

## **GLOCAL SEARCH**

### **Search technology at the intersection of global capitalism and local socio-political cultures**

#### **FINAL REPORT**

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## **1. Introduction**

The project "Glocal Search" began in March 2012. In line with the work plan and time schedule of the research proposal I started with a thorough literature review. According to suggestions made by one of the reviewers I particularly focused on the critical analysis of search engines and their revenue models. Extending my previous research on "Algorithmic Ideology" (Mager 2012) this work enabled me to conceptualize and theorize global players like Google and their business practices, as well as the information economy more broadly (see section 2). After one year of maternity leave I continued the project with an excursus in alternative search engines (fall 2013). This work resulted from an invitation to give a lecture at the Society of the Query conference in Amsterdam and led to two publications; one in the Society of the Query anthology, the second one in the series of ITA:manuscripts (see section 3). All this work helped me to contextualize and prepare the empirical analysis of search engines at the intersection of global and local dynamics conducted in the project (analysis of EU policy documents, Austrian media discourses, and 18 qualitative interviews with experts).

To get to grips with tensions between global and local developments I decided to take the EU data protection reform as a case study to analyze how search engines (and related Internet services) are negotiated at the intersection of global, European and local contexts. The first exploratory analysis of EU policy and Austrian media materials revealed that a European voice started to form over the past years that aims at controlling and regulating globally operating Internet services and their business models. In this context the EU data protection reform is characterized as an important tool to force companies like Google to respect European values and rules. Since the "General Data Protection Regulation" is supposed to be directly binding for all European member states it may be seen as a central arena where search engines are currently negotiated and shaped in the European context. As a consequence, it serves as a rich case to study the emergence of the European "sociotechnical imaginary" (Jasanoff and Kim 2009) of search engines and its translation into and transformation in the Austrian context (section 4), as well as the governance of search engines at the interface of global and local dynamics and what role Austria plays in European search engine politics (section 5). Finally, I will summarize the output of the project and discuss how it contributes to my future work (section 6).

## **2. Algorithmic ideology. Global search engines and their business practices**

Building on my previous work on the social construction of search engines and its "algorithmic ideology" (Mager 2012, Eklöf and Mager 2013) I used concepts from ideology critique to discuss how global search engines, Google in particular, materialize and foster capitalist principles at the beginning of the project. *"Algorithmic logics, code,*

*external content, link structures, user data, clicking behavior, user-targeted advertising, financial transactions all act together and take effect in a single Google search. Capitalist modes of production are enmeshed with technical features and individual practices.*", as I put it. (Mager 2014) In addition, I showed that it is not enough to blame dominant actors like Google, but that we need to understand how power relations and social practices contribute to the stabilization of search engines and their business practices. I hence discussed how content providers and users relate to "transnational informational capitalism" (Fuchs 2011) as a whole. Using Gramsci's notion of hegemony I conceptualized both content providers and users not as passive victims of Google, but rather as active participants in Google's capital accumulation cycle. How "organic intellectuals" (Gramsci 2012) like Edward Snowden contribute to moments of destabilizing corporate search engines and their ideological superstructure was further discussed.

To sustainably challenge powerful actors like Google and pave the way towards "value-sensitive innovation" (Allhutter and Hofmann 2010), however, requires more than single individuals. Additional obstacles need to be met, as I discussed: The first obstacle is the vulnerability of organic intellectuals and the inconsistency of their political agendas. Drawing on Stalder (2010) I argued that organic intellectuals are well suited to trigger large-scale events relatively quickly and cheaply, but that broader social movements would be needed to sustain counter-struggles in the long-term. Moreover, the heterogeneity of political visions amongst organic intellectuals and social movements such as Julian Assange, Edward Snowden or Occupy Wall Street, as well as the Chaos Computer Club or the initiative Europe-vs-Facebook in the European context, makes it difficult to formulate a net political voice that can make itself heard in formal politics. Contrary to the ecological or feminist movement, which both had a pretty clear political vision, net politics still lacks an overarching goal and vision of an alternative digital future. The second obstacle is the translation of "sub-political activities" (Beck 1997) into institutional politics. Even if net political initiatives try to enter formal politics and manage to explain that actors like Google cause fundamental socio-political implications that reach far beyond the digital realm struggles are waiting for them. The risk is that concessions are made to net activists to keep them in the network of practices stabilizing the power of hegemonic actors, but that the essence, the "nucleus of economic activity" (Gramsci 2012: 161) is not touched. Finally, the third obstacle is that even alternative search technologies enter alliances with corporate players. This means that users, who try to escape for-profit search engines often end up with big players too because the web index, the algorithm and/ or the search results are borrowed from commercial search engines. DuckDuckGo, for example, clearly tries to oppose the dominant algorithmic ideology by providing a search tool that protects privacy rather than sharing personal

data with third parties. When looking at its back-end though it becomes obvious, that DuckDuckGo is highly dependent on commercial search engines and their data collecting practices, as I discuss below (section 3). To conclude, I argued that a collective effort would be needed to destabilize powerful actors like Google since a whole network of actors participate in the stabilization of search engines. Content providers and users, but also policy makers, regulators, and media debates can all contribute to the renegotiation of actors like Google. In the European context, the EU data protection reform is a central arena where actors like Google are renegotiated these days and where alternative visions of search engines are crafted, as I elaborate in detail further down (section 4 and 5). Before doing so, however, I describe my excursus in the world of alternative search engines and their ideological underpinnings.

### **3. Is small really beautiful? Big search and its alternatives**

The goal of the invited lecture given at the Society of the Query conference was to examine and discuss critically a selection of so-called alternative search engines and their ideological stances. If Google embodies the capitalist ideology (Mager 2012, 2014), what ideology do alternative search engines incorporate? What values do privacy-concerned search tools such as DuckDuckGo<sup>1</sup> carry? What is green about green search engines like Ecosia<sup>2</sup>? Can peer-to-peer search engines such as YaCy<sup>3</sup> be interpreted as communist search engines? Could search be seen as a scientific endeavor as Wolfram|Alpha<sup>4</sup> suggests? These were the central questions guiding the analysis. To answer these questions self-descriptions of the various search projects were juxtaposed with their actual practices. The study clearly showed that the capitalist spirit is by far not the only ideology shaping contemporary search engines. Quite on the contrary, there are multiple algorithmic ideologies at work. There are search engines that carry democratic values, those that incorporate the green ideology, some that believe in the commons, and others that subject themselves to the scientific paradigm. This means that we can set an ideological example by choosing one search engine over the other.

When looking at actual practices of search engines we can, however, further see that the capitalist ideology appears to be hegemonic since not all ideologies are equal in terms of exercising their power. The majority of users turns to big search engines and hence solidifies the capitalist spirit more than any other ideology. Moreover, most alternative search engines are subordinate to 'informational capitalism' (Fuchs 2011). DuckDuckGo and Ecosia both enter alliances with big search engines by using their search results and advertising methods. They assimilate the capitalist spirit by relying on big search and its

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<sup>1</sup> <https://duckduckgo.com/> (accessed June 2015)

<sup>2</sup> <https://www.ecosia.org/> (accessed June 2015)

<sup>3</sup> <http://yacy.net/en/> (accessed June 2015)

<sup>4</sup> <http://www.wolframalpha.com/> (accessed June 2015)

capital accumulation cycle. Their ideological agendas are not deeply embedded in technical layers and algorithmic logics because both the index and the algorithms they use are borrowed from other search engines. Their ideology is only carried out on the surface; e.g. their user interfaces, encryption techniques, and donation models. In contrast, Wolfram|Alpha chose to be independent on an algorithmic level, but ended up as a commercial product too. The only exception is YaCy. The peer-to-peer network is the only search tool discussed that provides a true alternative to corporate search engines; it is the most radical alternative to proprietary search and expresses its values on the level of infrastructure, software, and content. YaCy's ideology is deeply woven into its technical Gestalt and computational logics and hence embedded in actual practices. All other search tools absorb the capitalist spirit. This implies that opting out of big search and its capitalist underpinnings is not as easy as it may seem at first sight. Everyone is free to choose alternatives, of course. But selecting a true alternative, both in terms of technology and ideology, would require not only awareness and a certain amount of technical know-how, but also effort and patience. True alternatives can only be reached with a critical mass of users who are willing to sacrifice bits of their convenience in return for a search tool that is created and owned in the public domain. Whether a peer-to-peer search engine like YaCy will ever be able to compete with Google in regards to the scope and quality of its results will ultimately depend on the number of users participating, for example. But time and money is needed too. This research hence concluded that there are still certain barriers to be conquered on the road towards alternative search both in terms of technology and ideology.

#### **4. Search engine imaginaries. Co-production of search technology and Europe**

In this work I analyzed how search engines and Europe are imagined in the context of the EU data protection reform. As mentioned in the introduction, the European data protection reform figures as a central site where search engines (and other data processing Internet services) are negotiated and shaped these days. Accordingly, the central research questions guiding this research were: How are search engines imagined in Europe and how is Europe imagined in the context of search engines? What visions and values guide European search engine politics and how are they translated into political practice? How does the European imaginary play out in the Austrian context and how do national disparities contribute to the making and unmaking of Europe? To answer these questions I analyzed EU policy documents and Austrian media discourses. Using a discourse analytical approach and the concept of "sociotechnical imaginary" (Jasanoff and Kim 2009) this study gave insights in the way search engines and Europe are co-produced and how national differences contribute to the un/making of Europe. Concretely, it showed that both EU policy documents and the Austrian media picked up

techno-euphoric interpretations of Internet technologies as driving forces for economic and social progress at first; the global notion of the "Information Highway" (Flichy 2008) most particularly. It further showed that the fundamental rights discourse started to form in the context of corporate search engines and their business models based on user profiling and personalized advertising. In this discourse the right to privacy, the right to be forgotten, the right to informational self-determination, and, most importantly, the fundamental right to data protection are conceptualized as core European values that need to be defended against other countries, the US most particularly. Control is an important aspect in this regard: The data protection reform should help users to gain control over their data, data protection authorities should be strengthened to control companies like Google, and, on a more abstract level, Europe is envisioned to regain control over business models, data flows, algorithmic logics, and financial transactions having transgressed geographical borders and escaped domestic regulation over the past years. The impetus of empowerment is deeply embedded in this politics of control. When looking at Austrian media debates we see that the European imaginary of search engines is reproduced in the Austrian context. This implies that the Austrian media contributes to the making of Europe. At the same time, however, it also contributes to the unmaking of Europe. The European voice disintegrates into a concert of different voices and viewpoints when the media speaks about the long-winding and yet unfinished negotiations of the data protection reform. This discourse is dominated by conflicts of interest, frictions and fractures. First, heavy lobbying measures by Silicon Valley companies like Google threaten strong data protection standards to be watered down. Second, conflicts of interest between the 28 member states of the European Union clearly contribute to the unmaking of Europe. Different histories, social values, economic cultures, and "technopolitical identities" (Felt 2013) of the member states complicate the process of implementing European visions into political practice and legal texts.

To conclude, I argued that counting on the politics of control in terms of regulating globally operating IT companies as a common European strategy is a risky endeavor since not all European countries jointly oppose US-American Internet services and their practices. In contrast, developing its own, independent vision of European Internet services that are both fundamental-rights friendly *and* economically successful may be more promising. If the European goal is to benefit from ICTs as driving forces for economic and social progress (as still formulated in recent policy documents), Europe would need to start imagining, developing, and distributing its own Internet services in line with European visions and values. It would need to realize that privacy and data protection may be turned into a competitive advantage in the age of the NSA affair. Rather than mimicking US-American principles and practices, Europe may start to

imagine its own technological future built around privacy-sensitive technologies, as I finally discussed.

### **5. Search engine governance at the intersection of global and local dynamics**

While the former analysis was based on EU policy materials and Austrian media discourses, the investigation of search engine governance was based on 18 qualitative interviews with experts that I conducted in the project. The central research questions guiding the analysis were: What actors, interests, and strategies are central in negotiations of the European data protection reform? And what role does Austria play in European search engine politics? To answer these questions I interviewed various experts involved in search engine governance, both from the European and the Austrian level; e.g. policy makers, jurists, data protection advocates, NGOs, representatives from consumer protection, and technology specialists. All interviews were fully transcribed and analyzed following the approach of Grounded Theory (Glaser and Strauss 1968). This analysis showed that search engine politics has largely moved on from traditional policy-making. The majority of my interview partners described particularly US-American lobby organizations, but also civil society groups as central actors in the negotiations of the data protection reform. They all employ different strategies to inscribe their interests in the general data protection regulation, but their resources and possibilities are distributed very unequally. Moreover, companies such as Google "factually set data protection standards", as one interviewee put it. While non-governmental actors, Silicon Valley companies first and foremost, gain power, classical actors like the state clearly lose power. In fact, the role of the state itself changes because of European developments and global dynamics. While the idea of the powerful state is still existent in an abstract form, negotiations of the EU data protection reform show that "the state" practically loses power since it is confronted with 27 other member states in the European Union. In this context the state becomes a multiplied object: it is "more than one, but less than many", as Passoth and Rowland put it just recently at the EASST Conference in Torun (2014). Finally, European states were described as having passed on their power to global players like Google, but also US-American policy makers. Especially Barack Obama was staged as a central actor pulling the strings behind the scenes. Drawing on John Law (2009) I hence discussed the US-American industry-state nexus as a "manifest absence". It is both absent and present at the same time. This shows that European search engine policy not only reflects geopolitical power relations, but also hegemonic forces that go far beyond Europe's borders.

This analysis clearly supports the argument of governance structures increasingly replacing classical government in the area of corporate Internet services (Hofmann 2007,

Katzenbach 2013), as I finally discussed. Practices of user profiling, non-transparent user contracts, heavy lobbying from Silicon Valley companies, but also weak law enforcement in the European Union all contribute to the undermining of traditional mechanisms of public law and democracy by economic interests. These developments may be described in terms like "post-political" (Žižek 1998) or „post-democratic" (Crouch 2004): "*Behind this spectacle of the electoral game, politics is really shaped in private by interaction between elected governments and elites that overwhelmingly represent business interests*" (Crouch 2004: 4). But counter-struggles and forms of "sub-politics" (Beck 1992, 1997) are seen too on various levels. Edward Snowden's revelations played a central role in the negotiations of the data protection reform, for example. But Austrian actors from civil society are very present too. The international advocacy group European Digital Rights (EDRi)<sup>5</sup>, directed by an Austrian privacy advocate, is working hard to make their voice heard in Brussels. The Viennese student Max Schrems of "Europe-vs-Facebook" has become a very important actor pointing to problems and grievances of law enforcement when it comes to suing US-American IT companies for the abuse of personal data<sup>6</sup>. These actors, tendencies, and strategies need to be further investigated to better understand the empowering potential of the European Union and the role Austria can play on the European terrain, as I concluded.

## 6. Output of the project and future perspectives

In this final section I briefly summarize how I disseminated my research in the academic and the public arena. Following the order presented above, I show how the different pieces of my research were communicated to the scientific community, political stakeholders, and the broader public (both in oral and written form). 1) I describe the scientific output and 2) I present the outreach activities conducted in the project.

### **Scientific output (print-outs of published articles enclosed):**

My theoretical reflections on "**algorithmic ideology**" (section 1) have been presented at the 4<sup>th</sup> ICTs and Society Conference in Uppsala (2012) and the Digital Labor Conference in NYC (2014). The article "Defining Algorithmic Ideology" has been published in the peer-reviewed journal "Triple C" (2014). In addition, my previous work on the social construction of search engines and their algorithmic ideology has been published in the edited volume "Googlesierung der Informationssuche" (2014, in German), as well as the peer-reviewed journal "Media, Culture & Society" (together with Jenny Eklöf, 2013):

#### *Lectures:*

- "Defining Algorithmic Ideology: Using ideology theories to understand and critique corporate search engines", 4<sup>th</sup> ICTs and Society Conference, Uppsala (Sweden), 2-4 May 2012.

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<sup>5</sup> EDRi website: <https://edri.org/> (accessed June 2015)

<sup>6</sup> Europe vs Facebook: <http://europe-v-facebook.org/EN/en.html> (accessed June 2015)



- "Digital labor, capitalist ideology, and alternative future", Digital Labor Conference, NYC (USA), 14-16 November 2014.

*Publications:*

- Eklöf, J. and A. Mager (2013) Technoscientific Promotion and Biofuel Policy. How the Press and Search Engines Stage the Biofuel Controversy, *Media, Culture & Society* 35(4): 454-471.
- Mager, A. (2014) Defining Algorithmic Ideology: Using Ideology Critique to Scrutinize Corporate Search Engines, *Triple C. Communication, Capitalism & Critique* 12(1).
- Mager, A. (2014) "Ideologie des Algorithmus. Wie der neue Geist des Kapitalismus Suchmaschinen formt", in: B. Stark, D. Dörr, S. Aufenanger (eds) *Die Googleisierung der Informationssuche. Suchmaschinen zwischen Nutzung und Regulierung*, Berlin/ Boston: De Gruyter: 201-223.

My research on **alternative search engines and their ideological character** (section 2) has been presented at the Society of the Query conference (2013) and at the book launch "Die ersten Suchmaschinen" by Anton Tantner from the University of Vienna (2015). It has been published in the ITA manu:scripts series (2013) and the Society of the Query anthology (2014):

*Lectures:*

- "Is small really beautiful? Big search and its alternatives", Society of the Query Conference #2, Amsterdam (Netherlands), 7-8 November 2013
- "Alternative Suchmaschinen und deren Ideologien", Buchpräsentation: Anton Tantner: Die ersten Suchmaschinen. Adressbüros, Fragämter, Intelligenz-Comptoirs", University of Vienna (Austria), 25 March 2015

*Publications:*

- Mager, A. (2014) „Is small really beautiful? Big search and its alternatives“, in: R. König and M. Rasch (eds) *Society of the Query Reader. Reflections on Web Search*, Amsterdam: Institute of Network Cultures: 59-72
- Mager, A. (2013) In search of ideology. Socio-cultural dimensions of Google and alternative search engines, *ITA manu:scripts*

The analysis of **"search engine imaginaries"** (section 3) has been presented at the STS Graz Conference (2014) and the IS4IS Summit Vienna (2015). At both conferences I co-organized a panel: in Graz the "Politics of ICTs" panel with Doris Allhutter (ITA) and in Vienna the "ICTs and power relations" panel with Doris Allhutter and Stefan Strauss (ITA) – these panels further contributed to the "Politics of ICTs" research focus that we established at the Institute of Technology Assessment (ITA). The article "Politics of Control" was submitted to the peer-reviewed journal "Social Studies of Science" (2015):

*Lectures:*

- "Google media coverage in the context of EU data protection reform", STS Conference 2014 'Critical Issues in Science and Technology Studies', Panel 'The Politics of ICTs', Graz (Austria), 5-6 May 2014

- "Politics of Control. Visions and values in the co-production of search engines and Europe", IS4IS Summit, panel "ICTs and power relations. Present dilemmas and future perspectives", Vienna (Austria), 3-7 June 2015

*Publications:*

- Mager A. (submitted) "Search engine imaginaries. Visions and values in the co-production of search technology and Europe", *Social Studies of Science*

The analysis of **search engine governance** (section 4) has been presented at the EASST Conference in Torun (2014) and at the Tag der Politikwissenschaft in Vienna (2014). It has been published in the conference proceedings of the Tag der Politikwissenschaft and will be submitted to the peer-reviewed journal "Science, Technology and Human Values" (in the upcoming weeks; print-out can be handed in later):

*Lectures:*

- "The absence and presence of "the state" in sociotechnical imaginaries of search engines", EASST Conference, Torun (Poland), 17-19 September 2014
- "Search engine governance at the intersection of global, European, and local contexts", Tag der Politikwissenschaft, Vienna (Austria), 28-29 November 2014

Moreover, I have discussed my research at the "Momentum Kongress" in Hallstatt where I moderated the track "Technology and Regulation" (2013) and the pre-conference workshop; together with Leonhard Dobusch from the Freie Universität Berlin (2014).

- Track "Technology and Regulation", Momentum 13 symposium, Hallstatt (Austria), 17-20 October 2013
- "Momentum Young Research", Pre-Conference Workshop, Momentum Kongress, Hallstatt (Austria), 16 October 2014

**Outreach activities:**

In addition to the scientific output, I communicated my results to political stakeholders and the interested public. At the beginning of the project I organized the kick-off event "Black Box Search Engine" together with René König from ITAS Karlsruhe (2012). Throughout the project I was invited to talk about my research at various other public events. Towards the end of the project I organized the evening event "Europe against Google & Co?" (2015) and communicated my results to the press. Finally, I wrote some articles explicitly addressing political stakeholders and the interested public (listed below) and a number of blog posts on my blog [www.astridmager.net](http://www.astridmager.net):

*Lectures:*

- "Suchmaschinen im Spannungsfeld von globaler Informationsökonomie und lokaler Gesellschaftspolitik", Themenabend Black Box Suchmaschine, MQ Vienna (Austria), 25 April 2012:  
<http://www.univie.ac.at/internetforschung/2012/04/themenabend-black-box-suchmaschine-25-4-2012-18-30-mq-raum-d/>

- Statement on the Panel "Social Media in der Politarena", Österreichische Medientage, Stadthalle Wien (Austria), 24-26 September 2013
- "Mächtige Netze – Vernetzte Macht", Paraflows Festival, MQ Vienna (Austria), 13-15 September 2013
- "Österreichischer Netzkonvent – Forderungen und Ergebnisse", Daten. Netz. Politik 13, Kabelwerk Vienna (Austria), 14-15 September 2013
- Statement on the panel "Wir: Der Souverän", Künstlerhaus Vienna (Austria), 11 September 2013
- Lecture at the book launch "Vor Google. Eine Mediengeschichte der Suchmaschine im analogen Zeitalter", Wienbibliothek im Rathaus (Austria), 9 April 2013
- "User Profiling. Wie globale Unternehmen aus lokalen Daten Profit schlagen", EBC/ APA Vienna (Austria), 26 July 2012
- "Europa gegen Google & Co?", Präsentation der Projektergebnisse "Glocal Search" (OeNB), ÖAW (Austria), 23 April 2015:  
<http://www.oeaw.ac.at/ita/en/events/special-events/expertinnen-diskussion-23042015>

#### *Publications & Press:*

- Mager A. (2012) "Glokale Perspektive auf Google & Co", ITA Newsletter (in German)
- Mager, A. (2015) „Europa gegen Google & Co?“, ITA Dossier (in German)
- Mager A. (2015) „Europe against Google & Co?“, ITA Dossier (in English)
- ÖAW topic of the month featuring my project "Glocal Search", August 2012
- „User-Daten sind das neue Öl“, Futurezone, July 2012
- „Nix zu verbergen? Grenzenlose Sammelwut, ahnungslose Konsumenten und eine visions- oder sprachlose Wirtschaft“, Bestseller, September 2012
- "Die Ideologie des Algorithmus", Science ORF, May 2012
- Interview for the radio broadcast Matrix (Ö1): „Daten. Netz. Politik“, September 2013
- Interview for the radio broadcast „Digital Leben“ (Ö1), April 2015
- Interview for the radio broadcast "Dispositiv" together with Anton Tantner (Orange 94.0), May 2015
- „Expertin fordert Abschluss der EU-Datenschutzreform“, APA Science, April 2015
- „Expertin fordert Abschluss der EU-Datenschutzreform“, Horizont online, April 2015
- „Wiener Expertin fordert „endlich Abschluss der EU-Datenschutzreform“, Der Standard online, April 2015
- „Wiener Expertin fordert „endlich Abschluss der EU-Datenschutzreform“, Tiroler Tageszeitung online, April 2015
- „Datenschutzrecht: Konflikte spalten die EU- Politik“, Krone online, March 2015
- „Datenschutzreform: "Politik vom Tagesgeschäft getrieben"", Futurezone, June 2015

The research conducted in the project „Glocal Search“ will also be part of my **future habilitation project "Algorithmic Imaginaries"**, which has been submitted to the Austrian Science Fund (FWF, Elise Richter Fellowship); currently under review by FWF<sup>7</sup>. This habilitation project will consist of three empirical parts: 1) My research on global

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<sup>7</sup> Unfortunately the project did not get funding this time, which means that I need to reapply in October 2015.

search engines and their algorithmic ideology, 2) on European search engine governance and the politics of control, and 3) on the development of alternative search engines in particular local contexts (to be conducted with the Elise Richter Fellowship). My research on alternative search engines and their ideological underpinnings will serve as an important preparatory work for the study of alternative search projects (3 case studies are planned). In addition, the research carried out in the project will contribute to sharpening and extending the ITA research focus "Politics of ICTs" that I established together with Doris Allhutter and Stefan Strauss (a joint panel is planned for the Technology Assessment Conference in 2016, which is an annual conference carried out by ITA, ÖAW; further events are envisaged).

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