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Lifting Europe's Virtual Borders

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On 7 November 2016, the Jacques Delors Institut – Berlin organized a high-level conference entitled “Lifting Europe’s Virtual Borders” in cooperation with the German Federal Ministry of Finance and the Berlin Science Week. The keynote speakers and panellists shared their insights on the digital challenges Europe is currently facing: What are the virtual borders of the EU and how do they hamper growth? Is the Digital Single Market strategy on the right track? How can we get to a European innovation culture? And how can we protect ourselves against cyber threats? These and related questions were discussed by a range of prominent speakers, including politicians, entrepreneurs and academics. This report summarises the main arguments and provides input for the discussion on the state of play of the digital economy in the EU.

1 Introduction: The Digital Challenges for the EU

In 2016, virtual borders still divide the EU's economies: Physical border guards between EU-countries have largely disappeared, but virtual border guards in the form of national regulation and an un-harmonized market for digital goods and services keep the digital potential of the union at bay. This imbalance was one of the motivations for the Jacques Delors Institut – Berlin to devote its second bi-annual conference to the regulatory challenges of the digital transformation in the EU.

In his introductory remarks Prof. Dr. Henrik Enderlein linked the current state of the digital sector in the EU to the fall of the Berlin Wall on the 9th of November 1989. 27 years after this historical turning point for Europe the question should be: How can we tear down the virtual borders and gates of the EU? This question was the thematic leitmotif of all panels and keynotes, whether they were addressing regulatory borders and the Digital Single Market strategy, borders in innovation policy or borders to cooperation in the field of cybersecurity.

Prof. Enderlein reminded the audience of the urgency to act by citing concrete examples of fragmentation. E-commerce has been booming in the last decade across Europe, but the growth of cross-border sales online has been astonishingly slow: “Only one out of seven Europeans buys online in another European country, while more than 50 percent do so in their home market”.

Start-ups suffer from the non-harmonized market as well. Less than 10 percent of global “unicorns”, start-ups with a market valuation of more than one billion dollars, are of European origin and most of them are now owned by American or international investors.

Data protection is another example: If a German start-up that is successful on the German market seeks to expand its service to the Single Market, it is confronted with 27 different data protection legislations: “The Airbus of the 21st century would be an equally worded French-German data protection law”. The current General Data Protection Regulation which will enter into force in 2018 across the EU still features numerous opening clauses leaving Member State ample leeway in the national implementation.

Which regulatory areas are most responsible for this digital market fragmentation? How can we set the right parameters and preconditions for European innovation to flourish? Are we able to organise our common security not only in the physical but also in the cyber domain? On 7 November 2016, the Jacques Delors Institut – Berlin invited a range of prominent speakers to discuss these and related questions.¹ The conference was part of the 2016 program of the Berlin Science Week, a series of conferences on science, innovation and policy centred around the well-known annual Falling Walls Conference on 9 November.²

¹ The full conference program and a selection of conference pictures can be found [here](#).

² The full program of the Berlin Science Week 2016 can be found [here](#).

2 Towards connected European forces?

“A connected threat requires a connected response”

What is the current role of cyber in the defence and security structure of Germany and Europe and what should its future role look like, also as a driver of (general) innovation? The first keynote speaker, Dr. Gundbert Scherf, Director of Armaments Strategy, Defense Industrial Policy and Cyber Security at the German Ministry of Defense addressed the “dark side of digitalization”, cyber terrorism and crime. He elaborated both on the perspectives for “connected European forces” and the role of European governments as financiers of military innovation. He further outlined the German plan for a new cyber-security domain within the Bundeswehr and shared some insights of how European governments could foster more cooperation and stimulate innovation by pooling and sharing their cyber capabilities and methods.

Strategic context: The information and hybrid warfare against the EU and Germany

The strategic context of these considerations was, according to the speaker, no longer abstract but very real as the EU and the western world in general were already wrestling online with other forces. They were actively trying to undermine societal institutions and values of Western societies and erode its legitimacy. Russia but also the terrorist organization known as the “Islamic State” had been using cyber-attacks to shut down websites or temporarily block critical infrastructure and used the cyber domain for hybrid and information warfare. Hybrid and information warfare purposefully harnessed perceived weaknesses of inter-connected societies (such as an open and pluralistic media) and eventually challenged the Post-Westphalian order, as Gundbert Scherf laid out.

The national response: Cyber-Space as a domain of its own for the Bundeswehr

Political and institutional answers to these threats should be as all-encompassing as possible. Dr. Scherf stressed the fact that “cyber-sovereignty is a whole of government effort”, involving different branches of the government, the Bundeswehr and its cyber-defence capabilities are part of it as well as other security branches. In his speech, he laid out what this concretely meant for Germany’s armed forces: Cyber space will become its own domain from 2017 on for the Bundeswehr, on equal footing with army, air force and navy. The new “CID Cyber Information Domain Command” will have 13.500 men and women, working in reconnaissance and IT. A new cyber and IT-division will be created in the ministry of defence in parallel. This highlights the growing importance and strategic necessity of both defensive and offensive cyber capabilities as well as the growing role of IT-services.

The European response: Opportunities for increased digital cooperation of European forces

The EU had a “long tradition of fragmentation when it comes to defence”, according to the speaker. Cyber, however, provided the opportunity to start cooperation with a clean slate since cyber capabilities are being introduced at the moment in every Member State. How can we make sure then that these cyber forces do not get fragmented from the start? Dr. Scherf shared his views on the prospects of increased integration in the area of cyber defence in three possible areas of European cooperation with regards to cyber defence: connectivity, big data and cloud.

1. Connectivity: Mobile technical communication systems are the biggest procurement project for the Bundeswehr and constantly gain in relative importance for military expenditure across the continent. However, if European forces and governments cooperated more already in the early stages of the procurement process, for example on technical standards and protocols, the growing cyber capabilities of national governments would be synchronised and inter-operable with each other. Otherwise technical fragmentation would unnecessarily aggravate efforts for cooperation right from the start. Enhancing inter-operability with European partners, thereby giving them the ability to “literally speak to each other” should be one of the priorities of European cooperation projects in the military and procurement departments.
2. Big Data: Tools to extract insights and patterns from unstructured, large pools of data have many possible applications for the military, especially for predictive use, for example of regional risks or terrorist activity but also in logistics. Possible examples for more and better organized European cooperation in this area were: the harmonization of the logistics chain by pooling and sharing joint maintenance in IT across countries or the use of open source or joint predictive models.
3. Cloud: More cooperation by European Armed Forces in cloud computing could yield large efficiency gains. Instead of relying on foreign or private supplier (Amazon web services for example are in use by the U.S. Army), Europe should build its own cloud infrastructure to share data in Europe across borders.

Propelling innovation by increasing European cooperation for military research

In the last part of his speech, Dr. Scherf touched on the nexus between military research and innovation. According to him, the EU is still mostly reliant on innovation from other world regions, not only, but also concerning IT-innovation for the military. What could be done to decrease this dependency and could the EU develop its own cyber innovation capabilities?

The speaker answered these questions by arguing in favour of an increased focus on military research: Innovation involved money and risk-taking by entrepreneurs but also by governments and the military. The risk-taking culture in the U.S. contributed to the success of Silicon Valley, for instance, but so did government funding during and after World War II, involving a combination of state-sponsored university and military research. Modern consumer applications like Siri, GoogleMaps, CloudComputing or even the internet itself were products of this state-financed military research programs.

The lesson for Europe should be that innovation can be organised, “not only, but also through the military”. This is especially true with high risk, potentially disruptive innovation projects which have trouble finding private early-stage investors. The EU should invest some of its military research funds in disruptive innovation, thus mirroring the approach of the US-defence agency DARPA. A common fund could be set up for defence innovation with the entirety of the EU-28 benefitting from the research projects.

3 Regulatory Priorities for a Digital Single Market

“The EU is a disconnected continent” the Economist remarked³ when the Commission revealed its program of initiatives to form a Digital Single Market in May 2015. But in which area and how disconnected is the EU in reality? With this provocative question moderator Tijen Onaran, Founder and CEO of Women in Digital, introduced the first panel of the conference, which focused on the regulatory priorities for a successful Digital Single Market. It soon became clear that the statement of the Economist was not overblown a stretch: The panellists, Oliver Süme from the German Internet Association Eco, Dieter Janecek MP, Bündnis 90/DieGrünen, and Laura Kohler, European Innovation Hub, shared insights from their own experience of the disconnectedness in the union.

The Digital Single Market Strategy: Necessary, timely, but probably not enough

The first part of the panel discussion entailed an evaluation of the proposals by the EU-Commission for a Digital Single Market. The 16 initiatives which the Commission has gradually presented over the course of 18 months starting in May 2015 cover a wide-ranging arc of policies, from new to telecommunications providers to open data approaches for European researchers to new rules on the portability of copy-right protected content across European borders. All three panellists agreed on the necessity of the program for a more harmonized single market for goods and services in the EU and lauded the ambition of the European Commission.

Yet, each of them also singled out particular areas of regulatory or political shortcomings. Oliver Süme pointed this out when discussing the recent proposals by the European Commission towards a more unified European copyright. The vast body of regulatory changes to the old directive (which dates back to 2001) would be a welcome and timely adjustment to the requirements of modern content production and distribution opportunities, according to Sueme. However, the proposal to introduce an ancillary copyright for press publishers was in his view a step in the wrong direction, as such an ancillary copyright would only protect old business models (that of the publishers) and put innovative content and publishing start-ups at a disadvantage.

“Start-ups in the EU do not face a Single Market, but 28 different national markets”

Laura Kohler of the European Innovation Hub, an EU-funded incubator helping start-ups to grow and build networks across the union was particularly critical of the lack of government action. She looked at the proposals of the Commission through the lens of a start-up entrepreneur and demanded more action by the EU and national governments to help start-ups, especially with scaling-up and market expansion. “If a German start-up wants to expand to the Single European market, they soon realize that there is no single European market for their product or service, but 28 different national markets, each with its own legislation and regulatory requirements, which have to be fulfilled before being able to roll out in another country”. Both Oliver Süme and Laura Kohler made the case for regulatory exemptions for start-ups in the EU, for example via mutual recognition of the regulatory principle of the home market in another European market for the first years.

Another problem of many young companies, according to Kohler, was the lack of skilled employees available. She pleaded for lower requirements for engineers and computer scientists from outside the EU, if they seek to acquire a work-visa for the Schengen area. Another option would be to set up a point-based immigration system, such as the one implemented by Canada, to attract talents from across the world.

³ The Economist, [Disconnected Continent. The EU's digital master plan is all right as far as it goes](#). The Economist, 09.05.2015.

The EU-approach towards net neutrality was discussed with some controversy. While Dieter Janecek, MdB, defended net neutrality as a democratic principle and criticised the decision of the EU to open up certain channels of the internet for special services, Oliver Sümme emphasized the necessity of seamless data flows, for example for future applications, such as connected cars where any disruption of the data flow could potentially end deadly. In the end, the panel could agree on the importance of the DSM-strategy, they remained highly sceptical whether it could be delivered as envisaged by the Commission. Especially start-ups would need more support by the EU and national governments, as became clear during the discussion.

4 How to foster a European Innovation Culture?

After the break, the focus of the discussion shifted from regulatory and policy challenges for a unified digital Single Market towards the topics of innovation culture and innovation policy in the US and the EU. What can the EU learn from successful American innovation companies? What are the European strengths and weaknesses with regards to innovation? Are European companies ready for the digital transformation?

Inspiration and insight from both sides of the pond was provided by Obi Felten of X⁴, who delivered the second keynote on innovation culture in the US and Europe. Projects of X include self-driving cars, delivery drones, smart contact lenses, energy kites or carbon neutral fuel from sea-water and internet from balloons. In her keynote, which focused on her work at X and lessons which can be drawn from it to the EU, Obi Felten tried to synthesize her working and life experience on both continents and shared her insights on the success of the American digital economy from both perspectives. She presented three lessons for the EU and the US.

Silicon Valley lessons for the EU

1. Disruptive American vs. incremental European approach to innovation

The first advice Obi Felten gave her audience, referring to the reasons for the success of Silicon Valley, was the perspective on change and the possibility of innovation. American start-ups and companies were more inclined to completely rethink a product or a service. Her example from the real world was the self-driving car. The disruptive approach of many Silicon Valley companies (e.g. re-invent driving) was in her view contrasted by a European approach focused on a more incremental approach to innovation (e.g. improve engine fuel-efficiency by ten percent). Obi Felten recommended to European companies and investors to adjust their thinking to a more open, disruptive conceptualisation of innovation.

2. Innovation is messy: The EU can learn from the American culture of failing, curiosity and adaption

Is the cliché of the famous culture of failing in the Silicon Valley actually true? Does the narrative “failing fast and successful” appear counter-cultural to Europeans because they tend to be perfectionists? In her second lesson from Silicon Valley to the Europe, Obi Felten focused on

⁴ X, which used to be Google X, is the research leg of Alphabet, the American tech-holding, formerly known as Google Inc.

different approaches to the various stages of an innovation or an untested product. Positive attitudes towards failing and the celebration of trial-and-error was one of the big cultural advantages of American companies, according to her. European companies tended to be too perfectionist in their approach to a new product or service. This acceptance of the fact that “innovation is messy” was mirrored in the administrative and political sphere. The acceptance of American policy-makers to help companies to test their products, even if they were still early-stage prototypes was an example of this readiness. Obi Felten compared the reaction of American and European mayors concerning the self-driving car and connected driving: According to her, American mayors were scrambling in their effort to become the first American city to introduce self-driving cars even though the technology had not been mass-tested yet. European mayors on the other hand were much more cautious voicing concerns over unresolved legal questions, for example over insurance regulation or pedestrian safety.

3: “Innovation is a team sport”: On EU-US tech-industry cooperation

In her last lesson to Europe, Obi Felten encouraged both large and small European companies to not be afraid of Silicon Valley and openly look out for cooperation projects. Collaboration, sharing of ideas and openness to newcomers are defining features of the Silicon Valley innovation culture. Partnerships were according to her especially important after the prototype stage, for example in the field of autonomous driving. Both the EU and the US could immensely profit from more such cooperation projects.

EU-lessons for Silicon Valley

1. “Be in it for the long run” (on the European focus on long-term planning)

According to Obi Felten, long-term thinking was a key European asset in a lot of cases. She cited a couple of examples of the European tendency to do things in the long run: “Europeans move four times in their life time, Americans move twelve times. German Mittelstand companies are passed over generations and their strategies span decades.” Why does this matter? Long-term thinking affected investment decisions, could give engineers more time and space to make products that are truly innovative.

2. “Physics shaped our past – and our future” (On the traditional European strength in industry)

As a second lesson or strength of the EU, Obi Felten emphasized the importance of Europe’s industrial potential. With a heavy focus on industrial production, the EU could be well prepared for the current waves of innovation: the Internet of Things and the advent of the connected factory (Industrie 4.0). Europe had a better basic infrastructure for innovation, very good engineers and with the rise of robotics and sophisticated automation, Europe with its traditional strengths in electronics and manufacturing was more relevant than ever. Software could make machines intelligent, but they also needed “eyes and ears and hands”, i.e. sensor and robotics technology, again one of the EU’s strong suits.

3. Diverse societies needed to tackle the real problems (On European diversity)

A third lesson for the Silicon Valley from Europe was the emphasis on diversity on the continent. Silicon Valley had less diversity according to Felten: “They are not enough women, not enough black people and most people are well-off. Silicon Valley founders do think big, but sometimes they are solving problems that are not really problems. Boys who are building products for the things that their mom used to do. Europeans should not copy that.” Instead, start-ups in Europe

should be closer to the real problems and the real needs of people and not end up with luxury products.

The ensuing panel focused on the reasons for the EU lacking behind in innovation and strategies to foster a European innovation policy. Discussants were Prof. Dr. Reinhilde Veugelers from the University of Leuven and Policy Fellow at Bruegel, Christoph Bornschein from Thorben, Lucie und die Gelbe Gefahr, an agency for digital transformation and Dr. Rainer Zugehör, CEO of Berlin-based Movingimage24, an online platform for the global storage and distribution of corporate film material.

Examples for European unicorns are rare, but does it matter?

Are there signs of an emerging European innovation culture resembling the one of the US? From an academic viewpoint, it appears that innovation made in Europe has a “tradition-bias”. Reinhilde Veugelers laid out her research on the differences between European and American technology leaders in terms of sector or age. Her team found that almost all the young successful innovators worldwide, especially in digital technology but also in biotech, came from the US. In Europe most leading innovators were both older and more established, coming from sectors such as manufacturing while young companies in the innovation-based growth sectors were very rare. According to Prof. Veugelers, only 11 percent of the EU-US innovation gap was explained by the lack of innovation on part of older companies, but 89 percent was due to the lack of innovative, high-growth young companies.

Christoph Bornschein seconded this analysis, but stressed the innovative capacity of Swedish unicorns, with Spotify, SoundCloud (Berlin-based, but Swedish founders) and Klara as examples. He made the case that the EU lost the first round in the innovation game, as almost all B2C-companies are from the US and should now hope for B2B-companies: “The industrial internet is the chance for Europe to enter into the game”. Now is the time for a European Google.

European advantages in small B2B-players and the dynamics of the platform economy

Rainer Zugehör remarked that there might be no need for a European Google as the advantage of the EU was its portfolio of 1000s of highly innovative SMEs and smaller software companies. In Germany many software companies are focused on B2B-software. The German Mittelstand and the hidden champions could be replicated in the internet world: “I would rather have 1000 really successful software companies than one Google.”

Christoph Bornschein disagreed with this rather optimistic view of the European tech future and cited the economics of platforms which tend to generate “winner-takes-all markets”. Niche-specialization in turn “cannot save us all”. Right now, the network effects of the platform economy apply less to the B2B-economy than they do to the B2C-economy. Yet, there are signs that they might eventually also apply to B2B-software. Cloud-based B2B-software companies can have a global reach already today: the cloud is generating “fantastic opportunities (Zugehör)” even for smaller companies. Bornschein insisted that in his view winner-takes-all economics would prevail across all software categories: “We are not safe only fostering niche players; we also need that 500 pound gorilla in place”. The panel eventually agreed that power within digital eco-systems had irreversibly shifted from hardware to the upper layer of software and interconnected applications and that their size, incumbency and network effects were the determinants of their success. Whether smaller companies will be able to reap of the benefits depends on how open the platforms are. In the EU, genuinely European large platform providers

are currently missing, which is why open and compatible systems are so important in order for smaller companies to still capture value by aligning on the platforms.

How to capture value in the data economy?

The second half of the discussion hit on prospects of the digital transformation for European industries and the problems of commercialization of innovation. Prof. Veugelers made clear that future success will depend on the capabilities of European companies to only provide hardware goods but also digital technology and whether they will have the access to data which will increasingly capture most of the value. Eventually openness and compatibility of systems will be needed in order to get a strong bargaining position and to capture the data-driven value.

Besides the debate on the right company size and structure needed for a European innovation boom, the panel also discussed the question why European companies despite their high potential more often than not did not innovate as well as American companies. Prof. Veugelers stressed that the reason for this impasse is not necessarily the quality of basic research and infrastructure. Main barriers instead arise in the commercialization part and were also connected to the lack of a Digital Single Market.

A better commercialization of basic research and early-stage innovation requires, of course, a secure and harmonized access to the Single Market and to capital. The current stage of fragmentation not only in products but also in services markets, a weak European market for education and skills and the lack of European financial capital venture capital market all have an effect on the weaker innovation performance of the continent. The second panel thus showed why a harmonized Digital Single Market is so important also for European innovation to flourish.

5 From Jacques Delors to the Digital Single Market

Picking up many of the thoughts and ideas raised during the afternoon, Günther Oettinger, EU-Commissioner for the Digital Economy and Society concluded the conference with a keynote speech on the economic potential of a truly harmonized, fully integrated Digital Single Market. Drawing a line from the successful implementation of harmonized regulation for the EU under Jacques Delors in the *analogue* Single Market to the current program of the Commission, Oettinger sketched out his vision for a more unified European market for digital goods and services.

His declared goal is to create a European market for digital goods and services as harmonized as the market for goods: If French or German car makers acquire a car registration and street licence in either Germany or France they get a valid licence for the entire European market. The car does not need to be re-registered or fulfil different labelling or environmental requirements when being transported (not exported, as Commissioner Oettinger carefully remarked) to another European market.

A European start-up on the other hand needs to accommodate its services to 27 different employment, environmental, data protection and other regulation when entering a European market. This leads many start-ups instead to move directly to the US, which already has one unified market with 330 million customers. But start-ups are not the only ones profiting from a Digital Single Market: The Commissioner also emphasized the importance of a fast roll-out of 5G-networks and the potential of the industrial internet for European business. Taking industrial manufacturing, Europe's traditional strength, to the digital age will be an existential task for Europe's competitiveness. Projects such as autonomous driving need a high degree of cooperation between European partners from the start, especially to ensure smooth cross-border functionality.

Oettinger's speech thus showed once more that digitalization constitutes a deep structural transformation and that lifting Europe's virtual borders is a tremendous challenge. The conference and its panellists and keynote speakers shed light on some aspects of this challenge, from cyber security to regulation to innovation. Many participants expressed their hope and confidence that the EU will eventually be able to reap the benefits of digitalization by focusing on its core strengths of cooperation and mutual understanding.