems that require a change of norms, behavior, or culture - exactly what artistic thinking excels at."*

#2 Careful Matchmaking Between Artists and Tech Teams

For a tech company to reap the full benefits of engaging with artistic thinking, it is critical that the right artist is selected for the team. This extends to both "hard" issues of the artist's creative approaches and the specific technology being developed to 'soft' issues of interpersonal compatibility. As one tech-arts program leader stated, *"When you collaborate with the right artist, it is exceptionally beneficial to augment the development process of our technologies."*

"When you collaborate with the right artist, it is exceptionally beneficial to augment the development process of our technologies."

Once the right artist is selected, it is then important that they are truly embedded in a team for an extended period of time: *"If you don't have the artist on-site regularly, it's not deep collaboration. It's something more superficial."*

#3 Artists Business Training

For technology companies to achieve the full range of benefits of working with artists, it's critical for artists to learn how to effectively collaborate in business environments. And with the often solitary nature of artistic production and potentially unregimented aspects of the creative process, this may not come naturally to all artists. But, as one tech-arts program leader stated, *"...If artists really want to make a career out of their work, there are really foundational skills that they need*

"Are we supporting the artists to grow themselves? If they are going to have a transformative experience in the residency, they're going to create really compelling work and that's going to lead to really compelling insights."

that come from business." Thus, training artists in fundamental business skills not only supports technology companies in achieving their goals for engaging with artists, but also meaningfully upskills artists in their own right.

Codifying replicable models for impactful collaboration within product R&D teams

The main hurdle to these programs expanding is the classic tech company preoccupation of "scalability": at present, each one of the above programs is being developed from scratch with little cross-pollination of what works and what doesn't. One arts-tech program leader lamented: *"Arts-related work in tech companies is usually done very ad hoc in a way that is not strategic or vision-led. As a result, this work often isn't impactful."* As another leader noted: *"Perhaps one way to investigate impact across companies would be in the form of a standardized questionnaire from a third party."* As echoed by many other interviewees, there is an acute need for unifying frameworks, systems, and trainings to convince organizations of the value of art-tech programs, give them replicable models for implementation, and then properly equip participating individuals for success.

A Matchmaker is needed:

Given the many moving parts involved, this would ideally be addressed by an entity that can weave together relationships, expertise, and investments across industry, the arts, government, and academia.

THE ROLE OF EUROPE

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EUNIC Silicon Valley and the EU

As 'The Grid' was initiated by European art institutions in the Bay Area and facilitated through an EU funded program ('European Houses of Culture'), the potential role of Europe or EU/EUNIC institutions in the relationship between artists and the tech industry was discussed. Most of the interviewees saw a positive role of Europe as a kind of neutral "third party" facilitator between a

vibrant, but often diverse and uncoordinated community of multiple stakeholders. European institutions were seen as pivotal stakeholders in "The Grid" and could therefore, in close collaboration with local communities, artists, tech companies and other institutions dedicate a fair share of resources and efforts into making the project meaningful and successful:

#1 Help in connecting business-to-business collaboration

There was an indication of a general inability to help artists in one company connect with the resources of others. This is seemingly due to a lack of a third party to facilitate such relationships. Obviously, each company has an incentive and an obligation to their respective management to focus on their product. However, many of the people who run these programs indicated an interest in helping connect their artists to other external resources. *"I'd love to be able to help connect an artist to more external resources, but that is outside the scope of our program, but if there was someone who could help with that connection, it would be much easier to set up."* There also appears to be an opportunity to connect companies from Silicon Valley to other geographical areas. This is where a program such as The Grid could be helpful.

> **"Connections to museums and others who might be interested in art which incorporates technology would be extremely helpful."**

#2 Connection to EU Cultural Institutions

While companies are naturally experts in their internal resources, some find it difficult to connect their artists to external cultural institutions. The Grid could provide as part of this potential program a curatorial connection initiative. This could be accomplished either by helping connect curators, museums and galleries directly to companies, or by facilitation of exhibitions and special programs. *"One issue we have is helping our artists find venues outside of our company to show their work."*

#3 Europe, a Leader in Art + Tech

Europe has historically been a global center for the arts. Many modern and contemporary creative traditions trace their lineage back to European cultural hubs. Europe has also been shaped by technological innovations and upheavals. As such, the European Union (EU) has a unique opportunity to position itself as a leader in the world of art and tech by facilitating and shaping the nature of these collaborations going forward.

#4 Professional Training and Education

Europe, as a whole, is home to countless centers of higher education that lead the world in professional training. By engaging with these universities to create intensive in-person or scalable remote learning curricula to train artists to work in the tech industry, the European Union has the opportunity to both establish and lead a promising new vertical in professional education.

#5 Access to European Art Networks

With its long tradition of supporting the arts, the European Union and its member states have access to networks of artists across all disciplines and mediums. In tapping into this network, the EU can act as an indispensable broker in identifying and recruiting the right artists for collaboration with the appropriate Silicon Valley technology companies.

Questions raised by interviewees:

Will any future programs be focused solely on EU artists, or will they focus on the art & technology landscape as a whole?

How can American companies and artists engage with European cultural programs?

#6 Europe, a Credible Industry Partner

The EU is an economic global powerhouse with its deep network of connections in the business world, both in Europe and beyond, and is uniquely positioned to evangelize the value of the arts to tech executives. While this could take any form from informal awareness building to formal executive education programs, it holds true that when the EU talks, the business world listens.

#7 The EU, a Global Standard Setter

The unique value that the arts bring to technology closely mirror the humanistic and human rights-based values championed by the European Union, both in civic life and in business. As evidenced by the landmark GDPR regulation and numerous other initiatives, the European Union is already the world leader in supporting the creation of responsible tech and supporting artists in working with tech is a concrete way to emphasize this leadership role.

#8 Europe 'seed-funding' the arts

Given that the largest barrier to small and medium sized tech start-ups engaging with the arts is financial and not lack of interest, there are opportunities for the EU to help subsidize or sponsor prominent start-ups to engage with the arts. While their funders may not be ready to pour money into the arts, these organizations still exert an outsized influence on our lives and the EU can help catalyze them to leverage the value of the arts in the development of technology.

CONCLUSION: THE WAY FORWARD

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On December 4th, 2019, EUNIC Silicon Valley officially launched 'The Grid' at The Gray Area in San Francisco. At the well-attended event, the preliminary findings of this report were presented. Two artists from Europe (Julia Körner, UCLA) and the Bay Area (Alex Reben) gave a brief presentation on their experiences in successfully working with tech companies in the past, focusing on 3D-printing of wearables, as well as on artificial intelligence. In addition, media artist Christian Lölkes showcased the innovative approach of collaboration developed by the German Center for Art and Media (ZKM) in Karlsruhe. Cartographer Victoria Beckley and Roel Nuyts showed how artists, companies and institutions could **#GetOnTheGrid.**

The presentations were followed by a panel discussion revolving around the topic of "Humanizing technology through the arts" with representatives of the tech industry as well as art institutions in the Bay Area that have already experimented with different models of collaboration between artists and technologists: **Google Arts + Culture** (Kenric McDowell, Head of artists + machine intelligence program), **Mozilla Foundation** (Melissa Huerta, Senior Program Officer), **OpenAI** (Christine Payne, Author of MuseNet), **Center for Humane Technology** (Aza Raskin, Co-Founder), **Burning Man + The Crucible** (Jeremy Crandell). The panel was curated and moderated by EUNIC Silicon Valley President Clara Blume.

The panelists reacted to the findings of this report and added some valuable insights based on their own experiences:

- Technology does a really good job in asking how things work. Artists do a really good job in asking why things work and what they mean for us and our societies. As our technology grows increasingly powerful, we need artists to use these technologies, discover what they can do and should do, thereby reflecting on their impact on our human existence as well as on society.

- We need to avoid falling into clichés and generalities when talking about "humanizing technology" or "human-centered design", as there are plenty of "dark sides" in human nature that technology as a tool often enhances and amplifies, as recent examples of genocides aided by social media, or the destruction of our planet caused by human technology have shown. Human centered design can lead to human centered dystopias. Therefore, a new digital "humanism" needs to take into account planetary challenges caused by humans, such as climate change and the depletion of our natural resources. Artists, but also philosophers and thinkers, are often better suited to include these reflections on the ambivalence of technology into their work than tech developers.

- While technologists are often restricted by the narrow and concrete problems they are asked to solve with technology by their companies, artists do not face such constraints and can ask deeper and often disruptive and counterintuitive questions. Artistic freedom is therefore an essential element in making this relationship productive and meaningful. However, "creative thinking" is not an end in itself, as a lot of creativity can be unbounded.

- New technologies such as artificial intelligence have also entered the field of creativity, thereby creating anxieties about the future careers of artists as well as artistic ownership. However, AI also has proven to be a useful tool for artists expanding and extending their creative potential, as long as a human/artist is kept in the loop. At the same time, we need to be watchful about how AI can contribute to our human vulnerabilities by creating ever more perfect tools for user engagement and dependency.

- There is a clear willingness by the tech industry to open up to new or better models of collaboration between artists and technologists.

- When technologists and artists work together, they both need to find a common language in order to work with each other. Artists don't necessarily need to bring with them technical skills, technologists do not necessarily have to bring with them an interest in the arts. However, in order to make this collaboration meaningful, they both need to be open to finding a common ground on which they can develop their project. For a successful outcome, a focus on the quality of the artists is more important than judging them on their familiarity with certain technical tools.

- There is a need within the tech industry to find standardized models for collaborations between artists and technologists. These models can build on existing experiences and best practices already established by current and past programs. Models of collaboration should recommend the length of the stay, the financial necessities of artists, the types of research labs most suitable, and other factors.

- Artists and artistic thinking could also be part of executive or staff training within tech companies and startups which would help contribute to a shift towards a more holistic perspective in tech company culture, or the entire innovation ecosystem.

- A successful collaboration between artists and technologists needs to take into account the realities of local artist communities and the artistic ecosystem of any given region. In the Bay Area, the presence of the global tech industry has led to considerable crowding and pricing out of artists and artistic spaces. A meaningful collaboration needs to include the establishment of open work and living spaces for artists, ultimately empowering artist communities.

- 'The Grid' will become a matchmaker between artists and technologists, helping to develop best practices, models of collaboration and facilitating collaborations between technologists and artist communities.

- 'The Grid' initiative is widely seen as a huge opportunity to create a multi-stakeholder professional network between artists, artistic communities & institutions, tech companies, and even governments across Europe and within the United States. Eventually, 'The Grid' has the potential to become a global movement, mirroring the global presence and ambitions of the tech industry.

APPENDIX

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Biographies of the Authors

Nadav Hochman, PhD is the Associate Director of Gray Area Foundation for the Arts, San Francisco's premier center for promoting the intersections of art, technology, and community through exhibits, public events, research labs, and educational programs. Prior to joining Gray Area, Hochman was the co-founding director of The Tech + Arts Initiative at The Tech Museum of Innovation in Silicon Valley (CA, USA), facilitating creative collaborations between global artists, designers, industry partners, and research institutions.

In the past, Hochman led acclaimed projects in the tech industry, academia, and the art world. His work has been exhibited in MoMA (NYC), SXSW, Google Zeitgeist, and featured in media outlets such as Popular Science, the Atlantic, Wired, and The Guardian. Hochman holds a Ph.D. in Art History from the University of Pittsburgh.

Alexander Reben is an artist and roboticist who explores humanity through the lens of art and technology. Using "art as experiment" his work allows for the viewer to experience the future within metaphorical contexts. "With a new generation of technology comes a new generation of scientists, scholars, engineers and artists exploring the relationship between people and machines. At the heart of this nexus is Alexander Reben, an MIT-trained roboticist and artist whose work forces us to confront and question our expectations when it comes to ourselves and our creations," reports NPR's Tania Lombrozo. Reben's artwork and research have been shown and published internationally, and he consults with major companies, guiding innovation for the social machine future. He has exhibited at venues including The Vitra Design Museum, The MAK Museum Vienna, The Design Museum Ghent, The Vienna Biennale, ARS Electronica, VOLTA, TFI Interactive, IDFA, The Tribeca Film Festival, The Camden Film Festival, Doc/Fest, and The Boston Cyberarts Gallery. His work has been covered by NPR, The Wall Street Journal, The New York Times, Washington Post, Fast Company, Filmmaker Magazine, New Scientist, BBC, PBS, Discovery Channel, Cool Hunting and WIRED, among others. He has lectured at TED, SXSW, TTI Vanguard, Google, UC Berkeley, SMFA, CCA, MIT, and other universities. Reben has built robots for NASA, and is a graduate of the MIT Media Lab, where he studied human-robot symbiosis and art. He is a 2016-2017 WIRED innovation fellow, a Stochastic Labs Resident, and a recent visiting scholar in the UC Berkeley psychology department.

Credits

Nadav Hochman	Co-lead Investigator and Co-author | Art + Tech Report 2019
Alex Reben	Co-lead Investigator and Co-author | Art + Tech Report 2019
Victoria Beckley	Cartographer | The Grid
Roel Nuyts	Senior Advisor | The Grid

EUNIC Silicon Valley

Clara Blume	Head of Art, Science, and Technology | Open Austria President | EUNIC Silicon Valley
Martin Rauchbauer	Austrian Consul and Co-Director | Open Austria
Juliette Donadieu	Cultural Attaché | French Consulate SF
Annamaria di Giorgio	Director | Italian Cultural Institute SF
Noémie Njangiru	Director | Goethe Institute SF
Bettina Wodianka	Cultural Affairs Coordinator | Goethe Institute SF
Benjamin Bollman	Deputy CEO | Swissnex SF

Picture Gallery: Launch of The Grid, Dec 4, Gray Area SF

Picture © Beth LaBerge