The objective of the conference was to discuss innovation policies for the Digital Single Market. The discussions took as starting point the most important results from the Joint Research Centre (JRC) project 'European Innovation Policies for the Digital Shift' (EURIPIDIS) and the policy messages deriving from these results. This event was the final conference of this project. The conference discussions focused on:

- Digital innovation and entrepreneurship
- The role of standards and intellectual property rights for digital innovation
- Financing of innovation in the digital age

In the audience were about 100 representatives from the ICT industry, European Commission staff, policy analysts and academics working on issues related to the Digital Economy. The agenda of the event and a concept paper can be downloaded from the conference web-page.

Welcome & Introduction
Alessandro Annoni (JRC, HoU Digital Economy), Pēteris Zilgalvis (DG CONNECT, HoU Startups and Innovation)

The two Heads of Unit opened the conference by welcoming the participants and introducing the relevant work at the Joint Research Centre and DG CONNECT in the field of the digital economy in general and the work under the EURIPIDIS project and the new project 'Research on Innovation, Startup Europe and Standardisation' (RISES starting in 2017) in particular. Alessandro Annoni underlined the pivotal role the work of the Digital Economy Unit plays in understanding digital transformations, anticipating trends and identifying opportunities for growth and innovation. Pēteris Zilgalvis emphasised the contribution of EURIPIDIS to support development of policies on innovation and entrepreneurship and to assess innovation performance in the context of FP7 and Horizon 2020. He also indicated that DG CNECT was looking forward to the new RISES project supporting standardisation work on 5G, IoT and Blockchain, and initiatives such as Startup Europe and the Innovation Radar.

Keynote address
Keith Bergelt (CEO, Open Invention Network), -slides available-

Keith Bergelt explained how the digital shift has profound positive impact on innovation, mobility of capital, and how it will alter the way of interactions and the creation of values. Invention is part of innovation, which is transformative by nature, but is not the commercialization of it. Without capital and institutional support, we lack the ability to transform inventions into innovations. Dislocation of human capital from clusters, like Silicon Valley, is key. The new model of ‘global inclusivity’ allows everybody to participate to
networks that are global in nature. It allows people to evolve in environments in which they are rooted. The advantages of this model are the great diversity of thoughts and perspective it provides and it drives to higher levels of innovation. Linux as open source software is an example of global inclusivity. High-tech growth is based on 'co-opetition', where people collaborate in order to compete. Keith Bergelt provided examples (e.g. Linux as operating system in connected cars) how technology can be developed in global collaborative projects. The notion of open source introduces new ways of handling intellectual property, like patent sharing, patent pooling, etc.. As examples were mentioned firms participating in the Open Invention Network.

Panel I: Framework conditions for digital innovation and entrepreneurship
Merhan Gul (World Economic Forum), Paul Hofheinz (President, Lisbon Council http://www.lisboncouncil.net), Jan Christian Saupe (CEO, Lunchio https://www.lunchio.de/), Ferdinand Pavel (Manager DIW Econ), Flora Coleman (Head of Government Relations, Transferwise), Christopher Haley (Head of New Technology & Startup Research, Nesta)

Despite progress in recent years, accessing human, technological and financial resources across national borders remains cumbersome. This creates significant barriers to the internationalisation and scaling-up of European businesses. In this context, this first panel on digital innovation and entrepreneurship discussed the role of public policies in shaping framework conditions that can help European innovators and entrepreneurs to overcome barriers to capitalise on their innovative ideas and expand in the global market.

In the context of EURIPIDIS JRC elaborated a set of indices on the assessment of framework conditions for the creation and growth of firms in Europe. It benchmarks European countries according to the conditions they provide. The assessment of framework conditions serves as a policy tool that allows for monitoring the quality of framework conditions and for spotting the strengths and weaknesses of national systems of entrepreneurship. This way, it aims at helping to address barriers that prevent European companies to scale-up.

The perspective of Paul Hofheinz focused on the importance of evidence-based policy making, which should give clear directions and avoid jargon and influence of a political nature. This view was endorsed by Jan Christian Saupe from Lunchio which as a German EC-funded start-up has been trying to disrupt the paper-based market for subsidised lunches in Germany using digital means. Following a successful start in Germany, the company plans to expand in other European markets. The German law allows to set up an online interface to pre-order lunches electronically. However, regulations remain less clear in other countries, especially with respect to the authorisation of lunch subsidization. So Jan Christian Saupe advocates clear appointments of responsibilities and policies in European countries and seeks for appropriate support from institutions and organisations in helping the change of regulations. Ferdinand Pavel pointed out that reducing transaction costs is one of the key aspects of market exchange that shapes digital transformation. He emphasized that the digital transformation of the economy will significantly alter market exchanges and it will offer new ways to lower transaction costs through networks and use of different technologies (blockchain etc.). The beneficial synergies from digital transformation are coming along through network effects. The more people enter the network, the higher the benefits for each individual and the lower the transaction costs. According to Flora Coleman, the existing Payment Services Directive has created favourable conditions for her company Transferwise to grow across borders, thanks to a comparable regulatory regimes in the various countries. However, she recognised that keeping pace with existing European initiatives and incentives is difficult for new start-ups which often do not have enough resources. Government needs to re-assess existing regulation or even needs to completely revise it. Sometimes regulation seems to be out of date and does not comply entirely with new business models. Transparency is important in this respect. The great deal of information and material that the EC makes available on data protection, licensing, and innovation support measures is not always disseminated through channels directly targeting the new start-ups or small entrepreneurs at the national level.

Christopher Haley mentioned that Europe faces a productivity problem (less productive than US), a funding problem (US six times higher VC investment than Europe) and a scaling problem (EU firms find it more difficult to grow). European firms face barriers to grow in Europe. Too often, they have to move overseas to become bigger, therefore creating jobs and exploiting networking effects elsewhere. The 'scale-up manifesto' for Europe was mentioned as a positive example with ideas how to overcome these problems.
According to Paul Hofheinz, Europe can be the best place to innovate because it has strong universities, with people coming up with original, new ideas, etc. Jan Christian Saupe argued that there is a lack of real harmonisation in the EU. Whereas Flora Coleman mentioned that the biggest challenge across EU member states is not harmonisation, but rather that regulations are too prescriptive. There is a need for a holistic approach to deal with the different aspects of entrepreneurship (finance, culture, market conditions etc.). Regulation and harmonization matter, but also the attitude towards entrepreneurship. There is a need for more interaction between firms and policy makers. Special attention should be given to startups and the incentives to start a business based on innovative ideas.

Panel II: The role of standards and intellectual property rights for ICT innovation

Nikolaus Thumm (JRC), Suzanne Munck (US Federal Trade Commission), Monica Magnusson (VP of IPR Policy, Ericsson) Robin Jacob (Professor University College London), Bowman Heiden (Deputy Director CIP) Giustino de Sanctis (CEO Vectis), Keith Bergelt (CEO, Open Invention Network)

The panel focused on the role of standards and intellectual property rights (IPRs) for digital innovation. It started with a discussion about the future importance of proprietary knowledge systems in a world of increasing interoperability. It then turned towards the most important IPR challenges in the digital age, as they have been identified by the IPR-related studies under the EURIPIDIS project, namely the impact of patent assertion entities on IP markets and role of licensing under fair reasonable and non-discriminatory (FRAND) terms for the ICT industry. In a first round of the discussion, the focus was on the role of patents and standards for innovation in markets shaped by connectivity and interoperability (IoT, Internet of Things). How will new innovation models look like in a world of IoT? How can proprietary and non-proprietary knowledge systems effectively work together, and what will be the role of standardisation and of intellectual property? Suzanne Munck set the scene by stating that 'standards are the engine of a modern economy'. According to Monica Magnusson in the evolving IoT, where everybody will be connected, we need economies of scale and we need to meet the requirements for communication in a large diversity of devices. Standards enable this to happen, but require huge investments to be set-up. However, once set-up, any other competitor will benefit from the standard. Therefore, protection mechanisms are needed to enable investing companies to appropriate the benefits of their efforts. Robin Jacob confirmed standards as a good method to encourage innovation and to enhance cooperation across firms. Boman Heiden quoted John Nash: 'we need to maximize the welfare for ourselves and for the group' meaning that the role of intellectual property rights will change and has to facilitate the dissemination of standards and to encourage cooperation in general (mentioning FRAND licensing as a good practice sample in this respect). Giustino de Sanctis underlined that without a proprietary system there is a risk that firms that develop a standard do not gain from it. How to ensure that firms continue to invest in research and development? IPR are one way to do this. Some improvements are needed but the finality should remain the same, i.e.to ensure return on investment. Frequently patents are perceived as barriers and a cost rather than an enabler for innovation as they should be. According to Keith Bergelt IPR had to be viewed as enabler to build on each other ideas, to encourage free flow of ideas and open up collaboration. We should evolve towards a world in which we agree not to sue each other and conduct more cross-licensing.

In a second round of statements the discussion evolved around the future of intellectual property markets, the role of patent aggregation and of patent assertion entities (PAEs) in these markets. How will effective licensing platforms have to look like in order to cope with the challenges deriving from connectivity and interoperability also in the context of standards essential patents (SEPs)? How important will be the assertion of SEPs and the role of companies providing such services (PAEs)? Munck explained the role of patent assertion in the case of the US economy by referring to the results from the recent study of the US Federal Trade Commission and more specifically, pointing at the differences between portfolio PAEs and litigation PAEs. Jacob raised the question why there is so much more patent litigation in the US? If you sue: it may be better for the company to buy you off than to proceed in court. Heiden explained that working together and building up good relationships is beneficial, which is why there is little patent hold up in standardisation. Prompted by the audience, the panel concluded their discussions reflecting about pros and cons of fair, reasonable, and non-discriminatory terms (FRANDs), its governance and role for innovation, and about the need to include IPR in the education system. On FRAND licensing Munck mentioned that the concept would be best determined by courts. Whereas Jacob stated that FRAND is best defined by an arbitration panel in private practice. Overall, FRAND licensing was perceived as working well with not too
much litigation. Bergelt concluded that the transfer of ideas to value is essential and that education and intellectual property are important as drivers of innovation. We should think on how to create value from a global perspective for the whole society.

Panel III: Financing of innovation in the digital age

Daniel Nepelski (JRC), Paul van Dijk (Vice President, LionIX), Aljoscha Kaplan (Managing Director, German Media Pool), Rodolph Gelin (EVP Scientific Officer, Aldebaran Robotics), Louise Westerlind (Senior Industry and Policy Researcher, Cambridge Centre for Alternative Finance), Jan Christian Saupe (CEO, Lunchio)

The Innovation Radar, an exercise launched by DG CNECT based on a methodology and analysis produced by JRC in the EURIPIDIS project, has set the first step in looking at the chain of commercialisation of innovation developed in publically-funded research projects, e.g. FP7, H2020. According to the conclusions of the first JRC Innovation Radar report, financing is seen as the major external bottleneck to innovation exploitation. 42% of innovators see lack of finance as a barrier to exploiting their innovative products or services. However, at the same time, only around 6% of the innovators are actively looking for private or public funding. Taking this into consideration and knowing that there are a number of public and private sources focused on various stages of innovation and entrepreneurial activity the panel was addressing the following questions: Is the access to financing really a problem? Or are there are other reasons why it is difficult for companies to convince potential investors to finance their activities? Looking at the various stages and sources of technology development and commercialisation in Europe, what can we say about their effectiveness in covering the needs of innovators and entrepreneurs? Under which conditions do alternative forms of financing, e.g. crowdfunding, peer-to-peer, etc. work and how effective it can be to finance technology-based, digitally-enabled innovation and entrepreneurship activity? The moderator points that a survey in the Innovation Radar report reveals that many companies indicate that access to finance is a problem, but only a small share of them is actively searching for funding. He also highlighted the importance of R&D investments and the milestone 3% investment in R&D of GDP. Provided that the European Union did not yet achieve this milestone, he wondered if this constitutes a problem or not in terms of financial availability to foster firm development?

Aljoscha Kaplan agreed with the statement that many firms may face difficulties in accessing financial funding but warned that an increasing number of investors are coming from outside Europe. He suggested that education programmes are needed for entrepreneurs to become aware and understand the complexity of private and public financial funding that becomes available on the market. Education should make it more manageable to navigate across the different financial models that exist. Louise Westerlind stressed that the type of financial funding depends on the stage of development of innovation. Venture Capital is for instance not suitable for all innovation projects. She highlighted other forms of funding: e.g. peer-to-peer, balance sheet investing, crowd-funding. She emphasised that most alternative financing funds are in a very early stage in Europe. Rodolph Gelin highlighted the importance of technology development, but emphasised at the same time the need for sales and market development, being keystones in every business activity. Kaplan agreed with the statement that many firms may face difficulties in accessing financial funding but warns that an increasing number of investors are coming from outside Europe. He also suggested that education programmes are needed for entrepreneurs to become aware and understand the complexity of private and public financial funding that becomes available on the market. Education should make it more manageable to navigate across the different financial models that exist.

Conference wrap-up and next steps

Paul Desruelle (JRC) closed the conference by thanking all participants, recalling a few key messages from the conference discussions (reported in the above summary), and reminding the participants that JRC policy support work on the topics discussed during the day will continue in the context of a new project ‘Research on Innovation, Start-up Europe and Standardisation’ (RISES) starting in 2017.

1 More information on the EURIPIDIS project and all its publications are available at: https://ec.europa.eu/jrc/en/euripidis