Internet as common or capture of collective intelligence

Seminar proceedings

Decentralised Citizens ENgagement Technologies

Specific Targeted Research Project Collective Awareness Platforms

d-cent

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1. Introduction: Internet as commons or capture of collective intelligence[1]

The principal purpose of this research is to develop a common background for understanding the new forms of production, organisation, valorisation, and surveillance based on the internet. In particular, this paper wants to investigate the emergence and expansion of the **"Internet Identity Marketplace"**, focusing on its implications and consequences on the economy and the society, and on the shift of powers. A critical assessment of today's economic models in the digital economy should present an integrated approach that includes economics, technology, policy, and regulation.

During the last few years, the internet economy is mainly developing using a business model that offers services for free to the end users, but at the same time creates profits by mining, aggregating, and selling personal and social data for commercial and surveillance purposes. Therefore, the lives of internet users are continuously electronically tracked, analysed, clustered and segmented in profiles and graphs: a commodity for the "markets of identity", with large implications on the users' privacy and the rights related to personal data. The management and the continuous collection and analysis of this huge amounts of personal information ("Big Data") - key to establish a competitive advantage in the market - allows few dominant actors to manage the identity, the forms communication and even the social relations and behaviours of the connected population. Here the conflict touches a raw nerve: Subjectivity itself is the heart of the accumulation process, which sees the "Rentiers of the general intellect" as the new powers. The huge financial and technical resources needed for collecting, aggregating, processing, and managing such massive amount of information, thus leads naturally to the formation of global oligopolies.

Today the internet ecosystem is becoming increasingly concentrated with Google controlling nearly 82% of the global search market and 98% of the mobile search market, Facebook is dominating the Social Networking and Identity Ecosystem, while Apple, Amazon and Microsoft are controlling the mobile market and cloud-based services platforms. The incumbent global telecom operators are also expanding their business towards this new market, attempting to control the internet cloud services and tax "over the top" players, representing a threat to net neutrality. Even more worrying, the latest NSA data-gate showed that surveillance is at the core of the U.S. government operations and the U.S. National Security Agency is acting as the ultimate big brother metadata aggregator. Leaked classified documents confirmed that the NSA doesn't need any court authorisation and uses secret laws, in order to secretly collect and sift through all contents of Internet communication, phone calls and store large amount of data about citizens worldwide, with huge implication on civil liberties and privacy.

Given this context, the open and transparent internet of today risks becoming a market of citizens' data, dominated and managed by few monopolies, that facilitates the overall U.S. surveillance of the global internet. There has been little attention paid to the evolution of personal data-markets and their implications by policy-makers and by institutions such as the European Parliament or by the bodies involved in internet governance, regulations and standards (such as IETF, W3C, ISOC). Most

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[1] Introductory paper for the Internet Identity Ecosystem seminar by Francesca Bria, Francesco Nachira, Federico Primosig

of them are working without a coherent "big picture". Analyses today are mostly fragmented and focusing on specific sectorial aspects of the internet ecosystem and based on specific disciplinary background. We are facing the difficulty of grasping this pervasive, complex and opaque identity system in any holistic way where the actors involved in the production and in the shaping of these systems (such as hackers, developers, designers and citizens), often perceive just few aspects, while those who develop a critical socio-economic approach are alien to most of these processes. This initiative aims at activating a process of recomposition of the subjects of production, hackers, activist, citizens, and researchers from various disciplines: first step in the process of awareness-raising and of analysis of the interests at stake, in order to identify a political strategy and a critique of the political economy of the Internet that includes both technical, legal, economic and policy aspects of the ongoing processes.

This report aims at constructing a multidisciplinary, integrated common vision, that can lead within the D-CENT project to the creation of a constituency that will work on awareness, new rights and claims, self-governance issues, technical standards, but also on proposals and concrete initiatives, practical alternative developments and actions. In case of failure of building a shared vision and a global framework, and without effective actions, it is likely that the future technical and economic development of the internet will be dominated by a few oligopolies. As a consequence, the transparent process of multi-stakeholder governance, realised until now, will gradually become marginal and eventually fade away.

The internet is the global nervous system of the 21st century. A social machine, engine of collective intelligence that has developed over the past 30 years through shared principles. Thanks to open protocols, open standards and formats, free software, and open licenses, the internet was conceived as an open and distributed infrastructure, enabling the emergence of new forms of organisation, bottom up creativity and social cooperation. Digital networks represent the space of widespread social cooperation and new forms of democratic organisation and at the same time the new attempt to capture the power of collective intelligence by a capitalism based on the biopolitical production of the common. The new enclosure and re-appropriation by capital of the internet that at the dawn was shaping up as a common, have gradually and profoundly changed the structure, the rules of property, the map of powers and the forms of control.

We are seeing a wild re-centralisation, enclosure and monetisation of data and resources, and enforcement of new regimes of intellectual property laws, resulting in real wars between competing proprietary ecosystems about patents and in order to lock in users' identity within their digital ecosystems. This attempt to maximise value extraction from social and personal data, assumes a central importance in an economy desperately seeking for new sources of value extraction, within a continuous transformation of the forms of production and valorisation, the sites and the subjects of production: • i.e. the users become unaware producer of information, knowledge and relationships continuously captured from social networks and through the use of a myriad of data capture tools and sensor networks. Furthermore users become the unaware "products", whose data is sold in the multi sided markets emerging from the recent re-verticalisation and re-centralisation of the internet ecosystem • i.e. the new innovators (geeks, hackers, makers, open data movements, connected communities) are the developers of new algorithms, applications, and business models that are today captured by the large oligopolies. If you are an innovative micro-SME you need to plug in to the ecosystem of Facebook, Amazon, Apple or Google in order to survive; only a few succeed and get bought). At the same time new forms of resistance emerge to defend collaborative economy in

opposition to the rent economy; to defend privacy; to defend the open internet from the new enclosures, surveillance and the identity marketplace; • i.e. the do-it-yourself open hardware manufacturers and designers, the open software developers, digital social innovators, and creatives that are reinventing the cooperative production of the 21st Century in opposition to the incumbent monopolies.

The internet has huge potential to help people and communities collaborate in mapping shared resources, collective needs and addressing major challenges. Today the internet isn't just disrupting industries but is now changing real world institutions, such as the political and the financial system. But, despite the huge potential of online networks to transform everyday democratic decision making or to enable citizens to shape their own economic destiny, today's internet has done little to challenge older power structures, while instead becoming highly centralised, and creating new centralised global powers. Personal and social data are becoming the oil of the 21st century its critical infrastructure and the currency of the digital economy. Billions of people use services that are apparently free, but actually paid by the fact that those who manage these services can legally monitor and spy on those who use them. The opportunity is to analyse, predict, and shape, while profiting from each point in the value chain, giving rise to what has been defined "surveillance capital".

New flows of user-generated data are continuously gathered and analysed from sensors, surveillance cameras, phones, satellites, street view, corporate and government databases (from banks, credit card, credit rating, and telecom companies). Thanks to the Internet of Things and the proliferation of smart devices, our every act can be observed, and monetised. The analysis of big data sets began as a way to reduce uncertainty by discovering the probabilities of future patterns in the behaviour of people and systems. Now the focus has shifted to the commercial monetisation of knowledge about current peoples' behaviour as well as influencing and shaping emerging behaviour for future revenue streams. As today, much of this personal data is gathered and sold without users' explicit informed consent. Because the new data assets were produced through surveillance, they constitute a new asset class that some call "surveillance assets". In this context, marketing techniques become indistinguishable from surveillance techniques, as their goal is the profiling and targeting of population and the efficient manipulation of consumer demand, attempting to monitor, capture and control the subjectivity of the potential target of their consumer products.

The monitoring work should not be confused with a repressive censorship of abnormal or even antagonistic behaviour, but rather as a continuous monitoring of social relationships that develop in an open space, in order to extract value from those relationships. The aim is to encircle the open space of communication and expression of autonomous subjectivity, which is taking place on the Internet, within an enclosed space. Wanting to use Foucauldian terms the project is to merge the spatial localisation of the disciplinary control to the open space of biopolitics with the constant demand to "talk about oneself" to become subjectivity, of the pastoral power. The production of subjectivity through digital technology becomes at the same time a form of personal investment in "cultivation" and production of the self and a new form of control through data surveillance. The Facebook IPO is a paradigm shift, a point of no return, as Facebook's strategic asset is the social graph of users and the key to the evaluation of its shares on the stock markets is the ability to monetise the labour of its users and their social relationships. Facebook therefore resembles more a centralised bank of the future than a social networking playground. The very concept of privacy is revolutionised, because the more people share data about their personal life, the more people are

rewarded with peer attention, which is a strong social motivation to continue to share information and aggregate trust and reputation.

Thus privacy becomes incomprehensible to the younger generation that engage in the daily communication game of Facebook, in which personal data and privacy become commodities to be traded with companies in exchange for free personalised services and recommendations. This is the "free" model popularised by the gurus of the new economy: free, but in exchange of the consent to become a product to be sold in the Identity Marketplace. The billions of thoughts, feelings and dreams that millions of people "share" across the globe are the overwhelming wealth of the multitude, are becoming immediately productive. Every relationship and every one of our cognitive actions are turned into a commodity ready to be exploited, monitored and monetised.

We are thus facing one of the greatest battles against the new enclosures and privatisation of future critical infrastructures. The battle over control of data and digital identities, the battle for an open, distributed and neutral internet, to keep the internet as a common space for the production of the public good. It's now becoming necessary to claim that the production and sharing of commons - including data, code, social relationships and networks, affects, and subjectivity - is central to the production process. Potential conflicts due to the expropriation of value produced by the collective intelligence and the potential reaction of users to the continuous capture of their activities have been identified. Alternative proposals aim at circumventing such conflict and to avoid the claims of internet and the social data as a common, in order to continue to track, measure and monetise of all citizens' activities in order to redistribute a percentage of the value produced.

If our communication ability and our capacity to collaborate and produce in common is immediately transformed into economic value by the new "rentiers of the collective intelligence", the central question is then how to escape all this and claim a free collective production for a wealth that is equally distributed (e.g through the affirmation of data and knowledge as commons). Internet must remain a social grassroots space for collective intelligence to strive, and therefore must be re-appropriated to build a new kind of democracy, and to organise a new common fare. In the battles over privacy and management of social data, the affirmation of new social and digital rights become crucial for ensuring common access to the network infrastructure and collective knowledge.

Part 1: Fundamental rights and freedoms in the Internet Age: Identity, citizenship and the common

1.1 Francesca Bria, introduction to the panel

We have now just finished two days of seminar in which we discussed the internet as a common good and the internet as a means for the capture and surveillance of collective intelligence. We think this contradiction is still an unresolved issue, which opens up the need to construct new forms of democracy based on the collective intelligence of citizens.

This workshop aimed to reflect on the relationship between the internet, democracy and fundamental rights and new forms of citizenships. It also poses the question of the common good and identity that is today the core of the digital economy and captured by the rational of economic efficiency.

It could be misleading to have a debate about the internet identity ecosystem only looking at technological aspects, so one of the main objectives of this seminar and report is to ground the internet debate within a multidisciplinary framework, analysing the transformation of fundamental political and juridical categories such as democracy, the common goods, and the constitution as argued by Stefano Rodotá. We start here from the need to redefine concepts such as rights, identity and citizenship in the light of the technological revolution, and to reflect around some of the following big themes:

1. We should start by reflecting on the title of the seminar "the internet on one side as a common good or capturing and surveillance of collective intelligence". This apparent contradiction creates a tension that should lead us to explore alternative spaces for emancipation and building new structures of democracy at the light of the NSA revelations.

2. We now know the power of centralised knowledge for surveillance and control, which often involves the kind of permanent tracking collection and surveillance of personal information and personal data from national state agencies and the surveillance apparatus. However, what seems very worrying is the inter-link between the surveillance apparatus and the big technology companies. This is the strong relation between surveillance and the production of subjectivity through marketing and advertising techniques. What Shoshana Zuboff called "the surveillance capitalism of Big Data"; Morozov "information consumerism" and Byung-Chul Han the digital panopticon giving rise to a new Psychopolitics.

3. The other big question that will be discussed in this panel is if we think people are passively accepting to live in a digital panopticon or if new spaces and possibilities are emerging would

people use technology to build new structures of democracy based on the commons? While we have a lot of knowledge about what it means to centralise knowledge and power to exercise control in the information age, we know much less about what it means to reinvent democracy and new institutional structures. I do know it is difficult to talk about democracy in a moment of deep crises of legitimacy of the current political institutions and the current systems. However, it is a great challenge to try to redefine the meaning of democracy through new constituent practices and debates like this one.

1.2 Stefano Rodotá: Power and Rights on the Internet

I have to admit I was not surprised by what Snowden told us, we were supposed to know all of that. When I was the president of the group of the European data protection Supervisors, I negotiated with the U.S. before 9/11. I have been dealing mainly with the market front, and, after the 9/11, mostly with security issues. The first achievement was the so-called **safe-harbour agreement,** its goal was to allow American companies to process data according to standards compatible to the European ones. We were also trying to avoid some of the consequences that indeed materialised, for example the formation of a global network of interests; the growing permeability between private subjects and public needs and so on. All these things have also been pointed out in a series of reports that I submitted to the Italian Parliament. So now we should be asking: how is it possible that nothing happened despite the fact that we all knew? Did we really have to wait for Snowden?

Some years ago, before the massive spreading of "web 2.0", Big Data and IoT, a book with the very interesting title "Orwell in Athens" was released. This book was about the striking contradiction between how the internet was used to rescue a democracy in distress and the simultaneous creation of a situation of control. We're not just talking about Orwell's notion of control entrusted in a political body, we're talking about a joint venture between the security agency and the big stakeholders that need to collect raw material in the form of personal data. We didn't really need so much fantasy to foresee what capitalism would have become.

It's clear that we need a paradigm shift. The more we see programs like the NSA PRISM, the more we understand that we should think in terms of freedom and creation of conditions of autonomy within our system. They are not only collecting our data, but **they are reducing the conditions for autonomous action**, **starting from the construction of identity**. In the past identity was defined by the words "I am what I say I am", but today "I am what Google says I am". This is a joke but it's also true. It's sufficient to check the first ten results you get from Google to have an idea of how identity is constructed. This is obviously a more complex issue, we should consider the algorithms, how the basic elements used to track a profile are selected, the probabilistic logic used in order to project your identity in the future and so on, but in conclusion the construction of identity has nothing to do anymore with the autonomous contribution of the subject concerned. We've moved away from the old concept of privacy or the dialectic between private and public. This means that we cannot base our work on the ground on which we have built public institutions until now. National institutions not only do not live up to the globalisation, which is implied in the internet and in current capitalism, but they do not even live up to the national situation. Clearly it is very important to ask politics to take a position in this field.

I was really impressed by the fact that the president of Brazil, Dilma Roussef, refused to meet Obama until the citizens of her country were provided with guarantees that they will not be spied upon. And we're not just talking about spying because what has been denied is the possibility to have our own freedom protected, this means denying the essence of citizenship. It is ultimately a problem that involves the notion of humanity itself because when I am subjected to a process and I don't have any legal tool, then I am a mere object, my humanity disappears all of a sudden, the element to which I can attach what we call rights disappears. I quoted the case of Brazil to evoke the battles fought in the name of a possible **Internet bill of rights**. There is an area of the world, namely Latin America, which chose another paradigm, another model of protection of freedom on the internet, which is the same as the European model and these two stakeholders could have a political impact when faced with the same problem. But I must say there is nobody acting effectively in the European Parliament today. When we try to look to what is happening on the issue of freedom of the net, we realise how the constitutionalism of this millennium is something that should really pay a lot more credit to what is happening in South America.

Just two remarks to get to the question of if and how it is possible today to construct a bill of rights for the internet.

A first fact that we should consider is that in comparison to the moment in which this debate started a few years ago now there are stronger attempts to neutralise this discourse, and the big owners of the world, like Google, Facebook, Microsoft, are playing a very important role in this attempt. Just an example on the issue of identity: if every time a single individual signs up online must reveal his whole identity this will be perceived as a form of pressure. In order to free people from this mechanism someone tried to develop a fairly advanced notion of a user-centric identity, which means that I can divide my identity in many parts and I can just give out what is strictly necessary for that specific transaction. This was a way to neutralise the problem by giving to those directly concerned the impression that they were having more power. Later people started to ask themselves how to keep constantly under control this parcelised identity disseminated through the world and the various subjects that are going about trying to put their hands over one of its pieces. This created a market of controllers of identity, in which people are willing to pay in order for this job to be done on their behalf. So through the idea of granting more rights I am in fact accepting an even deeper market logic. We're replacing the public debate with a facade of empowerment of the individual subjects. When we think about the Internet of Things this is even clearer. There are official documents of the European Union from ten years ago stating that a digital tsunami was approaching, and the EU wasn't concerned about it but it actually considered it as an opportunity for institutions to keep people's behaviours and social phenomena under better control.

The possibility to sell our data makes the problem even more complicated. Why, in front of an appropriation that I can't avoid, shouldn't I embrace the market logic and sell my data? This means once again integrating the person into the market by making data profitable. I propose to use the article 3 of the fundamental rights of the European Union, which was written for the physical body and states that the body and all its components and parts cannot be an object of profit. Nowadays, to refer to data and identity, we often use the term *electronic body*, something that accompanies the physical body. If I sell a piece of my skin the possible negative consequences are far less important than the ones that may arise if I sell my genetic data, so I wonder if we can apply this article 3 also to say that I cannot sell my electronic body. What I want to say with this example is that the discourse on the internet bill of rights cannot be based on the historical declaration of rights; that is not

sufficient. The internet bill of rights represents a new frontier to question what concerns the issue of property revised from the perspective of the internet.

What does it mean to consider the internet as a common? That's an essential question that we should explore if we want to move in that direction. This means considering the access to the internet as a fundamental right of the individual. But there is also another issue if we consider the internet as a common, that is the problem implied in the idea of common itself: who is the subject managing that common? This question though doesn't really apply to online knowledge, because millions of people cannot embody the subject that will manage a common, they cannot be the management of knowledge on the net (which is of course different from the governance of the Internet itself). Elinor Ostrom, one of the major scholars in this field, said that there are also commons that are not community based, because the community that refers to that common will not be the actor managing it, in this case the internet. It would be nonsense to just decide with a lottery that a million people will manage the internet in the interest of all the internet users.

The problem is that **we have to create the political and juridical conditions in order for the internet to be accessible by everyone**. That is an extremely delicate point because it leads us to ask what the role of economic intermediation is when it comes to the access of knowledge on the net. In old debates on the internet, people used to speak of the net as disintermediation but that turned out to be a totally wrong premonition. Today we could say that we are happy prisoners of the intermediators, for example we would feel lost without the tools offered by Google. This means that mediation is coming back into play as a form of power distribution, and because it is a form of power distribution the problem of property and of ownership is intrinsically connected to it.

1.3 Smari McCarthy: Identity, markets, and the State

For the greatest part of human history identity has been ephemeral, non binding, relative and self determined, but there have been three major innovations that have pushed identities to become more lasting, binding, absolute and externally determined: tribes, institutions and markets. Tribes first required people to have an identifier within the tribe. These identifiers were not really meaningful outside of the tribe and they formed the basis for determination or designation by parents and tribal elders, but identifiers in that setting were primarily functional. When states formed, their institutionalised functions required control over identity. During the colonial period, in the Philippines for instance, the Spanish governor found it very difficult to keep track of which families had paid their tax because within each village each person had a tribally determined identifier which said nothing of family relationship. So the cunning governor solved the problem by having family names assigned to each family, allocated in alphabetical order from a list of Spanish flower names. This led to a modernity where there is an almost a one to one mapping between a site and a prefixed tree of family names and a site and a quadtree of geographical locations in the Philippines. But in order to fulfil the institutional functions in an acceptable way these institutions need to bind a serializable identifier to any individual in a unique and absolute way. Citizens of Nordic countries for instance are acutely aware of the fact that "I am a number I am not a free man", and as far as the Icelandic government is concerned I am citizen or individual number 0702842789.

So the institutionalisation of identity happened to a very large degree, alongside the formalisation of connections between individuals and groups producing goods. This was when the markets came in. When trade started, identity just gave recognition to previous partners engaged in trading but, as it became more complex, identity laid the foundation for trust, direct trust but also transitive reputational trust. The industrial revolution opened to what we see today: the workers increasingly needed to be identified by their employers, by their banks, by the state, by the merchants they interacted with and so identity turned into an unwavering feature of society. We have actually become very deeply distrustful of anybody who gives us a pseudonym or an identity we believe not to be the canonical identity issued by the state. This behaviour is not human dishonesty but institutional dishonesty and it violates the unspoken laws of market.

Then comes the internet where companies had been given a computational basis on which to enforce identifiers and a global realm on which to incur absolute identity, an increasingly centralised identity structure allows enforcement of identity: twitter knows me as smarimc, facebook knows me as object number 804919250 and my email address is smari@immi.is. In a network reality, not in the sense of the internet but rather in the sense of a group of individuals connecting to each other in a global society, we should not need to have lasting, binding, absolute or externally determined identities. The imposition of identity is a subjugation of liberty. Which is not to say that we should or can necessarily function without identity but rather that we simply need to have the feet into an uninstitutionalised way of indicating a person, which allows or disallows navigating in different social situations and social groups being anonymous.

So cryptography would be a part of the solution but not the entire solution. The state and its corporate allies, like the googles or the facebooks of the world, will be part of the anti-solution. It is very interesting to observe that the public/private partnerships are becoming the larger single attack factor on the right to privacy that exists. States with mixed economies are facilitating some of the greatest atrocities against the human right to not identify ourselves. So let's be very clear, the imposition of identity is an authoritarian act: when people ask who you are without giving you the right to reject the question then they are being authoritarian. The network model of society must necessarily eliminate the imposition or it must come to a kind of totalitarianism that will make the NSA look like a litter of kittens with a ball of string.

The commons, to come to that, **do not require identity, at least not in a centralised form.** It's only within a system of state capitalism, a system where the state holds a monopoly over the legitimate use of violence and uses this monopoly to create and uphold monopolies on resources of many kinds on behalf of the corporate clients, that global identities are needed. For global commerce an individual can have multiple identities, they can have all sort of different names and trade under multiple roles but for state capitalism the identities needs to be taxed and disenfranchised people needs to be known. So how does this fit into fundamental rights? I have the fundamental right to privacy, that's well established, privacy is the right to selectively expose yourself to the world. But if I have my identity dictated to me by a state or by a company then I have lost an astounding amount of my ability to self-determine what level of exposure I allow towards the world. So in short I am me, you do not get to be more specific than that without my explicit permission.

To understand what we can do to foster direct democracy, it can be good to look at tools such as free software and privacy rights. Some of the main problems are intellectual monopoly (e.g. IP and copyright) and political power, which allows processes such as the constitutional reform in Iceland to

fail. Monopolies which allow the unfair distribution of resources from the common are part of the problem, so it isn't just the fact that we are looking at the world from a very technical minded perspective, it's that we see the technical world as an important way of understanding change. So when we attack copyright and we say that everybody should have cryptography, or that it would be very good if instead of having 435 millions of people with all their email on gmail; we would prefer a distributed infrastructure so that everybody can have control over their own data, we're saying this from a political perspective.

I think the world needs two key things: firstly, full unbounded transparency in all institutional functions, meaning the common citizen should be able to see and understand everything that institutions are doing. Today we assist to what we can call a "protocolization of these institutions". Secondly, knowing what's happening is not enough, we also need to have the ability to intervene and participate in a decision-making processes. **In summary we need full transparency and direct democracy.**

Let me bring the example of the constitutional reform started in Iceland a couple of years ago, after the financial crash. We recognised that the old constitution was a 19th century constitution from the Danish state which was designed to serve certain purposes of 19th century Danish bureaucrats and not the purposes of 21st century Icelandic citizens in a democracy, so we needed to rewrite it. The drafting process was a combination of a group of 25 elected people in a constitutional council who did the core writing, and the crowdsourcing of opinions to the citizenship. The constitutional council solicited comments and ideas from the general public through social media such as Facebook, Twitter and YouTube and various other platforms in addition to email and forms on their website and so on. They in fact used a similar process to what software developers call "scrum" or "agile development" to write a constitution which was then sent to the Parliament to be approved. So it arrived to the Parliament, it was tuned on for about a year and half and then it was unceremoniously dropped with the change of Government. So we demonstrated a good process of collaboration and participation which was mediated through a centralised structure, which was a very good experiment and it does show us something about the pathway in which we need to go. Now reality is that kind of thing gets killed because the constitution that was written by the constitutional council created entering points for direct democracy and civilian participation in the political process, and nobody who's in power wants that.

1.4   Eugeny Morozov: Big Data as information consumerism

Even though our panel is supposed to be about the internet and identity, I think that the internet is a concept that ties our hands both with regards to the future and to the past. What I mean by this is that if you actually think about what is going to happen in the next five or ten years, I doubt that the notion of the internet will be helpful to understand how various sensors, cameras, screens and other types of devices generating feedback will proliferate in our environment. We will have fridges talking to your cars, your cars talking to bus stops, your smart phones talking to websites, websites talking to all sorts of other artefacts. Cyberspace and the internet I think were bad intellectual models to start this debate in the 90's and now we are suddenly breaking away from these concepts and partly because the trends in the economy and capitalism are forcing us to do so. Sensors will be

everywhere and we need new models. This is in regard to the future, but in regard to the past I think grounding this debate in some broader historiography of the internet also blinds us to the fact that many of the logics, whose consequences we are currently going through, have their start and actually predate the internet, or they predate the information society as such.

Various police departments have been using databases in the same ways that we are referring now to big data and before big data was a buzzword. Police in Germany were already using databases that they got from banks and insurance companies in the late 70's, to narrow down suspects from the R.A.F. so they managed to identify several of them by essentially cross comparing different databases one against each other. That was before the debate about big data and the debate about the internet. What we need to understand is that the logic and the logics, rather in plural, that drive any of these developments have to do with capitalism, what they have to do with bureaucratic administration, and what they have to do with liberalism. They are not just logics that are specific to the internet or social media web 2.0 or even 9/11. And what, I would argue about what has happened in the last ten years or so is that many of those logics got intensified for technological and political reasons. The technological reason is just that now all of us are carrying mobile phones and smartphones in our pockets and those smart phones have sensors and internet connectivity, so new forms of providing and collecting information and generating feedback become possible. Therefore new forms of governance of citizens and subjects become possible as well, because your smart phone can monitor what it is that you do, tell you what it is you're doing wrong and seek some kind of intervention. That's the kind of possibility that was not on the table 10 or 15 years ago.

This is what has changed technologically, but what has changed politically is that neoliberalism has intensified to a point where the logic of prevention, in which we are trying to prevent problems rather than deal with their consequences, has run over. And this is the same technique that we are trying to apply to everything from tax cheats to terrorism. We are trying to identify people, or causes, or problems before they have actually caused any trouble, we try to deal with them before we are faced with the consequences and we try to do that by delegating most of the problem solving to citizens, rather than involving political institutions to engage in reforms and by addressing the symptoms of the problem rather than its causes.

The situation is quite clear when we talk about terrorism or NSA, because nobody is even talking anymore about why terrorism exists or what has caused so many people to be so upset, let's say with the United States, no one is talking about reforming foreign policy, no one is linking it to questions in the middle east, no one is talking about that. We are all talking about ways in which we can optimise our data gathering process to identify people who are problematic; we don't ask anymore why they are problematic. And that's the question that should itself be subjected to political and democratic debate. That's something we ought to remember how to do and not just to talk about how we can hide from the state that has embarked in this essentially preventive quest.

But the same logic applies in far less sinister walks of life. It's not yet the case in Europe but if you look at America, if you look at Washington, the most buzzworthy word is "nudging" and "behaviour economics". The idea is that you can tap into some of the same technological infrastructure that has been made available by Silicon Valley, which is smart phones and social networks, to get citizens to basically change habits that might cause problems to them or to the world at large. So if your smartphone can be engaged or employed to monitor how much you exercise everyday, how much you walk and can also be employed to tell you that you're not walking enough, that's how we would

be solving the problem of obesity. If your smartphone or your smart trash can in your kitchen, can monitor that you're not eating enough vegetables you will be informed that you need to eat more vegetables, if the same gadget monitor tells you that you are contributing badly to climate change you will be told to stop driving this car or start recycling more correctly. All of those might seem like finding solutions, but you have to understand that we are solving problems that I think are important, like obesity or climate change, through a perspective that essentially offloads all problem solving on the citizens.

It's now a matter of yours to change your behaviour to the system, which is held permanent, rather than going and reforming the system itself. No one actually wants to talk about reforming the system or going and fighting lobbies, go and fight the energy industries or going and fight the food industries. It's all about you as individual receiving and processing the right feedback loops in order to adjust your own behaviour. Many citizens by the way are quite happy with this approach, in part because there is a new economic and business model attached to data that allows us to collect our own private data and share it with intermediaries, who then either integrate it with other data sets or then resell it to the NSA or other agencies. So essentially you cannot have this debate without linking it to new forms of ownership and political economy that are emerging.

In the future I bet that you'll be getting for free most of the gadgets you would otherwise buy, for one simple reason: you can use your data that will be generated in the process of using those gadgets to subsidies the gadget itself. So if your smart toothbrush can generate data about your tooth brushing habits, you can get the toothbrush for free and then, whatever data it generates, will be fed into some database somewhere that will allow you essentially to get it for free. That's more or less how exactly Gmail works and that's more or less how I think many of the other physical things you will be buying will work and will be available to us as well. For example you already got a huge discount on buying a kindle e-reader if you agree to let Amazon show you advertising, and it will be just a very tiny step again in that direction to give you the reader for free as long as you allow them to show you customised ads that will be based on what it is that you look up and what it is that you want. The problem here is not only that it's very intrusive of privacy, which of course it is, the problem is that many people actually accept that for reasons that have to do with the consumer mentality. We're invited to think about interaction with data and information purely in economic terms, and as long as we're invited to think about them as purely economic, rather than in social or political terms, many of us opt for whatever is cheapest.

This is why it is very important to politicise this debate and to figure out ways in which we can start attaching all sort of ethical dimensions to data use or to data sharing. If for example my ability to track my own health and then share these data with my insurance company is going to adversely affect working class people, because the system will adjust itself and they will have to start suddenly to pay more, it means that perhaps I should think twice about whether I want to make that decision, because it will negatively affect someone even though it will economically benefit me. What we need is a new ecologically inspired model for information sharing. We need to be able to articulate the political costs of information sharing, which is currently not at all priced, in how we build and use our gadgets.

The problem here, and this is why I think we need to link it back to debates about democracy and to debates about freedom, is that under these conditions we have technocrats who can essentially optimise the system by building all sort of nudges and all sort of preventive logics. The problem is

how democracy no longer needs citizens, all they need is our smartphones through which they can generate feedback, get us to do something and then understand what it is that we've done and incorporate that feedback to try to optimise the system. The citizens no longer need to express opinions on policies; they no longer need to intervene. No one is even questioning the basic assumption that drives most of our policies but they're just trying to optimise them. We need to break away from that logic and I think that this is possible but it would require a degree of politicisation of these debates that we haven't seen so far. It would also require getting a much more ambitious macro-level view that will allow us to get away from many of those debates from free software and the internet. We have to re-situate them in much broader, longer and ambitious debates about bureaucratic administration, capitalism and neoliberalism. This is not a problem with the internet, it's a problem with modernity and it's not something you can just address by building better internet standards. Trying to solve these problems only by essentially making our software/hardware more decentralised and more free is not going to solve the challenges of consumerism and neoliberalism broadly, that I see driving some of these phenomena.

When I say that we need to get away from the idea of the internet, what I mean is that we also need to get away from a lot of metaphysical assumptions that are smuggled with that idea, for example, an idea like internet freedom which I think is a driving force behind many emerging social movements today. **I just don't think that an idea like the internet is a good organising metaphor to tie social movements' efforts and it might be that there will be other metaphors.** The active involvement of citizenship, formulating responses to foreign policy or formulating opinions on how we should tackle climate change, obesity, whether we should do a sort of nudging, whether we should go through reforms of companies: these are all big issues that are not covered by just focusing on questions of copyright or questions of secrecy. I want to open this discourse to other considerations that have to do with democracy and ethics.

1.5 Interview with Evgeny Morozov

The importance of the immaterial assets of companies like Google and Facebook just prove that a crucial point of no return has been reached in the way user data is valued in the financial market. Do you think the rise of data-driven economy transforms the labour market and the relation between market, workers and consumers?

Well, there are a number of things going on. On the one hand, companies like Uber, Airbnb and many others that are traditionally lumped under the label of "the sharing economy" have figured out that user data, properly organised, can significantly lower their costs of doing business – mostly, simply by turning that data into "reputational assets" of customers and then filtering out those who might prove to be expensive in the long run (and by "expensive" I mean "likely to incur additional costs" in damages or just normal operational expenses). This has also allowed these companies to present themselves as entirely new, platform-driven businesses that shouldn't be regulated based on the conventional model applied to industries like taxis and hotels. One of the rationales that Uber et al rely on to justify is precisely their ability to use user data in a way that other industries could not. So, even without taking any normative stance on whether this is good or bad, we can see that both the workers and customers of these companies are affected. On the other hand, we also have companies like Google and Facebook, which have a somewhat different business model than the "sharing economy" but who nonetheless greatly improve their services by tapping into data

generated by users. I'm not sure I fully buy the argument that this has count as "work" or "labour" but, fortunately, one doesn't have to fully accept this argument in order to agree that, perhaps, there's some extra, unaccounted-for value that accrues to Google and that we should, perhaps, think of alternative ways to capture that value. Treating this data generation as labour risks forcing us into a social democratic corner, where the only thing we can do about these companies is to tax them so that at least that labour is properly compensated. Tax them we must but it surely cannot and should not be the only option at our disposal.

The question of the evaluation of data is very controversial. The WEF talks about a new asset class, and many consultancy companies predict a large market for data. Is this a new bubble?

It surely is a new asset class in as much as there's a market in it but I doubt that this description solves the underlying philosophical and political problem: should it be an asset class at all? I mean, if the WEF was around in the 19th century America, they'd also be issuing reports saying that people are an asset class; that's their (ugly) job. Now, here we have two different questions: 1) should this be an asset? 2) is the current valuation of this asset, irrespective of the answer to question 1, too high/close to the bubble level? My own political view on the first question is that no, it shouldn't be an asset – at least not in the vast majority of cases. The argument against treating is as an asset would be similar to the argument against strong copyright protection: cultural goods do not drop from the sky, they are usually built on centuries of other people's toil. So is data, albeit in a somewhat different manner and with some exceptions (so is the case with copyright as far as I'm concerned; I can imagine some very weak copyright protections coexisting with a very permissive use regime). There are, of course, tons of additional problems here; if this plan is ever implemented in any Western European or North American country, my suspicion is that this data will still end up benefiting the giant companies because they are in a best position to capture and analyse it and make it useful. So, hypothetically speaking, even if we do have a government willing to bestow a non-commodity status on data, there are many other steps – including those at the level of infrastructure – that ought to be solved first. With regards to the current value of such data, well, I do think that the likes of Facebook and Google are overvalued (not to mention Uber). But this game has left the realm of mathematics and even abstract model-building long time ago. I wouldn't even be sure where to start in valuing a company like Uber; like any other company of its promise and scale, it gets a giant but hard-to-quantify premium as a likely acquisition by Google.

Do you think the issue of the ownership of infrastructures and data should move away from the ethic of ultra liberalism? What does data mean in relation to 21st century industrial economy? Are we moving to a new mode of industrial production?

If we are talking about the many contemporary discussions that seek to relocate the ownership of data from a giant corporate provider to an individual user without questioning the commodity status of that data, then, yes, I can see how this is rooted in the liberal paradigm of property rights and how, left to its own devices, this can actually give us neoliberal financialisation on steroids. Take all these proposals by the likes of Jaron Lanier where we would be able to collect and sell our own data. It's a very American solution: you solve a market problem with more markets. But I'm not sure that this is the right way to resolve the problem; do I really want to be constantly thinking about what kinds of data I want to generate in order to get the highest payment? I fear this would turn

people into neurotic speculators, who are turning their entire life into a giant derivative. I do think that linking the question of data ownership to the question of production is a promising avenue of advocacy and investigation though: clearly, if nothing is done, we'll end up with just one giant company – Google – taking an industry after industry and knocking them out simply because they have access to superior data, both about customers but also about changing trends in the economy, possible fluctuations in demand, risk of major turbulence and so on. Data lends itself to natural monopoly and when every industry becomes data-intensive, we might end up with just one company in charge of everything. There's another scenario, where that one company will simply be the state. Or you can think of a third – and the most appealing option – where the state does enforce a strong non-commodity regime for public ownership of data (and the associated infrastructure) but then encourages more common-oriented welfare services around that data.

The debate after Snowden seemed to point to the state as the enemy of the people and they risk leaving the strongest of private actors, in other words big companies, as the only alternative. How identity infrastructures should be managed? Who should be paying for it?

Well, I sort of alluded to the answer with my previous question. I'm rather pessimistic about the odds that North America and Europe – barring any radical political rupture coming from, say, Greece or Spain – would be able to rid themselves off their dependency on Silicon Valley. In Europe this might happen due to the pressure of local (mostly German) businesses but even that I find unlikely: Europe loves America too much to do anything about such dependencies (and I don't think it can actually do it anyway). And then there are domestic developments, which also do not encourage a switch to alternative decentralized infrastructures – just look at the new surveillance law in France and related debates in the UK and Canada. In the US itself there's the additional complication that virtually everyone now is convinced that, with the Cold War out of the way, there would be no more big picture innovation coming out of DARPA and the like; it will come, instead, from giant monopolies like Google and Facebook. And they will be kept so giant precisely because this is the only way to ensure that some wild things are still funded (also given the political deadlock in the US, it's hard to imagine any government agency getting the crazy amounts of money Google spends on most trivial projects – the Republicans would kill it unless it's directly related to drones and killer robots). So America is lost and Europe is sort of half lost; every now and then, there are these encouraging signals in the rhetoric of some member states and European officials – all these promises of "digital sovereignty" and what not. Well, I don't think that right now the main impediment – to answer your question more directly – is either uncertainty about who/how would manage it or who would pay for it. The main obstacle is the absence of political will to experiment with a non-neoliberal path of political and economic development; the tight embraces of Silicon Valley that we see at present are just a natural consequence of that absence.

Do you think the idea of the common raised in recent years from many grass-root movements could be useful in this field and if so how? What are the most interesting empirical examples of such mixed ownership structures?

Well, as I said above, reorienting the welfare state towards a common-based, cybernetic future sounds like the only plausible (and likeable) alternative to the Silicon Valley one. We thought that neoliberalism would be this cruel beast that would leave everybody hungry, uneducated, and sick. Well, no: even neoliberals are not stupid to destroy their own workforce. But, apparently, with

Silicon Valley at the helm, we can have *some* welfare provision – on extremely neoliberal terms, I must add, where all the responsibility is on the shoulders of the patient/student/worker – and, what's so appealing to our neoliberal governments about it, this stuff will come for free. So essentially you can prolong the life of the neoliberal system even after you have privatised everything. Who would have thought that Google would ever get into the health business or that Facebook would be providing connectivity to the poor in Brazil? These companies are the neoliberal answer to the welfare state, which, in its original British version at least, was established precisely so that capitalism will have a predictable, healthy, and well-educated labour pool to draw upon. Silicon Valley helps to lend some continuity to this original neoliberal impetus to the welfare project, even if the most appealing aspects of the welfare state model are being destroyed via cuts, austerity, and privatisation. So we get some functional welfare provision – your iPhone will tell you what to do not to get sick – but it's all very degrading and rather ugly compared to a more robust and humane vision for healthcare.

The immediate temptation here might be to fall into technofobia and to start imagining alternatives to the hegemony of Silicon Valley that will be technology or sensors-free but I think it's the wrong impulse. Whatever common-based alternatives are to emerge in Europe or Latin America, they will have to be technologically advanced. The only way to beat the market, as Oskar Lange, Hayek's main contender in the social calculation debate, posited long time ago, is by relying on cybernetics (i.e. feedback generated by ubiquitous sensors) and advanced computing machinery. Let's hope that these lessons won't be lost on those building the new common-based solutions.

On the subject of remunicipilization, I very much share the sentiment. For better or worse, cities are one of the few places in Europe where some democracy is still possible and where important and consequential decisions can be taken without being suffocated by the lobbyists. This, of course, is also changing for the worse but, fortunately, there are also counter movements – like the ones we are now seeing in Spain. It's also not surprising that cities – both through the activities of companies like Uber but also through the smart city push – are also at the very front line of the neoliberal offensive. How well they will hold up will determine just how much resistance to neoliberalism will remain; if the public loses out in this battle, we might as well call it quits, at least in Europe.

Today the dominant economic model is a financialised cybernetic capitalism governed by Wall Street and Silicon Valley. Historically cybernetics was invented also as an emancipatory system, and partially had its roots in Russian cybernetic experiments and the socialist calculation debate. We also had the example of Cybersyn in Chile[2] where information systems were used for the public good. Can cybernetics still be useful today to create and manage the new common goods or it can only be used for surveillance and corporate profit maximisation?

In light of my previous answer, I can only repeat that, yes, I do think that there's much to learn in the cybernetic heritage – which also spans operations management, systems theory, and so forth. The unfortunate episode in the development of cybernetics is that, with the partial exception of Project Cybersyn, most cybernetic experiments in the socialist context never had the ability to work on the assumption of constant connectivity and interconnected feedback systems that can communicate in real-time at virtually no cost. If you think about the Soviet experience – and it was of course a very

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[2] https://mitpress.mit.edu/books/cybernetic-revolutionaries

centralised system with little resemblance to the common-based projects we have been discussing – it's actually surprising that it carried on for so long given how poorly informed the planners were. And also how easy it was to cheat the system by submitting false data and so forth. Many of these problems can now be resolved thanks to the Internet of Things on the connectivity front and technologies like blockchains on the trust/security front (imagine: replacing the lying Soviet bureaucrats with a blockchain!). Where the neoliberals won the debate in the 1980s and the 1990s is in convincing all but hardcore believers in the communist project that socialism and even more broadly communism were practically impossible to the implausibility of designing an adequate communication system that can be as effective as the market in allocating knowledge dispersed through the economy. I'm not sure that this argument is still valid today. This is not to say that NSA is an example of how one can master all that knowledge and put to effective use – we are seeing the opposite – but something like Walmart comes pretty close. Sure, there are differences here between the level of the firm and the state but we should also keep in mind that even the state would not have to do as much planning if there's in fact a shift to the common-based model. The bottom line is that, thanks in part to cybernetics, there's a wealth of knowledge out there about how one can organise production in a flexible, participatory, and empowering manner – all those words have of course become neoliberal buzzwords as well – but to decouple it from the wider neoliberal agenda. All we are missing are Cybersyn-like real-time deployments, which is a real pity.

Part 2: Social machines, automation, and production of subjectivity

2. 1 Debate between Franco Berardi (aka Bifo) and Maurizio Lazzarato

Bifo: I would like to go straight to the core of the process that we are experiencing, that humankind is experiencing through technological evolution. But I don't want to draw any immediate political conclusions from this. I would try to disconnect two hemispheres, the one of thinking over the process from the one of acting upon the process.

If we want to talk about what's happening in the relation between the human dimension and the technological evolution, we should really not interpret my words in a political sense. If we want to be radical we need to understand that, although we keep on being political animals, human will and political will have lost its grip on this process. We're going through a deep mutation that we cannot resist and that we cannot govern. We are in a situation in which we have to experience this *mutation* while we try to reproduce the conditions for life and freedom beyond this process of automation.

This mutation is something we must experience and we should not try to govern. To explain what I mean I can bring two concrete and significant examples: the diffusion of Google Glass and the widely spread use of GPS, ubiquitous logistic data, and georeferencing mechanisms for automated orientation.

I am going to tell you a story. A few months ago I was in a small town in Sardinia, a town I didn't know at all, so I didn't realise that the beach was just behind my house. I asked a lady if she knew how to get to the beach and she answered that she had forgot the navigation system at home. Now this was a lady in her 40s so she was probably having a bit of a fixation for GPS, but let's try to imagine what is happening to the generation that today is just entering the world of GPS-enabled technology. To orientate oneself is the capacity to find, record, process, and interpret emotionally meaningful data from the landscape. So the transferral of the process of orienting oneself to the machine, the navigator, risks erasing the singularity of the experience of spatial orientation. Google Glass somehow represents the generalisation of this process. When I will meet Mr. John Doe I will not need to interact with him to decide if I like this person or not. I will simply have to activate the device to recognise him in order to access the universal library of information that has been accumulated and organized by Google on this person. In my opinion this process is irresistible. What we can try to do is to foresee its evolution and imagine the possible ways out.

Given this scenario, I am not suggesting to give up the struggle for democracy and human dignity, but I really believe that this battle is lost, although we must engage in it. I'd rather think that this mutation process has already taken place, and we activate the concept of *neuroplasticity*, an important word for the future. In the neuroplastic condition it becomes possible to develop technical platforms for the activation of the collective brain, and I think this will be the biggest challenge in the future.

Why will mankind be pushed to activate the collective brain? I've recently found the answer to this question while I was in Seoul.

South Korea is the country with the highest connectivity in the world. And the territory, both the physical landscape and the psychic landscape, has been devastated by Samsung. In the streets eight persons out of ten are walking without looking around, but looking at Google Map, which has completely replaced the territory. I had the chance to meet some wonderful Korean people while I was there, so I realised that even in hell you'll still meet nice people who have their own little room with air conditioning where they spend time reading poems by Rilke. I also discovered what I believe is the reason why humanity will shift to a neuroplastic dimension.

Besides being the country with the highest rate of connectivity in the world South Korea also has one of the highest suicide rates in the world. They have a suicidal rate of 28.5 in every one hundred thousand people a year. Is there a relation between the suicidal rate and the high connectivity? Yes, I bet there is a connection, because the suicidal rate wasn't that high in Korea before: in 1981 it was 6.4, just ten years ago it was 11. This tells us that humankind will be pushed towards a quest and we, the self-organised cognitive labour, have to be the activators, the technical people that will create collective platforms, aesthetic, cultural, psychotherapeutic, but also technical platforms, to give to the self-organisation of creative labour the possibility to exist out of the corpse of financial capitalism that we currently live in.

Maurizio Lazzarato: Governmentality as interface. I will start from the notion of identity in relation to the internet. In *The Birth of Biopolitics* Michel Foucault makes a distinction between the classic idea of homo oeconomicus by Adam Smith and the more contemporary notion of homo oeconomicus, which is human capital. The human capital is the self-entrepreneur, the individual that considers his own expenses as investments in his capital as a person. Foucault defines the homo oeconomicus, the human capital, as a surface of contact between the individual and governmentality. Another term he uses is *interface*, an interface between the individual and governmentality.

He distinguishes between the individual and the homo oeconomicus because the homo oeconomicus captures different characteristics and skills of the individual but cannot be completely identified with it. We could also say that capitalism and technologies works through the **creation of surfaces of contact** between the individual and governmentality. **This system of interfaces** can materialise in different situations. For example using surveys it is possible to build an interface between people and a model of an ideal voter. Or we could think about the auditel service or the profiles created by companies through big data. These are all interfaces between a political project and the individual. These interfaces are not built in an arbitrary way: for example surveys are based on the fact that someone is asking something to somebody else, or the auditel is based on knowing that certain people watch certain broadcasting channels; and the big data profiles are based on digital traces of our behaviours that we leave when we browse the Internet, use our mobile phones or credit cards. All these processes have something to do with the subject but the subject cannot be totally assimilated by these interfaces.

The contemporary world is made up of these interfaces or contact surfaces. We could mention many different ones: just think about the consumer, the communicator and so on. All these interfaces permeate the public space. That is to say that the public space today is not made by citizens, but it is colonised by this kind of mediation. Thus, the public space as we knew it, the greek

origin of democracy as a space where the individual through language debates and becomes a political animal, is now totally transformed by these mechanic interfaces, made by languages and codes that are not human. There is certainly a gap between the individual and the machine but it is still an individual gap. **The issue is how we can find collective gaps to get out of this dimension**, we can not get out if we only act individually. I don't see other ways to govern and resist this situation if not through collective action.

What Bifo told us is a recurring dynamic, because this is what capitalism and liberalism are about. Let's think for example about the 19th century and how kids started to work in factories when they were six or seven years old. We're not talking about a system that is able to self-regulate. If we let it work, capitalism produces permanent imbalances. So we should try to move within these gaps opened by these interfaces that do not totally overlap with us as individuals. We are surrounded by surveys, marketing, consumption, internet, big data etc., but I succeed in not getting completely absorbed. I'm sure that everybody can do it. So there is still a political possibility that we should embrace or we have the catastrophe described by Bifo.

Bifo: I don't want to convince anyone on the fact there is nothing we can do. However, I would rather take an extreme position saying that there is no easy defence for humankind. In 1992, writing to the linguist Thomas Sebeok, Bill Gates remarked that "power is making things easy". This is something I always keep in mind. Bill Gates was saying that in a situation of hyper complexity, of overcrowdedness, **the crowd will naturally choose the interface of simplification**. If someone has built a possible way down the hill then the vast majority of the people will choose that route. Of course you can say no, you can oppose that, but that's completely ineffective with respect to the overall process of evolution. So while I'm not simply in favour, but I actively participate in every battle to defend democracy and freedom, I consider it a lost battle. Rather than defend the past human constitution we should make an effort to recreate the conditions for freedom and autonomy in a context that has definitely transformed what we identify as human. "Human" is a category that is historically defined and one that I think is doomed to vanish.

Lazzarato: I find it extraordinary that everyone speaks about complexity but the current government of the world is based on simple principles: we have to pay back the creditors, services and wages must be reduced because money must go to creditors. So complexity in the end is reduced to these elements, one way or the other we have a simplification of complexity. And this works because the money does come out of the pockets of people and goes straight to the tax havens. This is not because of the machine, machines are only one of many elements, such as men, lobbies, economical powers etc., that constitute the apparatus we call power. To reduce this apparatus to a single element is absurd: there is only the social machine, while the technical machines derive from the social machine and the social machine can not be reduced to a form of automatism.

Political economy, since the beginning, thinks that the world is self-governable and tends towards equilibrium. Léon Walras didn't wait for cybernetic to elaborate the general equilibrium theory. The truth though is that the capitalist trend is not pointing to equilibrium but to the permanent and total lack of balance, and machines are working within and toward that permanent lack of balance. The attempts to make the apparatus work automatically are not really going well: things can still go out of control. During fordism the financial system didn't have this much importance and the reason why it is so important today is the result of a political decision. Finance involves technical devices, coding etc., but it is not the result of these devices. Someone decided the liberalisation of finance, which is

the opposite of what Keynesianism did. So the political machines, the social machines, are the result of a political construction, when one has the perception that they function automatically, because things go in a certain direction, as Bill Gates said, that's the result of a political achievement.

Bifo: Of course the automatism is a crystallisation of economical and political interests, strategies and intentions, but the automatism implies the conditions for its reproduction. So the question to ask ourselves is if it is possible to get out of the automatism. This relates also to the issue of complexity, yes it's true, the term complexity doesn't really mean much. I think we can only speak of complexity in terms of the relation between the hyper-speed of information and the capacity of the human brain to process it. What is complex is a system where information circulates at a speed superior to the rational possibilities of the brain to process it. When this speed is reached the automatisms are established. In 1972 the enlightened thinker Jurgen Habermas and the cynical Niklas Luhman met for a debate which would be worth reading again. They were asking themselves if the increase of information would increase democracy.

Obviously the good Habermas said that, yes, more information means more communication therefore more democracy, while the cynical Luhman said that when the information exceeds the capacity of the political brain to process it then automatism, takes over. So once we have a predefined automatism is there a way out? Well I'm afraid that democracy doesn't help us with this respect, because "power is making things easy" and in a situation of hypercomplexity the tendency is to take the way down the hill. So the 1% of the people which is the active cognitariat, that has the technical capacity rather than the political capacity, has the task to create platforms for subversion. This is essentially the power of wikileaks, rather than the revelations (we all knew already that the military kills civilians). What wikileaks makes possible is to realise that within a system that creates automatisms we can create forms of sabotage, emancipation and disentanglement.

Lazzarato: We should be very careful when we separate the brain, the man from the machine. This is a humanistic approach to the world. We cannot separate the machine as something that goes in one direction and mankind as something that goes in another. As you know Deleuze and Guattari have founded everything on the concept of machines and they don't see a separation but rather an assemblage formed by both the man and the machine, an assemblage that existed since the beginning of humanity. The other aspect to point out is that there is an automatism which is not working anymore. Finance is an automatism that was supposed to work to capture social wealth but it stopped functioning. This is an essential aspect because the politics of capital was contained in this mechanism, the Americans are investing much money to put it back into motion and they have partially relaunched it but they still didn't solve this situation. So this means that the apparatus is already compromised, it isn't working anymore already, the problem for us is that we don't know where to place ourselves within this crises.

Bifo: Regarding the free software debate, in strategic terms I frankly don't believe that it is possible to win the free software fight changing the common ways of relating to the internet. We will not win in terms of becoming the majority of the internet audience, we will win because the free software is the condition to disentangle the general intellect from the automatism of the internet. This is not a majority battle but we can build a strong community.

The experience of free software is playing a very important role in terms of defence, but we should start to think about it as the starting point for the ability to recreate the internet system around the

potential of the collective brain, of the general intellect. That's why I prefer to use the word "autonomous" rather than "free". With the term autonomous I mean the ability of the content of knowledge, labour and community to find a shape which is adjusted to its potentials, the ability to emancipate and free this content from the predefined form that semiotic capitalism has constituted. We should not invent anything, the potency of general intellect is already here, but it is forced to operate within a certain framework. We should develop its potentiality autonomously, not only freely but also autonomously, according to its own principles. Free software means also this: a platform for the emancipation of the potentiality of intellectual work.

2.2 Interview with Franco Berardi (aka Bifo)

In your contribution to our conference you focused on the issue of the mutation provoked by new technological devices. If this mutation is irreversible the conscious organism that is bound to the history of democracy might disappear, and the doors might open for new political transformations. Do you think that in this scenario a renewal of democratic tools is possible?

It's hard to deny that the mutation produced by digital technologies is irreversible, unless an incredible regression will occur. Even in case of a nuclear war or with the elimination of half of humanity, digital technologies will keep on functioning, or they would become more central for what is left. So let's assume that the mutation is irreversible and let's assume that the development more or less defined by Moore's Law, regarding the increase of productivity (or miniaturisation) of the technological devices, will keep on progressively going on.

The consequence of these presumptions is that the effects produced by the mutation will be more and more invasive, and the anthropological tendencies produced by them will become deeper. This connective mutation of the social assemblage will make democracy weaker and eventually will push politics, meant as a conscious and voluntary choice between alternatives, to total inefficiency. "There is no alternative" is not only an evil imposition of Thatcherism, but also a brilliant intuition. That sentence describes a process that started when the first technical automatism has been introduced in the chain of human communication. Automatism carries out the role that before was assigned to decision. Decision became part of the connective technical assemblage. Does this mean that the future is all written in the technical system? No. It means that the moment of alternative and decision is separated and removed from the political will and becomes part of programming (deprogramming and reprogramming) activity of the automatism. In other words the function that during the modern age we identified as "politics" has become part of the cognitive activity, and eventually should be identified as "architecture of automatisms". Naturally this implies a battle, an alternative, a choice that we can call "political" if we want, but it is not carried out exclusively within the cognitive network. The issue we used to call "government" is today the issue of the self government of the general intellect.

Internet as actualisation of the general intellect has been colonized by private enterprises which have built boundaries around it imposing their laws that are mainly centered around profit. What is left of the rhizomatic dimension of internet?

The concept of rhizome has been interpreted as a revolutionary concept, or as a subversive project. This was a misunderstanding. The rhizome was rather, using Deleuze's language, the mapping of realms yet to come, that is the foreshadowing of the trends implied in the fact that technical and cognitive activity were starting to work like a network. Today we are in front of the rhizome that has completely unfolded, and semiocapitalism (in its manifestations: financial economy and semiotic production) is essentially a-centric, proliferating and recombinant.

In the past the transformation of matter through work was exploited in order to accumulate value, today this principle has moved to the sphere of cognitive activity. The problem is not so much that private companies became owner of the internet, but that the principle of accumulation (the abstract principle of valorization) has replaced social utility and the self government of the sphere of cognitive assemblage. The process of emancipation of society has to restart from here: from the autonomization of the epistemic architecture, that is of the architecture of the internal assemblages of fragments of knowledge. This is the political and epistemological task in front of us. But I believe that this is a task that humanity will face only after the trauma will cause the explosion of the assemblages that are currently dominating in the existing architecture of the global technical episteme.

2.3 Interview with Maurizio Lazzarato

You often use the foucauldian concept of governmentality. Can you give us an introduction to your way of using the concept in your research on the contemporary situation?

The concept of *governmentality* is very important in Foucault's body of work, but we should avoid restricting his overall discourse to this single point. The foucauldian critiques has a tendency to think that Foucault developed a discourse about war between 1973 and 1976, only to abandon this concept in favour of the discourse on governmentality. I disagree for various reasons, one can be found in a text from 1982, much later than the presumed abandoning of the concept. In this article he says, indeed, that power relations shouldn't be mistaken for relations of war, but that they should rather be understood as governmentality. Towards the end of the same article he says that the most important thing is to understand the connection between power relations and strategic relations. So he makes a distinction between power relations on one side, which include discipline, security and governmentality, and strategic relations on the other side, which means relations of war. Therefore it is not true that a shift occurred in his thought, rather, that he discovered that there is a governmentality of war: the relation implied in governmentality is a relation between the ones who are governing and the ones who are governed, that is within the power relations normally accepted, while in the strategic relations there is a confrontation between political opponents. So in this text Foucault says that the power relations (governmentality) and strategic relations (war) are coexisting and their relation reversible. I think that there is an interesting relation to explore between governmentality and strategies. Governmentality according to Foucault, is the action on the actions of the other, while keeping the other free. In this case one can exercise a freedom that is "within and against", while in the strategic relation, freedom points to a conflict.

If we want to use a simple example we can think about the debt in Greece, which is at the same time an apparatus of governmentality, because it controls the behaviours of the Greeks, so it's a power

apparatus, but it's also a strategical apparatus because it implies two opponents, the Troika and the Greek people. So there are two possibilities in the current scenario, one can stay in the discourse of governmentality, that is, to be in a relation between the ones who are governing and the ones who are governed as in Italy and France, or change this relation into a strategic one, as in Greece, where the troika is not considered as an economical partner but as an opponent, and create the conditions for a political conflict. In Greece they understood very well that this is a political and strategical conflict, and not an economical problem. We can say it's the level of the class struggle that defines the possible shift from governmentality to a strategic position.

In your debate with Bifo you seemed to oppose his cybernetic vision of the processes provoked by the spreading of automation, preferring instead to view the political rupture as the central theme.

Automation is not automatic itself. In the idea that we are ruled by automatisms there is a trace of Marx's theory of *commodity fetishism*, where humanity becomes dominated by things, or of the liberal idea of the market that regulate itself. These digital platforms were not created by themselves. Automation is programmed and built strategically by people and companies working on it. The other thing to consider is the big innovation that Deleuze and Guattari introduced concerning the issue of technique, which is the difference between the technical machine and the social machine. There is a sort of reification of technology that isolates it from the many relations that makes it possible. The technical machine works because of the linguistic machines, social machines, political machines. It would never work on its own. All these factors are part of a war machine. The technical machine can become automatic but the war machine is never automatic, it's always strategical even if part of it is based on automatism. I don't think we can talk of an algorithmic government or say that we are ruled by automatisms. A part of the assemblage could be described like this: **we are ruled by a war machine managing an apparatus that strategically subjectivates those who use these devices.**

Guattari has formulated the existence of a double dimension of the development of the machine. One dimension is phylogenetic: machines are replaced by new ones, that are both related to the ones replaced and the ones that are yet to come. Then there is an ontogenetical dimension where the technical individual constitutes itself within this phylum, but, he says, through a series of relations. Guattari gives the example of the Concorde in opposition to the example of the airplane in Heidegger. Guattari explains how the Concorde is built within multiple relations, technical relations, industrial relations, social, political, imaginary relations and so on. What is interesting about the Concorde is that technology and science evolves to the point where the making of a supersonic airplane becomes possible. But there's a missing element, that of economical profit. They produced only 12 aircrafts, so, from the point of economic exploitation we could say that the Concorde never got anywhere.

Therefore the lack in one element of this machine compromised its whole ontogenetical dimension. In spite of the advances of technical knowledge, its is, as you can see, the capitalist axiom that decides if this technology will be implemented or not. The phylum still exists, it is always possible to develop another supersonic airplane from that technological phylum, but it will always be the capitalist axiom that will decide strategically which direction it will take. The machines won't tell us anything about themselves unless we consider how they work inside the collective assemblage and the war machine.

There is a beautiful book about automatism and war called "A theory of the drone". The author says

that automatism indeed does play a role, man is not the one doing the killing anymore, instead it is an automatic machine based on an algorithm, but automation is not automatic itself. It is not true that no one makes decisions anymore, on the contrary, the more automation increases the more decision making will be centralised. What disappears is the middle part of the hierarchy between who decides and who pushes the button. The development of automatism in war brings to a hyper-centralised decision. The machine changes, the subjectivity changes but you cannot separate man and machine.

PART 3: Privacy-aware & common digital infrastructures

3.1 Jeremie Zimmerman: Free software and anti-surveillance movements

A very radical event shook the world recently. I'm referring to the way Edward Snowden put his life in danger to make us understand what is truly going on, on the scale of what one before would have called conspiracy theory, or paranoia, but it's actually something happening in this world in a global scale and which involves the companies that most of you are probably still using today, like Google, Facebook, Apple, Microsoft, those friends of humanity, who are now indistinguishable from the surveillance of the states.

Snowden's revelations showed us how issues that we used to consider by themselves are actually very much interconnected: the issues of surveillance, the issue of the protection of personal data, the very definition of what privacy means today, what free software is, what a free infrastructure is, what free hardware is, what it means to control a computer today, what net neutrality is.

These topics are all clicking together as many pieces of a puzzle to show us a big picture that is, I must admit, still too big for my simple mind. I'm still trying to place all this on the big map, trying to distance myself so to be able to see it. All those topics interconnect with each other, as those technical matters interact with those political matters that are related to the social aspect. This is something that we all neglected: some of us were free software nerds, some were free network activists, others were social movement heads and so on. We were all in our small bubble, some were thinking that technology will save us, some were thinking that politics will save us, but all of us neglected that in the end it is society as a whole we have to change.

What ties all this together is **our relationship to technology**. Thanks to the brilliant work of Glenn Greenwald and Laura Poitras we are seeing everyday new documents that show us very clearly the characteristics of technology that, by design, controls individuals, we see the design patterns of the technology of control, we see the massive centralisation of services based on the business model of aggregating as much personal data as possible, and not only personal data in the legal sense of the term, but also behavioural data, data about what we do, what we are, where we are.

We can see the design patterns of technology that is made for making people less free, to keep people under control and on the other side we have seen the design patterns for technology that made people more free, those design patterns are here on the table up for grabs, they are decentralised services. Sure they are hard to make, sure we can not decentralise everything up to the level of peer to peer, but still decentralisation should be the objective and I think this is the key.

End to end encryption allows two people to communicate securely by making the effort to exchange keys and therefore make sure that they will be the only ones able to understand the message. We have those designed patterns, so what's wrong? To implement those design patterns in technologies there is always an extra effort required from the user, all this requires the understanding of some key technological concept which I'm convinced are today as essential as to understand how to read, write and do basic calculation.

They also require that users actively appropriate those technologies to make them theirs and I think this is really the core issue here, because **we are talking about control and therefore we're talking about power**. And this is about our definition of humanity, and what it means to be human in this world of hyper-connected technologies for control and surveillance. On the one hand we have the technologies that control us, on the other hand we have the technologies that are made to be under control. So the real question is: will we control the machines or will the machine control us?

I see journalists genuinely starting to ask themselves how to protect their sources and I see more and more people who don't think it's ridiculous anymore to remove the battery of their phone when they want to have a private conversation. So maybe that's the beginning of an answer, of course there are so many technologies that we have to throw away right now, there are so many technologies that we need to verify and maybe to fix, so many technologies that we need just to invent and this is a tremendous work. Of course we have this huge amount of work to do right now, but this glimpse of hope is maybe that after this excess of super hyper connectivity maybe we will just learn what it means again to be sometimes offline.

Obviously free software is also used by big companies, for example Google Android uses Kernel Linux. This is a bit of a problem because I've just learned that even when you try to use only the free software part of Google you are still dependent on one bit of software that sends data to Google and maybe you can not, as I thought I was doing, use only the free software part of android or use only free software on top of this. But still you have the possibility to re-build it, to take the bricks, even if they're made by Google, and turn them into something that will genuinely serve the public interest as free software should do. This is an option that is impossible with the other closed-down software. Google is apparently attempting all they can to eliminate this option and it will be an on-going fight. Even more disturbing than that is the fact that even with all the free software in the world you cannot control all the hardware of your phone, because it contains chips for which we don't have the specification, we cannot control them, we cannot know what they do and many believe that they can be activated remotely. So yes we have a problem that goes deep but free software still guarantees that we can try to do something about it. About the funding, it's impossible to see which funds comes from which corporation, sometimes you may have corporations that have radically different interests joining in the same piece of software, whether it's the Kernel Linux or a patch or something like this. Sometime also government agencies are involved, in France government agencies for the security of information system are participating in some bits of free software. It's a question of political sensibility here but I think public funding should go to public software. Whenever governments spend one euro-cent on software it should de facto become free software and this would be a very powerful mechanism.

An example of how we can have an impact and change things is the case of ACTA, the multinational treaty that attempted to reinforce intellectual property rights. I worked 4 years to help defeat this

trade agreement in the European parliament, we worked towards a crushing victory of 478 votes against 39, so this was hard work that paid up. I never thought about it that way but afterward somebody told me that we turned ACTA into a social movement. We started with deep analyses of hard core para legislative texts with a lot of brackets that we had to get leaked by wikileaks in 2008, then we spent years crowdsourcing, peer reviewing analyses on the deepest para-legislative stuff ever, while using these analyses to gain credibility and build alliances that went from farmers to HIV patients and people fighting for access to medication to vintage video-game archaeologists. We organised a series of events, we produced videos, we built political messages, created a political context from these analyses and faced a series of factors like the arrogance of the executive branches who decided to sign ACTA the week after Megaupload was closed down by the FBI. So we prepared the ground and then, three days before the government signed it, the people in Poland were the first in the streets and they were carrying signs with screenshots of the videos we have produced or bits of text we wrote. Starting from the streets of Poland those protests happened all around Europe, in three hundreds cities.

This was a true pan-European, if I may use the term, movement with no leader, no political party, and the people in the street were something between twenty-two and twenty-five years old. This has a long lasting effect: the European Commission is today discussing about the coming policy about net neutrality and we've been told by several persons that in the European Commission ACTA became their reference for shit storm; this is what they don't want to get anymore. To reform copyright, to change this repressive logic of a copyright that grew like a cancer against its public and turned it toward general interest. We know it's a five, ten, twenty years fight but the first signs are not as depressing as they could be. The real lesson is that a multitude of actors that was doing a lot of things in a lot of different ways (videos, text, blogs etc.) led all together to a result that has a terrific political meaning. Even the most conservative members of the European parliament could see that people were caring about what they were doing and ultimately this is what they want. Regarding the issue of commons versus appropriation, well the answer already exists: it is the gnu GPL, the gnu project just celebrated 30 years.

Richard Stallman is a brilliant hacker we know also for his lack of social skills, but I wish we were all Asperger like him and as brilliantly courageous to dedicate our life to such a good cause. Thirty years ago he invented the hack, a legal hack that took the form of a licence, a legal text that says that if you want to be part of the commons, if you want to modify the commons, then you have to play the game of the commons, that's what the GPL means. It's a licence that says "if you join us you play by the rule of collectively building commons", a self protecting mechanism against the appropriation of the commons and so far it worked for software, we could say it worked for text when it comes to Wikipedia, and I think there are more and more elements of a society that can be inspired by this mechanism so this is where to start.

3.2 Rob Van Kranenburg: The Internet of Things

The Internet of Things is a combination of a technological push - an ecology of barcodes, QR codes, rfid, active sensors, ipv6 - and a human pull for more and ever growing connectivity with anything happening in the immediate and further out environment, a logical extension of the computing power in a single machine to the environment; the environment as interface. This push-pull combination makes it very strong, fast and extremely disruptive.

If we want to define power to its core, we can say that it is the self-assigned agency of states to assign numbers to people (legal-illegal), and the self-assigned agency of companies to isolate data in IP, copyright and patents (legal-illegal). They are wed together. Without the first the latter has no capability to enforce any laws. Without the second, the first has no capacity to ensure that citizens start not to question why they should keep paying taxes, as some level of convenience is provided.

The internet brought this wedding into question as the only possibility to posit as a foundation for everyday life and praxis. It revealed how much legacy is actually still in this combination build on violence, isolation of data and (preferably phrased as 'healthy') competition. A quick look at the top 100 companies before and after the internet shows how disruptive the internet is. The Internet of Things will break them. It will force a divorce. This divorce can be brutal or friendly.

In our architectures we are used to dealing with three groups of actors:
- citizens/endusers
- industry/sme
- governance/legal.

In our current Models and Architectures we build from and with these actors as entities in mind.
The data flow of IoT will engender new entities consisting of different qualities taken from the former three groups. We should keep a full focus on these new entities, withdrawing and withholding any energy of our creative forces to the classical entities that we have grown up as.

IoT means full traceability, not one thing is not monitored or out of sight. All and everyone are in full light. There will be no more 'users' who need to secure 'privacy' as the concept of privacy has to be distributed over the qualities of the new actors. It is therefore unproductive to get worked up over cookies in web browsers as if one could go back to a notion of 19th romantic individuals and their 'privacy'. There will be cookies in the table you put your cup on and on, you don't want to be notified how long this table will store that you had an espresso there. In a new conceptual space we have build notions of privacy, security, assets, risks and threats. I am interested in IoT because I am interested in power. Individuating all objects is equal to creating a new grammar. Whoever writes the code for that defines the new normal. Who defines the new normal holds the keys to communal experience and belief in just and unjust forms of organisation.

Owning the hybrid objects of IoT makes no sense (liability, accountability). Leasing is the logical business model. As items and platforms can no longer be secured, the logical business model of IoT is the smart city. You buy life. Pick your car, you lease mobility. Your fridge will be always full, you

lease storage of food. You can secure a city. So there you have the logical trajectory of IoT: traditional policing and military securing traditional proprietary business models. The former have become militias, as the states are gone. The latter will pay for the development of bio and nano as sophistication and preservation of their initial investments. This is happening as we speak. Gated communities are the fastest rising form of building in US and China. The smart cities models for 50.000 persons are no labs, and not intended to become inclusive. In 2020 there will be 1500 smart cities and Mad Max in between. You would not want to live either. The transition that we seek has to be negotiated by a network of varied and widely diverging skill sets that allow for conflict *inside* the network.

So is a positive story possible? I believe there is. Internet of Things is in its essence the seamless flow between the:
- BAN (body area network): the ambient hearing aid, the smart t-shirts...
- LAN (local area network): the smart meter as a home interface
- WAN (wide area network): the bike, car, train, bus, and drone….
- VWAN (very wide area network) : the 'wise' city as e-gov services everywhere no longer tied to physical locations

Whoever ensures traceability, sustainability and security linking up the gateways is de facto and de jure the new power. We see Google trying to achieve this with the Glass and Lense, the Google Power meter and NEST, the Car and automotive and the wooing discourse of public office by Eric Schmidt and Google. It is crucial that we organize to create an open source competitor to these gateways to ensure that the future is not old style corporate but truly open, public and inclusive. It means that the hacking community stops hacking dying systems (actually keeping them alive by even bothering) and start building these gateways. Open can be the new power, but it will not be handed over. It will have to be fought.

3.3 Interview with Denis Roio (aka Jaromil): Post-surveillance technologies

When we met during the Internet Ecosystem conference in Rome the Snowden affair had just happened. What has changed since then, can we talk of a lasting effect of those revelations?

First of all we should say that from a cultural point of view the elements that the Snowden affair has revealed were somehow already part of the public debate in Europe. Wasn't postmodernism already in the 90's reflecting about the questions of surveillance, privacy and the subsumption of identity? I think that those thinkers were already aware of the state of things and tried to imagine answers to that. The worldwide sensation generated by Snowden was probably didactic for large masses that needed to see through the spreading rhetoric of fear that became concrete with things like the Patriot Act. Unfortunately I doubt that the Snowden revelations can help us to foresee what will happen in the future.

We also have to be careful about the feeling of paranoia provoked by the revelations, a feeling that could be counterproductive because it could lead to self censorship and disempowerment. As

Gandhi said "the most powerful weapon of the *oppressor* is the *mind* of the oppressed". It would be interesting to analyse what kind of change this constant monitoring has caused on the growth of public political awareness and what kind of political change it could lead to.

There is a very interesting research made by Buro Jansen & Janssen in Holland about how secret services have been operating in Europe in the last twenty years. In UK for example we have the big case of the infiltrations in the climate camp, with a well-known activist who turned out to be an undercover agent, so there are well-documented examples that can outline what happens in such a scenario. In general a good reference could be the concept of *contextual integrity* that is the set of norms regarding the transmission of personal information, formulated by Helen Nissenbaum in her paper.

Snowden has revealed how no one is really secure about their privacy in the "Digital Panopticon". People are not in control and there is a huge power imbalance. How do you think Snowden revelations have actually increased the public awareness about the importance of privacy and anonymity? After Snowden tools and solutions that allow people to do something about their privacy became better known. Did you notice an increased use of cryptography and solutions such as GPG, or Tor, or Text secure & Red phone to protect their privacy?

The Snowden affair had a big impact on the general awareness but not so much yet on people's habits. The Snowden affair enhanced the use of privacy tools outside the circle of people who already needed to use them such as journalists, or activists that grew up around the occupy movement or other political movements in the past 15 years. Although these tools have reached a level of development never seen before and they are probably more accessible now than a year ago I think we are still far from making a big impact on the large public. This is possibly also because the public debate on privacy is superficial and limited.

An old BSD fortune called "the Hacker's law" says: "the belief that an enhanced understanding will necessarily stir a Nation to action is one of mankind's oldest illusions". This may give a hint on the political analysis needed, as the national politics as it is today won't ever admit a real change in the sort of "habits" the devices of control have developed in symbiosis with the citizen perception of concepts like "security" and "privacy". Concepts that may only reinforce a narrative of fear. The actual change of people's habits hasn't been that deep as we might have hoped when we think about the breadth of the revelations. Privacy is made of daily habits. You can't be secure if you haven't thought about changing your habits when it comes to security, because when you are in an emergency situation and in real need of security you won't have time to take care of it. Ultimately the developers and technologists are more aware today, and will hopefully start taking a "privacy by design" approach in the technology they develop. Unfortunately however, by looking at the mainstream development of the "cloud" business, it doesn't really look that way.

After the victory on ACTA what has happened in the European parliament and what role the companies that opposed ACTA, like Google, are playing in the legislative debate about freedom, privacy and intellectual property? What is the next step for Information policy in Europe and beyond?

The European Commission has an inclusive agenda, it tries to include issues coming from activists and civil society, but at the same time there is a lot of attention for the rhetoric of technical innovation that comes mostly from the industries and it is quantified by financial games, by the possibilities to create jobs, which is a logic that is perhaps a bit flat. I know anyway that there is an increasing awareness on important aspects behind data and algorithms. Projects like Uber provoked a protest of the taxi drivers in many different cities, so Europe is forced to deal with the emerging contradiction that are behind the ownership of new assets, such as algorithms and the fact that it can creates conflicts. These new models cause, what I call in my PhD thesis the problem of "Algorithmic Sovereignty", a critique I've developed also thanks to the kind supervision and mentoring of Antonio Caronia.

I think that policy makers will do more in the future in terms of understanding the political and economic implications of this kind of changes, but it's really terra incognita for most of the technology analysts with a few exceptions. We're going through very fast changes and I hope that the European Commission will understand how important is to integrate different point of views and perspectives from many different fields to analyse the situation and come up with alternative strategies.

3.4 Francesca Bria in conversation with Blaine Cook

What is identity in the context of Big Data?

From the technical perspective big data and identity are the same thing because if you can use big data to extrapolate large-scale predictions about society you do that by categorising people into demographics. If you are targeting a demographic then you know who belongs to those demographics and so it's a two way process and you can use demographic information to personally target individuals. I don't think the personal identities of individuals are relevant to *companies' business* models. You need hundreds of thousands or millions of users to be relevant for a business today, and then you can use that aggregate to target individuals. Tracking people personally would be dangerous. You see examples of companies like Uber individually tracking journalists for instance because they are high impact individuals and they want to demonstrate the marketing power of their platform. You can get that individual data. If you don't have appropriate technological or social checks and balances, here is the potential for abuse in the aggregate data. And if the aggregate data is not anonymised properly, potentially there is the probability of abuse.

There is a difference in being in the UK versus the US because the privacy concerns around health data in the US are that you will be denied insurance if a health insurance provider discovers that you have a genetic propensity for melanoma. So you are not going to get health insurance. Whilst in the UK the NHS for instance massively underutilises aggregate data.

Who owns the data?

The users that create the data own the data. Whether or not you can extract them from Facebook I don't know. I think FB will give you a dump for all your data at least in Germany- due to their user protection rights that have been won. I was involved early on in Twitter and at least when we were

having these conversations the assumption was that we are providing a service that allows people to interact. We don't own the data but in order to provide the service without getting sued we need a right to store, aggregate, and use the data. That is up to the terms of service.

When did identity start to become such an important factor?

It was the rise of social networking. Friendster the first real moment of it, and LiveJournal. Friendster redefied the idea that you have an identity and that you have connections to other people. And then probably Facebook (FB) and Twitter were the first companies to extrapolate those social connections into a larger perspective. Basically you could see what other people thought and what they were sharing. They were identity-centric. Before that, there were blogs that were very identity centric but there wasn't this social mechanism that was driving them. Instagram is probably the best distillation of this mechanism where you follow someone and they post photos and so you have this ultra simplified model of identity and activity associated with the identity. In the context of advertising and identity economy, Instagram is an interesting counterexample because they made lots of money but they utterly failed to turn that into an advertising base. Youtube is much more monetisable, because you have producers and a large audience. It is similar to the television model. People that go to view a channel-they see ads alongside the channel. The advertising model doesn't work that well for other services such as Instagram.

But what we are really seeing that we had collective ownership of the infrastructure that now is owned by FB or Microsoft or Google. If WhatsApp has a billion users then a billion people's communications are being mediated by FB alone. That is far worst in terms of centralisation and concentration than AT&T ever was. It feels like such a regression. You can envision much better alternatives and yetthere doesn't seem to appear to be a way forward for us as a societ

After Snowden revelations we heard that government surveillance goes hand in hand with economic surveillance. Is there an alternative to the advertising-driven surveillance business model for the digital economy? How can we fund the digital common infrastructure alternatively?

This is hard. I think we certainly pay for internet connection, phone line or television, but it is not clear how much those are effectively subsidised by advertising. Google for instance is providing free internet services that are much better than the commercially available services from the incumbents. This shift requires a big cultural change that is hard to achieve, thus providing free services is the best way. We can see the example of Youtube that is competing with TV by offering free video services. The idea that people should pay for these services, which is the obvious alternative to advertising driven mechanisms, is possibly not the best way forward. I think at this point also the Telcos such as Comcast, BT and AT&T are selling users information to make more money, while they are still charging you for their services. This is not an alternative, because we end up paying but we are being monitored anyways. On the other side Google model is based on strong analytics and maths, so they are really good at selling our data, and they can give us free internet.

We have a good social imagination in terms of how we can provide collectively owned infrastructures- if you think about schools or hospitals or public services- they are just funded by the taxpayers, outside the market logic. Why this model cannot work for digital infrastructures?

Yes, it could. I have worked for British Telephone and the most important business there is certainly open reach[3], which is the regulatory one that provides infrastructure and the real value. I think the costs to revenue of open reach are actually quite good- you could run it as a public infrastructure. It just requires upgrades; it doesn't require the same capital investment as building a rail network or maintaining an expensive physical infrastructure. And more and more we see with mobile networks- 4G today is faster that the land networks of 5 years ago and it is going to continue. The State is subsidising future infrastructures (e.g. see 5G investments from the European Commission) and there is no reason why the public shouldn't run that.

Public investment in research has been critical to promote innovation. The Web was first developed at CERN by researchers as a public invention, it wasn't commercially driven as today's industrialised Internet. We have public nuclear and space infrastructure that are much more complex than many digital services. However, we have apparently serious difficulties in building encrypted e-mail service or decentralised digital architectures. Do we have enough knowledge and investments today in the public sphere to build the needed digital infrastructures?

I was the only programmer on Twitter for 3 months at the beginning, before Jack Dorsey became the CEO. We were three developers and one of us was working from Germany and we built Twitter in 8-9months. Then other people joined but the basic technology was already in place. Then, with around 7 developers in the office and less than half a million dollars funding, we built the core concept and infrastructure behind Twitter and recorded 5-7 million users. Empirically it is not that hard to build a successful digital service. This is the difference today about maintaining digital infrastructure. 20-30 years ago technical infrastructure was hard but now there is things (ex. Docor or AWS). For instance at Poetica[4] we don't have an operations personnel, it is only myself and the two other programmers. Anytime we need to maintain servers or infrastructure (we run 20 servers), we have the right support or virtual infrastructure tools, which means we can do it in our spare time. Maybe with 1 or 2 days a month we can run an entire infrastructure that could have easily been a full time job even 10 years ago. So that has shifted and the costs keep going down and down to maintain resilient infrastructures.

Is that because the big companies have concentrated powers and everything runs on their Cloud infrastructures and data centres?

No. It is because we are learning how to do this better. Part of the physical infrastructure has been virtualised (e.g. infrastructure as a Service model). I have worked in data centres setting up racks of servers. 15 years ago when I was developing email servers for activists, it used to take entire weekends of one or 2 people's full time to set it up and get it online. You would have to install

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[3] https://www.openreach.co.uk

[4] https://poetica.com/

kernels, reboot things. Now it takes 30-45 minutes to get the basic system to work. Now the operational functions are abstracted away from us, and this brings down time and resource costs. This abstraction also means that you can upgrade the system more quickly.

This is the reality of Moore's law[5]. The database server that we ran Twitter on in 2006 when we were handling 2 billion full requests a month, was in terms of speed equivalent to a 2013 top end MacBook pro. That was Twitter: A laptop that you could buy last year with not that much money. Today is a very different machine. Every 18 months it doubles. Over the 8 years between 2006 and 2013 it has doubled in performance 4 times and halved in price 4 times. The reality is that when you are providing infrastructure it is a lot cheaper. And it means that the sorts of things you can do are astronomically more. I was talking to a friend who works in a research lab for DNA sequencing, where they used to have data centres and now they run these analyses in their laptops in real time.

You can do much more. But the complexity has shifted to the business logic or the capabilities required doing large-scale data capturing and machine learning.

Yes, and obviously the more data you have the more contextual information you have, the better you are able to leverage and process that intelligence.

Do you think regulating data access and control, what companies can and cannot do with users data is an important in order to build alternative infrastructures and models where citizens are in charge?

Overall I look at regulation as a good thing- even if sometimes regulation can have a negative effect and be very harmful, impeding the real innovations and going against citizens' interest. Even though I think it would be good to regulate Google and the data ownership I worry that if those regulations are not done properly they could do more harm than good. This is a big concern, especially because regulations move incredibly slowly and if they regulate something and they are not able to adapt and accept change in the regulation then that is just a big problem for the technologies that need to implement them into the systems.

However, what principles are just not negotiable? For instance, should companies be able to just grab citizens' data and all kinds intangible public goods? Aren't these critical raw materials to build alternatives?

I think to some extent- it remains to be seen- we still have a relatively light independence from these corporate services. It is true that we depend on these companies for our social connection, and if we wake up one day and these companies are gone, we may feel that a huge chunk of our social existence is also gone. But actually I don't think that that it is a real problem, but it's just our perception. After all, we are not so tightly bound to these digital services, as we may believe. I guess politically I always found myself very aligned with social movements and socially progressive causes but I don't believe that building tools by themselves will enact social change. The real challenge building tools that people will use to enhance collective action.

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[5] https://en.wikipedia.org/wiki/Moore's_law

Technology is in no way a substitute for organising. The Indymedia[6] movement had a lot of non-technical organisers who helped organise the social dynamics and get people behind the movement. Activists were thinking about social movements and change and new ways to create and leverage technology to help people who are trying to enact social change before anyone else was. They are on the leading edge of that because they are pushing up against sort of what's possible. And even if their ability to really execute and build these things is relatively small they are thinking way ahead before anyone else is. It is the same in the area of security and encryption, where the hackers are really the *avant garde*. This is why for us doing Indymedia has been extremely important and led us to Twitter.

When the Arab Spring happened my reaction was- yes it worked! A friend of mine Tad Hirsch who was at the MIT media lab, built TXTmob[7], which was essentially a messaging system for rapid organization for activists. This was 2 years before the development of Twitter and it was used during the 2004 elections. It was a voice distribution system over IP where an organiser could call up and leave a message, able to deliver 10.000 voice calls in a matter of minutes. Today we just use twitter or What'sApp for this kind of things. Then a few years later we were building the same thing for Twitter. It was great seeing it working in support of community activism and organising in a completely different fashion in Egypt and throughout the Middle East.

Lots of social movement technologists active in the antiglobalisation movement (e.g. the Indymedia network) ended up then developing or working for big Silicon Valley tech companies, such as Flickr, Twitter, Facebook and Google. Indymedia wanted to democratise the media, but the techies ended up building the next generation Internet Empire without democratising the Net. What went wrong?

There are many examples of people that were involved in social movements and activism and that became very important entrepreneurs in Silicon Valley. For instance Elliott-McCrea, a former architect at Flickr is now the CTO of Etsy, has built lots of protest tools. There is whole list of people coming from the Indymedia network. Craigslist was largely built by Indymedia people, many people went to Etsy, and then Flickr and Twitter had a different developers involved in the social justice movement. I also know of various activists who work at quite senior level at like Microsoft, Amazon and Google.

I cannot speak for other people, but I can talk about the experiences I know best. I can say for instance that Etsy is one of the most socially progressive companies in the US. They have been probably the most vocal and active company in the tech industry; hiring women and trying to improve, supporting grassroots people. When I was working at Twitter, I wanted twitter to be a decentralised service that wasn't owned by any individual company. So it's negotiating how you build something that is accessible but also open. I think the way that I reconcile that at the current company is that it needs to be sustainable- I need to be able to fund it somehow because it is not something that I could build as a hobby.

We are idealist, and we want to build solid projects that support the behaviour and activities that we want to see supported. We want to build decentralised and collaborative tools that are also open

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[6] https://www.popularresistance.org/the-birth-of-digital-indy-media/

[7] http://tech.mit.edu/V128/N15/txtmob.html

source. So how do you organise to do that? Starting a company is a pretty good way to do that in the current way our society is organised. That is the compromise for many of us who have come from social justice movements where we recognise that that is the compromise.

You started by building tools for social change. Lots of social movements today are still hooked up on corporate platforms. Do you think social movements are still able to build collective power and action using these tools or we need alternatives? Who should build them and how?

In seeing the sort of surveillance and corporatisation of everything, I am at the same time very worried and very hopeful. I look at a lot of these corporate infrastructures and see opportunities for collective action. If you look at the technical infrastructures, we can still be hopeful: For instance, no one entity controls email. There are lots of people who have large email servers. Google controls empirically probably 40% of that, but they don't control all email. At some level also twitter doesn't necessarily need to control 100% of micro blogging.

I look at Uber and see a similar situation. What happens if we get rid of Uber as a corporation, but we give people the flexibility of safely connecting with rides in a small amount of time and negotiating over labour, while also incorporating collective action and collective negotiation over price for instance? For now Uber just dictates the rules and the conditions. But if we could negotiate agreements between riders and drivers it starts looking like sort of vision that the "Wobblies" had. Like the IWW (Industrial workers of the World)[8] that favoured a bigger role for workers collectively organising, instead of devolving all this power to managers and intermediaries. It is feasible. In bigger cities like London there is no way we can do this negotiations on a personal scale, but the technology can help us going beyond the personal scale and establish trust in a network that incentivise collective negotiations, collective bargain and thus collective action.

What are the obstacles to achieve this vision?

It's getting people to collaborate. The challenge is to get people to agree to use an alternative system to the corporate structure that is provided. That is fundamentally a social problem. It has nothing to do with tech. It's about Uber being better at marketing. Whoever is providing alternatives is not doing a very good marketing job. There is nothing structural to prevent a cooperative to do a better job. I had a conversation with one of the twitter guys long time ago and I was talking about decentralising twitter and he put it like this: You can be a big fish in a little pond: twitter has 300m users but there are 7.5 billion people on the planet so they are missing out on a big part of the pie or you can be a smaller fish in a bigger pond so let's say twitter takes 25% of 7bil people. There is Sina Weibo, the Chinese twitter, there is FB and there are a number of other big services. Right now Twitter has 20-40% of the market but they have no access to the rest of the 60-80% because they are on another platform. From a financial aspect collaborating would give them more access to the markets. It used to be the same for the phone network. It is about insuring the network effect. That is not tied to the corporate model that we have today. I don't know how to make that model more appealing that the current corporate one.

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[8] https://en.wikipedia.org/wiki/Industrial_Workers_of_the_World

One real issue is how you can enhance reputation and social capital, while maintaining real privacy and autonomy. True anonymity is really difficult but pseudo-anonymity, where as long as your threat model is not highly sophisticated, is possible. For example you can create different mails and sign up for different services with different accounts. It's a hard thing to do but you can effectively appear as a different person. That different identity is perhaps not anonymous but no one will connect it back to you. Generally, it is up to us as a society to collectively negotiate where the benefits and boundaries are.

Biographies

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Francesca is a Senior Researcher and Advisor on information and technology policy. She has 15 years of experience advising public administrations and companies on science, technology and innovation policy. She is the EU Coordinator of the D-CENT project on open democracy and digital currencies and the DSI project on digital social innovation in Europe.

Evgeny Morozov, Author and editorialist

Author and editorialist at journals such as the Guardian and the Financial Times, PhD student in History of Science at Harvard, and author of books such as The Net Dellusion: the dark side of Internet freedom, and To Save Everything, Click Here.

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One of the authors of the European Charter ofFundamental Rights. He serves as Chair of the Scientific Committee of the Agency for Fundamental Rights of the EU and of the IGF. He is also the former President of the Italian Data Protection Commission and of the European Group on Data Protection. Professor Rodotà has taught at many universities and he's the author of many books on rights and technology. He is a former member of the Italian Parliament, the European Parliament, and of the Parliamentary Assembly of the Council of Europe

Smari McCarthy, IMMI

Smári McCarthy is an Icelandic/Irish innovator and information activist. He is executive director of the International Modern Media Institute, a co-founder and board member of the Icelandic Digital Freedoms Society (FSFÍ) and a participant in the Global Swadeshi movement. He is a founding member of the Icelandic Pirate Party, and stood as their lead candidate in Iceland's southern constituency in the 2013 parliamentary elections. He was the spokesperson and one of the organizers of the Icelandic Modern Media Initiative.

Federico Primosig, philosopher

Federico Primosig has a Degree in Philosophy from the La Sapienza University of Rome, Italy and from the University of Stockholm in Sweden. He has been working on autonomous knowledge, and Internet culture for the last 15 years.

Franco Berardi Bifo, author

Franco "Bifo" Berardi (born 2 November 1948 in Bologna, Italy) is an Italian Marxist theorist and activist in the autonomist tradition, whose work mainly focuses on the role of the media and information technology within post-industrial capitalism. Berardi has written over two dozen published books, as well as a more extensive number of essays and speeches.

Maurizio Lazzarato, author, political theorist

Maurizio Lazzarato is a sociologist and philosopher living and working in Paris, where he studies immaterial labour, the breakdown of the wage system, and "post-socialist" movements. He is the author of *The Making of the Indebted Man* and *Signs and Machines*, both published by Semiotext(e).

Jeremie Zimmerman

Jérémie Zimmermann (born in 1978) is a French computer science engineer co-founder of the Paris-based La Quadrature du Net, a citizen advocacy group defending fundamental freedoms online. He is a contributor to Julian Assange's 2012 book *Cypherpunks: Freedom and the Future of the Internet* along with Jacob Appelbaum and Andy Müller-Maguhn.

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Jaromil

Researcher in philosophy of technology, artist and software artisan whose creations are endorsed by the Free Software Foundation. Since 2000 he has been dedicated to building Dyne.org, a software house gathering the contributions of a growing number of developers who value social responsibility above profit.

Rob van Kranenburg, Internet of Tings Council

Rob is founder of the Thinktank 'Council', theinternetofthing.eu and the Linkedin Group 'The Internet of Things' (plus 7000), both in 2009. He is Community Manager of the EU FP7 Smart City Project SocioTal (sociotal.eu), and Chair of AC8 – Societal Impact and Responsibility in the Context of IoT Applications of the IERC, The Internet of Things Research Cluster. With Trevor Harwood from Postscapes.com he organizes the 4th edition of the Global IoT Day, iotday.org.

Blaine Cook, Poetica

Blaine Cook is a Canadian software engineer, now living and working in London, UK. He is the founder of Poetica and the principal co-author of the OAuth and Webfinger specifications. He is the former lead developer of social networking site Twitter.

Acknowledgements

D3.3 Annex

Internet as common or capture of collective intelligence (seminar proceedings)

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