



Summary report¹ of the 5th GLORIA virtual workshop

Corporate investment and global industrial innovation for transition: a challenge for EU innovation?

9 and 10 November 2021

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INTRODUCTION AND BACKGROUND

This workshop was organised as part of the **Global Research & Innovation Analyses⁴** (GLORIA) project undertaken jointly between the Commission's Joint Research Centre and the Directorate General for Research & Innovation (R&I). **GLORIA workshops** are held in order to discuss policy-relevant issues addressed in the analytical work of this project⁵ and obtain feedback from different stakeholders from academics, policymakers, and industrialists about the relevance of the results and analysis obtained in the GLORIA activities and their policy implications. Up to now, thirteen workshops have been held.⁶

The EU **Green Deal⁷** aims to boost Europe's competitiveness based on cutting-edge innovation in a broad sense. It constitutes an integral part of the Commission's strategy to implement the **United Nations 2030 Agenda** and the **Sustainable Development Goals**. The Commission emphasises the need for **structural transformation** of our Economy and need for crosscutting policy support towards **competitive sustainability⁸** where EU companies play a central role in the transition to a more environmentally friendly path. The **European Research Area⁹** will continue to incentivise R&D investment from the

¹ The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission

² European Commission, Joint Research Centre (JRC), Directorate B Growth and Innovation, Unit B7 Knowledge for Finance, Innovation and Growth

³ Directorate General for Research and Innovation, Directorate E Prosperity, Unit E1 Industrial Research, Innovation & Investment Agendas

⁴ See: <http://iri.jrc.ec.europa.eu/home/>. The activity is undertaken jointly by the Directorate General for Research and Innovation (DG RTD.E; see: https://ec.europa.eu/info/research-and-innovation_en) and the Joint Research Centre, Directorate B Growth & Innovation (JRC-B; see: <https://ec.europa.eu/jrc/en/science-area/innovation-and-growth>).

⁵ See: <https://iri.jrc.ec.europa.eu/scoreboard/2019-eu-industrial-rd-investment-scoreboard>

⁶ See: <https://iri.jrc.ec.europa.eu/events>

⁷ COM(2019)640 final

⁸ Competitive sustainability is at the heart of Europe's social market economy and should remain its guiding principle. Moving towards a sustainable economic model, enabled by digital and clean technologies, can make Europe a transformational frontrunner. Leadership on environmental protection and a strong, innovative industrial base must be seen as two sides of the same coin, giving the EU a competitive first-mover advantage. A stable economy, allowing for long-term policies, and a just transition for those most affected by the transformations are prerequisite for success. (see COM 2019/650 final, pp. 3 and corresponding figure).

⁹ COM(2020)628

private sector. This is emphasised in the **roadmap**¹⁰ that aims to revitalise ERA underlining the importance of a transformative R&I policy that shapes technological and societal change to deliver a sustainable European society. Part of the Commission's strategy is the **Digital Compass**¹¹ emphasising the role of digital technologies for innovation and the Green Deal's twin transition.

However, this **transition of EU industry is not isolated from global competition**. As outlined in the revamped **industrial strategy**,¹² ensuring Europe's **technological leadership is key towards maintaining industrial competitiveness**, which should be ensured via a stronger Single Market for recovery, monitoring of industrial innovation and private R&D targets. And this happens on the background of the **Recovery Plan for Europe**, supporting EU recovery from the COVID19 pandemic via modernisation and innovation to relaunch the economy.

Within the apparent tension between the transition of EU industry vs. technological leadership, **corporate R&D investment is key to ensure EU competitiveness**. Here, companies can pursue **different strategies beyond direct investment**. **Mergers and Acquisitions (M&A)** activities and investments through **Venture Capital (VC)** are becoming drivers of the global tech-race and scouting of new radical innovations in the market. While the effect of M&A on innovation is open for debate—scholars worry that the some M&A may hinder the incentives for innovation—, VC funding is vital for innovation, because it allows promising innovative firms to scale up and prosper.

This GLORIA workshop focussed on **Corporate investment and global industrial innovation for transition as a challenge for EU innovation**. A detailed concept note and agenda is attached in the Annex, together with the profiles of the presenters.

The virtual workshop was by invitation only, and held in two virtual morning sessions:

Day 1: Policy background, evidence keynote speech, and sessions on “the relationship between (Corporate) VC, M&A and innovation” and “multinationals, innovation and productivity”

Day 2: Session on “investment trends and ecosystems”, policy keynote speech and policy roundtable

The **policy roundtable with Q&A session** concluded the workshop and identified possible ways forward.

¹⁰ <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12495-Communication-on-the-future-of-research-and-innovation-and-the-European-Research-Area>

¹¹ COM(2021)118

¹² COM(2021)350

Opening Session Day 1: Policy Background and Keynote Speech

Messrs. **Peter Dröll** (Director Prosperity, DG R&I.E) and **Mikel Landabaso** (Director Growth & Innovation, JRC.B) opened the workshop outlining the need for re-launching the economy via investment efforts in innovation in order to make it for the Green Deal. Corporate investment and global innovation dynamics, esp. regarding the effect, is highly important and tricky question. A strong industrial base is the best guarantee for transformation and follow the twin transition. Doris Schröcker (Head of Unit, DG R&I.E.1 Industrial Investment and R&I Agendas) and Xabier Goenaga-Beldarraín (Head of Unit, JRC.B7 Knowledge for Finance, Innovation & Growth) added further detail on the objectives of the workshop, regarding the importance of understanding fdi flows, the threat of hollowing-out the EU innovation potential via foreign acquisitions and the importance of breakthrough innovation. It was added that the EU challenge is in high-tech sectors, esp. scale-up in key sectors such as ICT and Health, and necessary to build on the EU industrial capabilities and base in medium and low-tech sectors.

The keynote speech by **Massimo Colombo** (Politecnico di Milano) focused on Corporate Venture Capital (CVC) investments and startup investments. CVC has been rising in the past ten years, albeit in cycles with a dips after the IT bubble burst in 2004 and the 2008 financial crisis. Large companies' interest in CVC and start-ups stems from the need to source technologies and scope innovative ideas outside. CVCs are often minority stakes in promising ideas. Interestingly, a relevant share the digital transformation manifests in low knowledge intensive services, such as AirBnB, whereas in manufacturing it is mostly related to the Health sector. In the past years, CVC has been moving to the later rounds, using other non-banking financing entities for screening. Also, CVC is more international than domestic, which is the other way around than non-corporate VC. While there is some stability in acquisition targets and origin of capital, valuations fluctuate significantly and in-line with the number of acquisitions due to information asymmetries. The latter are higher the further away located is the target and the less experience the acquirer has with start-up acquisition. Experience with acquisition and exit of start-ups is very relevant for valuation. The exit premium is higher if the target is affiliated with prominent partners and if the target went through an Initial Public Offering (IPO) on Nasdaq previously, but not on other stock exchanges. The "swimming sharks paradox" of startups is the fact that the technologically most complementary partner is often the competitor, who is also best positioned to appropriate the technology by the target. Research shows that a strong Intellectual Property (IP) regime incentivises collaboration between startup competitors. Timing and social defences can help startups defend in case of weak IP regimes. Ex-post, there is however often a poor performance due to key technical and management staff leaving the company and lack of absorptive capacity in the acquiring organisation due to implementation challenges. Hence, key to resolving these challenges is if the CEO/CTO/founders remain in the company after acquisition and help in the integration into the acquiring organisation. Non-EU investors, esp. from the US, are very active in the EU, but this has also been increasing the other way around. Higher differences are found in the fact that the CVC investor is often large ticket size, such as Bertelsmann, looking for targets

mostly in the high-tech sector. The presence of such large CVC players in the market gives a boost to the VC market. The EU seed market/VC is rather widespread territorially and sectorally, whereas the CVC market is very concentrated in London and Paris. The size of VC investments does not seem to hinder internal R&D investments.

Session 1: The relationship between (Corporate) VC, M&A and innovation

Alexei Zhdanov (Penn State University) addressed the relation between VC and Mergers & Acquisitions (M&A). For investors, M&A is a key exit and more important than an Initial Public Offering (IPO). Conclusion by many authors is that takeovers “stifle” innovation. Most of the literature has focused on ex-post changes in R&D. A recent study presented shows the relation between VC and M&A markets in 45 markets regarding intensity and dynamics, considering exchange rate changes and the competition law framework. There is a positive and large effect of M&A markets on VC deals. Exit by acquisition is more important than exit via IPO for VC. Increasingly, VC financiers realize that exit via acquisition is a meaningful way to monetize their investment. Public policy implication: Financiers are more likely to fund VC in states or countries in which legislation makes the acquisition market more liquid. Easy local borrowing and exchange rate depreciation also have significant positive effects on M&A markets and VC deals, whereas this effect is negative for restrictive competition laws but positive for competition laws that make M&A easier. The study has no difference between CVC and VC.

Markus Solibieda (BASF Ventures) as global VC investment arm of the world’s biggest chemicals company. BASF Ventures manages a fund of 250 million US Dollar size which is very active not only in the EU and US but also India, China, Israel, and Brazil. Initial investments start at 1-5 million US Dollars, and likely co-partnering with other investments. He presented a number of corporate strategies, such as defensive-passive to secure a window on technology, defensive-active for disruptive innovation, pre-M&A taking minority stakes into potential target companies, visionary and exploratory investments, upgrade and transform the existing business (e.g. from product to service model via data models and generation), as well as mostly financial motives. Performance of investments is measured not only by financial but also strategic KPIs (numbers and intensity of collaboration with startups, impact on business units).

Thomas Deisenhofer (European Commission, DG-COMP), addressed the competition policy-maker regarding the impact of M&A on innovation and introduced innovation theories of harm. In the literature, the link between competition on innovation is somehow ambiguous, but these focused more on the general competition market shape. Recent literature has a somehow negative tone from M&A on innovation. Competition concerns mostly occur in horizontal M&A, and very few in vertical M&A, examining whether there is more harm than synergies. He stated that concerns for negative M&A impact on competition are very strong if there are limited competitors, high entry costs, in near-oligopoly situations or acquisition of a strong startup by a large company. However, he

emphasised the key of competition for innovation and need for a fact-based approach to M&A control.

Ramón Compañó (European Commission, Joint Research Centre) presented the results of the analysis of Scoreboard companies CVC activities. Almost two thirds of the 2500 global top R&D investors have undertaken CVC activities since 2000. Results show a similar growth of deals and volume by Scoreboard CVC activities compared to the general growth of VC. Compared to other VC activities in general, Scoreboard CVC activities have a higher proportion on the seed stage, showing how these large companies tap into new ideas. By sector, fintech, software and energy are over-proportionally strong, and less active in “traditional” sectors (such as chemicals, aerospace, construction, etc.). These latter however have in theory a high need for business transformation e.g. from deep-tech. Further differences exist due to the world-regional sectoral differences due to sector structure. Regarding specific questions for semiconductors, this complex industry provides many products (CPU, GPU, different types of memories, etc.). Here, large markets are dominated by competitors, but EU companies are still strong in some niches (e.g. analogue and analogue/digital devices) Chip design is only one part of the chip process, issues like embedded software play an increasing role. However, the huge investments for new plants will need to be financed by combinations of financial sources beyond CVCs.

Session 2: Main trends in current FDI and global industrial dynamics for EU innovation competitiveness

Beata Javorcik (EBRD and University of Oxford) tackled global collaborative patents by multinational companies, where the last decades shows sizes of teams working on a single invention at least doubling, together with a larger share of innovations in affiliates outside the headquarter. Also, global collaborative patents are of higher quality and more likely to cite science. Distance however still matters in terms of quantity and quality of collaboration, and increases the likelihood of mobility. The largest mobility is observed towards the NL, UK and CH. Regarding the share of female inventors, the share has risen from low levels, but a gap remains due to underrepresentation of female inventors. Multinational companies however employ more female inventors than domestic firms. Corporate culture matters for increasing the share of female inventors. The example of Germany before and after reunification reveals that gender policies matter for the share of female inventors. Global collaboration, investment promotion efforts and taking advantage of female talent are key for harnessing the innovation potential.

Martina Martínez-Cillero, Giacomo Damioli and Sara Amoroso (European Commission, Joint Research Centre) presented ongoing work on cross-border M&A. This corresponds to an ongoing EU debate on post-acquisition effects in key technologies and sectors with an empirical study. One study tackled productivity improvements, which may stem from technology transfer, as well as managerial, organisational and scale efficiencies. The main research questions were the impact on productivity, addressing sectoral differences and the origin of the investor firm. There is a negative effect on the productivity of the M&A target, esp. in knowledge-intensive services.

Another study examined the role of multinationals in foreign direct investment (fdi) based on the network characteristics of the involved stakeholders. It shows innovative M&As are fewer, more international and more concentrated into pairs of regions than non-innovative ones. The networks are getting less fragmented and regional hubs are gaining importance over national borders. There is however a negative impact on local firms by foreign entry.

A third study addressed the relationship between M&A activity and technological diversification. Many M&A operations, in particular targeting EU companies, are targeting their advanced technological capabilities. Large companies may differ in their acquisition strategy, looking for consolidation of existing markets (similar technology), or expansion (unrelated technology). This study examined if the degree of coherent technological diversification could affect firm productivity, addressing if large companies M&A targets technologies that are complementary and coherent with their previous basket. It uses R&D Scoreboard companies 7000 M&A deals during 2007-16. Most of these concern related technology portfolios, 7% those that are exactly matching and about one third incoherent technology diversification. The latter share is the highest for acquiring firms headquartered in China (45%) and the RoW (38%), and the lowest for EU headquartered ones (32%). By sector, ICT services and Health are those with the highest share of incoherent technology diversification (58% and 50%, respectively). The effect of technology relatedness on labour productivity varies. Coherent technology M&A produces a positive effect on labour productivity for low sales growth acquirers, and incoherent M&A for high sales growth acquirers.

Day 2: Session 3: Investment trends and ecosystems

Xabier Goenaga-Beldarraín (European Commission Joint Research Centre) introduced the session summarising briefly the previous day.

Simone Signore (European Investment Funds) presented the impact of VC on innovation from an EU perspective based on a recent paper analysing the impact of VC on the exit of EIF-funded firms 2007-14. It shows that EIF-funded firms were three times more prone to be in an M&A deal and participate in IPO and a strong positive effect on horizontal and vertical M&A integration, compared to no negative effects, eg. failure rates. The EIF is now among the most relevant VC investors. EIF's VC activities seem to be more successful compared to what is found in scientific studies regarding public VC investment. The key success factor seems to be the EIF approach using access to its network as exit strategy and non-monetary Value Added for the start-up. Further, the success rate is higher for foreign buyers, pinpointing to inefficiencies in the EU regarding comparative attractiveness of an IPO at a European stock exchange compared to Nasdaq or the scale-up gap. Questions addressed the difference between foreign acquisitions considering intra- and extra-European buyers. The two categories are both significantly positively affected by EIF funding.

Riccardo Crescenzi (London School of Economics) showed aspects of fdi and investment promotion agencies in their role in local innovation ecosystems. He addressed the post-COVID-19 challenges with geopolitical fragmentation and significant distortions in Global Value Chains (GVCs), which come on top of the digitalisation and green policy targets. This shifts the global policy paradigm, where attracting and embedding GVCs through fdi is key to innovation. Hence, investment promotion agencies become even more critical, and especially in less advanced regions. Evidence shows the significant role of investment promotion agencies, who can increase fdi by up to 70% compared to the counter-factual sample, however on a longer time horizon of 5-10 years. Another study shows that large companies, first via patenting activities, are seen to induce fdi. However, after some time, developments become heterogeneous. Multinationals seem to systematically search net inflows of knowledge, esp. technological giants seem to generate small impact. Medium-size companies in the ecosystem seem to have the highest positive impact on the ecosystem fdi and knowledge flows. There is a consistent positive effect esp. for spillovers on domestic firms and in medical devices, ICT and ICT hardware. Greenfield vs fdi impact can however not be distinguished by the data, but inventor mobility out of the target company into the local innovation ecosystems seems to be a key vector.

Frank Vandermeeren (European Commission, DG-GROW Chief Economist Team) tackled EU technological vulnerabilities and key industrial ecosystems based on the economic analyses underpinning the May 2021 updated Industrial Strategy.¹³ The target of the strategy is to ensure access to critical products and strengthen EU capacities key ecosystems, e.g. digital, health, aerospace & defence. He showed EU strengths, eg. on advanced manufacturing or hydrogen, vs weaknesses, eg. semiconductors or cloud technologies. The latter becomes a clear vulnerability, given EU data is mostly stored outside. VC analysis is one indicator of vulnerability esp. concerning the development of future technologies. Raw materials show a clear vulnerability due to high dependency on foreign sources, providing more need for the EU to innovate towards technologies using less raw materials. Vulnerabilities exist in many ecosystems, and the drivers need to be carefully addressed, where VC is one of the drivers. Chinese VC has very clear targets boosted to reduce dependencies towards the EU and US.

Raphael Didier (BPI France) showed VC investment trends in innovating companies in France and the EU. Considering an investment into an innovative company needs understanding beyond the financial indicators, e.g. the ecosystem, and develop a toolkit to support startup in the ecosystem along all stages. This includes collaboration with other actors, such as the public sector, and has been successful in establishing a functioning VC ecosystem. The size of the French VC ecosystem has tripled in the past 10 years and is now competitive internationally, and growth seems to be accelerating. This goes along with integration of SDG and ESG issues into the ecosystems by VC-funded firms, with a leverage greening effect. Current risks are that more companies might prefer to exit on Nasdaq vs. EU corporate exit, need to create a European SPAC, and how to invest into deep tech and

¹³ https://ec.europa.eu/commission/presscorner/detail/en/IP_21_1884

tech frontier startups which might be outside the VC risk profile. A further risk is that some startups need to develop industrial capacities which are currently not VC-backed, and for which a solution needs to be found. Questions addressed the size of VC funds and the extent of pan-national funds. Here, funds provided by the French government channelled into VC have grown to 500 million Euros, and the VC industry is increasingly global and also the French industry invests increasingly outside (>40%).

Session 4: “Recognizing Green”: Sustainable private R&D indicators

Helmut Kraemer-Eis (EIF) the status quo and key challenges of the VC and private equity markets in the EU. The EIF uses a crowding-in approach and while its majority shareholders are public institutions, there is a significant share of private banks. The EIF mandate is to help small companies at every stage of the financing process. Esp. smaller companies experienced very tense financial situations during the COVID-19 crisis and the disruptions of the usual business value chains. Compared to the 2008 financial crisis, COVID-19 hit the VC scene at a point where VC was growing. However, the drop in number of deals and volume was relatively temporary, with an increase from Q4/2020 onwards based on InvestEurope data. At the moment, the market seems to be performing very well at record level. Health is an exception where VC investment was even boosted. Government-backed VC showed to be counter-cyclical and stabilising after the 2008 financial crisis. He referred to the EIF surveys of companies and intermediaries, where the latest results show that high valuations and competition from other investors are relevant current issues, together with fundraising as longer-term issue. Among VC-backed companies, customer acquisition and retention is an important concern. Lack of exit opportunities, public and esp. scale-up financing in the EU, lack of very large size exit funds seem main challenges for the EU VC market. Clear gaps vs. the US appear in VC fundraising size (4 times higher in the US), and underweight global tech shares of the EU compared to its GDP and population. The distribution of fund sizes shows a clear picture for larger sizes for Europe (incl. UK and CH), which is multiple times higher in the US, and more above 500 million Euros. This raises concerns regarding tech leadership as the void is filled by non-EU finance and buyers esp. from the US and Asia. The earlier the stage and the smaller the funding, the more local is the VC funding. EIF thus sees potential for developing the EU VC ecosystem together with the local ecosystem, and more firepower of local investors.

Closing session: Policy Roundtable

The policy roundtable was chaired by Patrick McCutcheon (Senior Expert DG-R&I.E1) and Alexander Tübke (Team Leader JRC.B7), who asked each member for their quick reaction to the contents presented at the sessions and main takeaways.

Markus Solibieda (BASF Ventures) underlined how important the aspect of exploring new technologies and collaborating efficiently between corporates and startups is, having

now reached an unmatched level of cooperation esp. in the B2B field. He welcome that, in the EU, there is high ability for great partnerships between small and larger firms, which becomes a competitiveness factor based on a longer-term perspective. in the context of the workshop topic, he underlined the importance to examine the contribution of the regulatory environment for agile and successful M&A and exit opportunities. Regarding BASF's investment portfolio, he stated a very important part of their activity is offering new services with digital backbone, but there are also some moonshot investments, eg. quantum computing for chemical research. Criteria for an investment decision are that the company is not doing pre M&A, the examination of a connection to Joint Ventures (JVs) and other activities of Business Units, and the objective of a time horizon beyond the business unit timing. An interesting tax incentive would be to make CVC deductible against the company's tax burden.

Thomas Deisenhofer (DG COMP) stated that the VC scene is getting more professionalised, and there is a role for public support boosting the private incentive. He outlined the non-harm approach, under which many motives by companies are competitive and pro-innovation, and thus no issue for competition policy. However, despite the awareness of competition policy regarding the importance of start-ups, VC and industrial dynamics, some M&As are still harmful for competition and need adequate assessment criteria. In this sense, he found value-based thresholds for competition policy very helpful and the ability to use referral (press, competitors) as a proportionate response to the opportunities and challenges. In the future, the EC might address R&D and innovation-related collaboration and M&A by working together with the national authorities and the referral mechanisms to identify cases. Current competition policy instruments will however need to be closer examined to adequately cover the specific industrial dynamics and contents of the digital ecosystem.

Jekaterina Novikova (DG R&I) outlined the current tasks for R&I to tackle investment gaps and collaborate with other policy areas of the Commission, which cannot be done in isolation and where there are many more synergies needed. She mentioned the group of Unicorn CEOs and the ecosystems leaders which provided bottom-up proposals for a renewed Commission innovation policy. Relevant EU challenges also include the innovation divide, the lack of gender balance/diversity among VC leaders, lack of data (evtl. needing a start-up Scoreboard and taxonomy), which could be furthered by the public sector. Finally, access to finance in the EU should be tackled. There is a need for establishing an EU tech funds (100 billion Euros), a green tech funds, and framework for startup and scaleup in the MS. The upcoming French presidency will have a pillar on deep-tech startup and scaleup. She outlined the relevance of mobilisation of private investments, ways to build momentum and scale-up leveraging instruments, address market fragmentation and improve the regulatory framework, build from innovation via industrial ecosystem approach towards large companies via the local elements and all the actors, so need to think how bringing these policies together.

Massimo Colombo (Politecnico Milano) stated the lack of gender balance, considering the figure of only 17% female managers of largest VC investment funds, but this is higher than in general corporate investment. He underlined excellent improvements in the past 15 years in seed stage investment availability due to public policy. Regarding scale up and exit, more is needed in the EU given the striking 70% premium of Nasdaq exits. Further, the fragmentation of the 27 single EU Member States' VC markets matters compared to e.g. the US or China, which have more uniform VC markets. Especially for sectors beyond ICT and Health, e.g. those relevant for the green policy objectives, it is important to better understand how to generate symbiosis between large multinationals and startup towards mutual benefitting relationships. This is also important for the relations to the ecosystem and a longer-term view, and also for the transformation of more traditional sectors. In the latter, there does not seem to be a gap of the EU vs. the US or China. Further, there is the need to better understand what companies use VC investments for and reduce information asymmetries, which are huge barriers at all VC financing stages. It is a good sign for the industrial transformation as a whole as well as the green policy objectives that traditional industry is now more sensitive and open to startup issues than several years ago.

Frank Vandermeeren (DG GROW) appreciated the growth of the very dynamic EU VC market and underlined the understanding of vulnerabilities in comparison to the US and China. He mentioned the importance of services sector, the need for mobilisation of private investors, how to avoid promising start-ups are go out of the EU, the need for directionality on strategic: green, digital, health, and the need for boosting fdi in certain ecosystems subject to the fdi motive vs the current EU position in each technology and ecosystem. , which needs to be examined regarding both strategic autonomy and technological vulnerability, work with technology pool eg. with the US to assert internationally as well as build on success stories such as batteries, where a lot of VC investment was created.

Beata Javorcik (University of Oxford & EBRD) disagreed with the downbeat view of lower M&A performance in some studies presented beforehand, which might have been due to plants in developing economies dropping from the global value chain and unable to produce for the local market. She underlined the importance of removal of information asymmetries compared to innovation finance. Especially multinational and exporting companies are better regarding information asymmetries, so the global M&A rules should be assessed from an EU competitiveness perspective as well as intra-EU tax competition be addressed. In terms of green M&A and startups, these are not the only side of industrial transformation. For example, high carbon prices will make Eastern EU companies more vulnerable due to coal dependency, so there will be transformational losses that need to be addressed by policy-makers. Here, it was highlighted to not create artificial incentives but focus on promotion efforts truly incentivising and retaining investment.

PRESENTERS

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Sara Amoroso is an economist at the Joint Research Centre (JRC) of the European Commission, Spain. Sara's research focuses on industrial innovation and innovation policy. Her main topics of interest are foreign direct investment, firm dynamics, and R&D networks. She is an associate editor of the Journal of Technology Transfer. Her research has been published in journals such as European Economic Review and Small Business Economics.

Peter Dröll is Director of Prosperity, Directorate-General Research and Innovation. Peter works in the Directorate-General for Research and Innovation and innovation since 2008, first in charge of innovation, since 2016 for Industrial Technologies. Previous positions in the Commission include financial control, environment policy and enlargement policy. From 2004-2008 he was Head of Cabinet of the Science and Research Commissioner Janez Potočnik. Peter is a lawyer by training with a doctorate degree in German constitutional law and European law.

Mikel Landabaso is Director of Growth & Innovation in the Joint Research Centre in Seville since December 2019. He was Director of Strategy and Corporate Communication in DG Communication 2016-2019, responsible for the design and implementation of the new generation of EU Corporate Campaigns. He has a PhD in Economics and has been secretary (1988-1990) of the Basque regional science association as well as a member of the scientific committee of the regional science association. Mikel has also been a Member of the Advisory Board of the Basque Institute of Competitiveness as well as external expert to the first Spanish White Book on Innovation by the COTEC foundation. He has edited, co-authored or written chapters in several books and international journals on economic development and has participated as invited speaker by national and regional governments as well as international organizations, including OECD, the Ford Foundation, National Institute of Science and Technology Policy in Japan and the World Bank.

Doris Schröcker is heading the Unit for Industrial R&I Agendas and Business Intelligence in Directorate General Research and Innovation in the European Commission. Her background is business administration with marketing and industrial management, and she has worked in different positions in EU R&I policy and programme management in the European Commission (mobility/transport and energy, industrial and key enabling technologies).

Alexander Tübke was appointed Team Leader of the Industrial Research and Innovation team in 2016. He studied Industrial Engineering at the Universities of Karlsruhe (Germany), Lausanne (Switzerland) and Seville (Spain) and holds a European Doctorate of Industrial Engineering of the University of Seville. Alexander has working experience in several multinational companies in the field of marketing and audit. He joined the European Commission's JRC in 1999. Since then he was engaged in research projects in the area of

Innovation & Competitiveness, Technology Assessment, Enlargement and Strategic Policy Intelligence.

Annex1: Agenda

5th GLORIA virtual workshop

Corporate investment and global industrial innovation dynamics for transition: a challenge for EU innovation?

Final agenda

Date: 9-10 November 2021 (online morning sessions)

Day 1: Tuesday 9 November 2021, 09:30-12:30

- **09:30 Opening session**
 - **Welcome** (5 minutes): **Peter Dröll** (Director DG R&I Prosperity) and **Mikel Landabaso** (Director JRC B Growth & Innovation)
 - **Introduction to main EU challenges for industrial R&I competitiveness and the EU's technological position** (5 minutes)
Doris Schröcker (Head of Unit DG-R&I E1 Industrial Research, Innovation & Investment Agendas) and **Xabier Goenaga** (Head of Unit JRC B7 Knowledge for Finance, Innovation and Growth)
- **09:40 Keynote speech**
Massimo Colombo (Politecnico di Milano)
The main challenges of corporate investment for innovation
- **10:05 Q&A**
- **10:20 Session 1: The relationship between (Corporate) VC, M&A and innovation**
Moderator: Patrick McCutcheon (DG R&I)
Panellists
 - **Alexei Zhdanov** (Penn State University)
The relation between VC and M&A: evidence from takeover legislations around the world
 - **Markus Solibieda** (BASF Ventures)
The VC Industry View
 - **Thomas Deisenhofer** (DG COMP)
Innovation theories of harm – the impact of mergers on innovation
 - **Ramón Compañó** (JRC)
Top R&D companies, VC investment and scale-up gap
- **11:05 Panel discussion led by moderator**
- **11:25 Session 2: Multinationals, Innovation and productivity**
Moderator: Doris Schröcker (DG R&I)

Panellists

- **Beata Javorcik** (University of Oxford & EBRD)
Multinationals and Global Collaborative Patents
 - **JRC ongoing work on cross-border M&A**
Maria Martinez Cillero (B.1), Giacomo Damioli (I.1) and Sara Amoroso (B.3)
- **12:15 Panel discussion led by moderator**
 - **12:30 End of Day 1**

Day 2: Wednesday 10 November 2021, 09:30-12:30

- **09:30 Session 3: Investment trends and ecosystems**
Moderator: Xabier Goenaga (JRC)
Panellists
 - **Simone Signore** (European Investment Fund)
The impact of VC on M&As and IPOs
 - **Riccardo Crescenzi** (London School of Economics)
Investment Promotion Agencies, FDI and local business ecosystems
 - **Frank Vandermeeren** (DG GROW)
Understanding technological vulnerabilities and key industrial ecosystems
 - **Raphaël Didier** (Bpifrance)
VC investments trends in innovating companies in France and the EU
- **10:15 Panel discussion led by moderator**
- **10:40 Policy keynote:**
Helmut Kraemer-Eis (EIF)
The European VC and PE market: status quo and key challenges ahead
Q&A
- **11:10 Session 4: Policy roundtable: The way forward**
Moderators: Patrick McCutcheon (DG R&I) & **Alexander Tübke** (JRC)
Panellists:
 - **Markus Solibieda** (BASF Venture)
 - **Beata Javorcik** (University of Oxford & EBRD)
 - **Jekatarina Novikova** (DG R&I)
 - **Frank Vandermeeren** (DG GROW)
 - **Thomas Deisenhofer** (DG COMP)
- **12:10 Q&A led by moderator**
- **12:25 Closing**
- **12:30 End of day 2**

Annex 2: Background: The EU R&D Scoreboard companies

The most visible outcome of the GLORIA project are the **EU Industrial R&D Investment Scoreboards**¹⁴ providing economic and financial data and analysis of the top corporate Research & Development (R&D) investors from the EU and from abroad. It is based on the financial accounts of each company for up-to-date monitoring and benchmarking. It allows for comparisons between companies, sectors, and geographical areas, as well as emerging investment trends.

Industrial R&D is also key to drive **the EU industrial transition** in the long-term orientation in the recovery and resilience context following the pandemic crisis and the Green and Digital policy objectives. **The R&D invested by the Scoreboard companies is equivalent to approximately 90% of the world's business-funded R&D.**

The **2020 Scoreboard**¹⁵ shows that industrial R&D investments growth is driven by health and ICT sectors, where especially the last ones are also the most active in terms of cross-border M&A (EU Industrial R&D Scoreboard, 2018). These two sectors have become even more important, given that the current pandemic crisis calls for solutions especially from the health and ICT sectors, where EU27 companies are losing ground to **competitors**. An early subsample of 697 top investors out of the 2500 in the forthcoming 2021 Scoreboard planned for December shows that their R&D investments grew despite the pandemic, revealing **R&D again (as in previous crisis) as resilient key towards post-crisis opportunities**.¹⁶ R&D by these top firms increased significantly in ICT and health alongside Covid-relevant demand, where EU competitors are relatively strong. The negative news is that R&D growth was hampered in EU strongholds automobiles and aerospace sectors. The total R&D growth of companies based in the EU decreased by 2.7% in 2020 whereas the US and Chinese companies have increased R&D by 5.9% and 13.7% respectively. This means the **crisis has the potential to deepen EU technological vulnerabilities** observed in previous Scoreboards. This points to **strategic gaps in industrial R&D capacities** potentially **challenging EU's innovation competitiveness and technological leadership**. The Scoreboard companies own around two thirds of patents filed at the largest 5 IP offices worldwide, the **EU leadership in the automotive sector is however seriously challenged** as digital technologies take a higher proportion of the value added and a profound green transition of mobility is expected to reshape the industry in the coming years. The **number of EU firms controlled by China** is increasing rapidly,¹⁷ and Chinese investments in Europe increasingly target strategic sectors, particularly manufacturing and ICT companies based in Germany.¹⁸ Further, post-acquisition productivity growth is larger for Chinese acquiring firms than for their EU or US counterparts. Moreover, different acquisition strategies may have different effects on productivity. Understanding the technological diversification strategies of global R&D investors is key to support industrial competitiveness. The majority of M&A deals of Scoreboard companies acquire companies with technologies that **increase the**

¹⁴ See: <https://iri.jrc.ec.europa.eu/scoreboard>

¹⁵ <https://op.europa.eu/en/publication-detail/-/publication/73e624aa-406c-11eb-b27b-01aa75ed71a1/language-en>

¹⁶ See: <https://publications.jrc.ec.europa.eu/repository/handle/JRC125712>

¹⁷ from 1.4 % of foreign-controlled firms in 2007 to 8 % in 2015-16

¹⁸ See Preziosi et al.: China – Challenges and Prospects from an Industrial and Innovation Powerhouse, EUR 29737 EN, Publications Office, Luxembourg, 2019, ISBN 978-92-76-02997-7, doi:10.2760/445820, JRC116516, pp.33, <https://ec.europa.eu/jrc/en/facts4eufuture/china-report-challenges-and-prospects>

technological diversification of the acquiring ones in a coherent way (different technologies, but “functionally close” to the existing technology stock of a firm).¹⁹ Indeed, many M&A operations, in particular targeting EU companies, are **targeting their advanced technological capabilities**. The Scoreboard shows that the EU still has a sufficient base in health and ICT sectors across a number of Member States, and also an excellent base of key R&D players in medium technology sectors, which might constitute future M&A targets.

The investments needed to **stem the desired twin transition requires a joint undertaking between the public and private investors**. Amongst the private actors, VC financing in EU27 is still very small in absolute terms but they play a very strategic role. Since Venture Capitalists fund young and innovative firms that have high risk but also high return potential, this untapped financing potential has a significant bearing on the dynamism of economic growth and innovation in Europe.

A particular case are **Corporate VC Funds (CVCs)**. These are a **increasingly more prominent financial vehicle for Scoreboard companies to invest in innovation**. The motivations why big companies are establishing and operating CVCs are manifold, most notably tapping into the knowledge, the talents and the innovation potentials of startups to complement internal innovation and strengthen market power (build on strength), or as a response to the deterioration of internal innovation activity (fix the weaknesses). Preliminary evidence on Scoreboard companies show that they increasingly invest in tech-startups, and the top Scoreboard companies massively so. Consequently, VC is **pivotal in the recovery phase** of the economy, when the process of post-pandemic financial restructuring will take place in the context of the green and digital transition – a process of deep structural change to make European industry more resilient and competitive.

The unforeseen COVID-19 outbreak and the resultant social distancing measures have affected financial transactions and economic activity at a global scale. The increased uncertainty generated by the global economic slowdown may have induced investors to adopt a more prudent investment approach causing a shortfall in available capital, thus bringing unexpected financial hardships to many companies. A JRC analysis²⁰ of the impact of COVID -19 on the VC market in EU27 Member States shows that the **most affected venture capital finance category is seed and early finance deals** - which are most important for younger enterprises with high-growth aspirations. **Late-stage deals have shown much greater resilience**.

Better developed VC markets in the EU would lead to at least two complementary beneficial effects, i.e. the diversification of the funding portfolio of companies, and the professional support in their earlier stages of development to young and innovative SMEs. The trends after the 2008 Global Financial Crisis, it emerges that despite being a global phenomenon, **VC financing is still concentrated in a few countries and sectors** (e.g., Bio-oriented and Pharmaceutical research; Digital, Computer Science and Software Development). The same applies when looking at the EU level, where 80% of the investments are concentrated in the top five countries. At the EU regional level, the distribution of VC financing is uneven, possibly due to the lack of supply for all different stages of financing. Coming to the geographical origin of VC investments, the analyses

¹⁹ *Foresight Pulse* on “[The role of China in Europe’s path towards strategic autonomy](#)”

²⁰ <https://publications.jrc.ec.europa.eu/repository/handle/JRC122165>

confirm a good level of integration of VC markets within the EU, i.e. EU VC-backed firms are mostly financed domestically (45 %) and by other EU (40 %) VCs. ²¹

Questions to be addressed during the workshop:

- How does the EU fare in different types of corporate investments? What is the impact on innovation on this? How does the EU compare to other main regions?
- What is the role of M&As on innovation activities, especially related to the Green Deal and its funding?
- What are the main trends in FDI and what is the impact on innovation activities? How does the EU compare to their main regions? And in the context of strategic technological autonomy?
- What are some main policy implications for financing of innovation, VC and M&As to ensure EU firms' competitiveness on the long term?

²¹ idem <https://publications.jrc.ec.europa.eu/repository/handle/JRC122165>

Annex 3: Privacy Statement and Data Protection

Privacy Statement and Data Protection

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