



**High-Level Governance Meeting  
of the European Platform  
of National Initiatives on Digitising Industry**

**21 November 2017, Brussels**

**Conclusion Report of the Meeting  
and of the workshop sessions**

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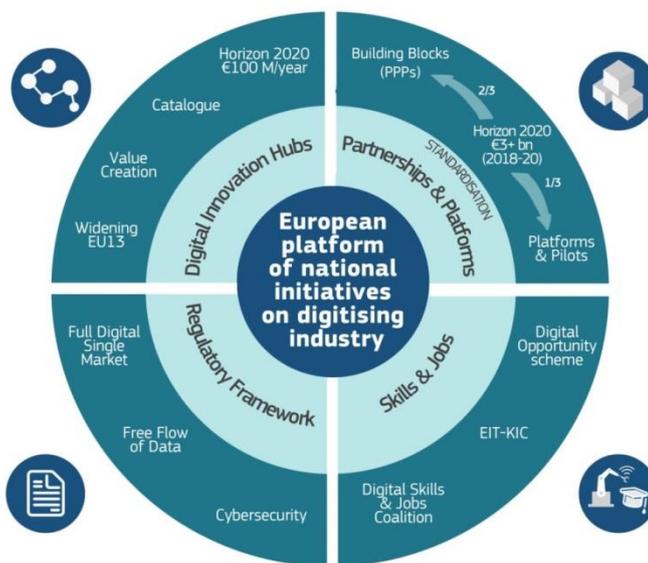
## Executive Summary

The Digitising European Industry (DEI) strategy, adopted in April 2016, aims at reinforcing the EU's competitiveness in digital technologies and ensuring that any industry in Europe, big or small, wherever situated and in any sector can fully benefit from digital innovations. It builds upon the work of the National Initiatives for digitization of industry which have been started by many Member States.

The High-Level Governance Meeting of the European Platform of national initiatives on digitising industry, organised on 21 November in Brussels under the leadership of Commissioner Gabriel, is a key element of the governance framework outlined in the DEI Communication.

This meeting gathered about 130 high-level participants of Ministries, industry representing national initiatives and PPPs, and various associations from across the EU. They discussed how to capitalise on the achievements of national initiatives; how to build on the recommendations given by the Working Groups established in 2016 for Digital Innovation Hubs and for digital industrial platforms; and on the identification of next steps needed at European level to further support the efforts for digitising industry across the European Union. These include addressing the skills gap, addressing awareness on cybersecurity, and strengthening the bottom-up approach on addressing the needs of SMEs.

This report summarises the findings of the high-level meeting and the workshops to further implement the action lines of the Digitising European Industry initiative (DEI) <sup>1</sup>.



<sup>1</sup> Background information was distributed to participants to guide the discussions:

<https://ec.europa.eu/digital-single-market/en/news/high-level-governance-meeting-european-platform-national-initiatives-digitising-industry>

Brochure taking stock of the achievements of the last 18 months (<https://ec.europa.eu/futurium/en/implementing-digitising-european-industry-actions/digitising-european-industry-taking-stock-18>).

Analysis of the 15 national initiatives on digitising industry (<https://ec.europa.eu/futurium/en/implementing-digitising-european-industry-actions/national-initiatives-digitising-industry>)

## Main findings and recommendations

### European Platform of National Initiatives

1. Participants outlined **significant achievements and ambitions in the digital transformation of European industry**, demonstrating an excellent degree of alignment and commitment on the overall priorities. The richness and breadth of the discussions calls for **focusing future high-level meetings on a deeper dialogue on a limited number of issues for which strong action on EU-level is needed.**
2. The overall strategy set out in the DEI communication was reaffirmed. It should **further take into account framework conditions**, such as creating the right *growth environment for SMEs*; guaranteeing the *free flow of non-personal data* across Europe; implementing a *common European approach to cybersecurity*; and closing the *skills gap*.
3. **The European Platform of National Initiatives** is helping to mobilise all stakeholders, notably at a high political level in the Member States, around concrete actions that meet the needs of industry. It has played an essential role in shaping national strategies and in mobilising Member States with 15 national initiatives on digitising industry already launched, and more are in preparation. As these national initiatives develop, the **European Platform has to continue playing a key role in facilitating cross-border exchanges and collaboration, and in linking existing initiatives at regional, national and EU level.**

### Digital Innovation Hubs

4. **Digital Innovation Hubs** play a vital role in creating a Europe-wide ecosystem to support digitalisation in industry. ‘White spots’ are disappearing as new hubs are formed and in some regions dedicated initiatives have been launched. Nevertheless many hubs in operation or in foundation must still widen their portfolio of services in order to be able to address comprehensively the needs of SMEs as a kind of "one-stop-shop". Participants also affirmed a key role for Digital Innovation Hubs in addressing the skills gap and raising awareness on cybersecurity, and the importance of a bottom-up approach in addressing the needs of SMEs. DIHs face difficulties in raising awareness of SMEs on the digital opportunities as well as on facilitating access to finance for their digital transformation, representing both a knowledge gap and a funding gap, to be addressed jointly. Sustainability of the individual DIH, and their networking and collaboration among themselves, need to be further strengthened and supported by proper business models to make the most of the available competences across the EU.
5. **Financing digitalisation** is not only a matter of financing equipment but also of intangibles necessary for a successful digital transformation, such as reorganization of processes and upskilling of the workforce. This is especially the case for SMEs and start-ups. Despite progress in a few countries, **financing for digitalisation still falls far short of what is required and at present suffers from the lack of a dedicated financing programme for digitalisation, especially when it is easier and less risky for financial institutions to finance "traditional" investments.** Overall, this amounts to clear evidence of market failure. Participants suggested to **investigate the development of a dedicated digitalisation investment programme**, to the extent that it should be closely articulated with EU and national programmes and must not duplicate existing funding structures.
6. A **Working Group should be launched on Digital Innovation Hubs** deepening the activities of WG1 through a series of one-day workshops focused on specific, high priority topics, such as:
  - Raising awareness and engaging SMEs in digitalisation services;
  - Improving access to finance for businesses, and notably on the setup of a Digitalisation Investment Programme;

- Networking and Collaboration of DIHs to make the the most of the available competences and to realise sustainable business models
- Role of Member States in national and regional plans for the development of DIHs
- Supporting the development of skills and training, including ‘train the trainer’ initiatives.

### Partnerships, Platforms, Standardisation

7. **Partnerships** are crucial to secure significant long-term resources for research and innovation in key digital technologies and their integration in **digital industrial platforms**. Indeed, public private partnerships are the European response to match the volume of R&I investments mobilised by other regions of the world. Participants welcomed the concrete recommendations of the Working Group on Digital Industrial Platforms, notably the need for greater collaboration between the PPPs in coordinating EU-wide and national R&I efforts, the pilot-based approach and the critical role of testbeds in particular for SMEs. They also suggested to establish European networks that add value by coupling testbeds and tools in innovative ways, and to look further into instruments, such as Joint Undertakings, to mobilise significant co-investments by Member States, regions, industry and the European Union on strategic projects.
8. **Standardisation** is key for fostering the development of the next-generation digital industrial platforms. Standardisation has to be driven by industry and public actions should tend to develop and strengthen EU positions in international fora. Development and access to test labs or field labs are a core element in driving standardisation and accelerating the validation of emerging standards across the value chain. Welcoming the planned Horizon 2020 investments in standardisation initiatives in partnership for digital industrial platforms, participants asked the EU to be more active in synchronising activities performed in Member States and in the PPPs, notably on pilots and development of digital industrial platforms.
9. A **DEI Working Group on the development, roll-out and relevant standardisation activities of Digital Industrial Platforms in all industrial sectors** should be launched. The particular emphasis of this WG must be on:
  - **Co-ordination of platform-building and piloting activities.** This includes strategic roadmapping via collaboration of European, national, and private initiatives under common strategic goals; improving links to testbeds and Digital Innovation Hubs (DIHs); as well as identifying relevant business models..
  - **Synchronisation and acceleration of standardisation efforts.** This includes consolidation of use cases; strengthening considerations of the global context; reinforcing contributions to standardisation by R&I projects - especially platform development and piloting projects; as well as supporting SMEs in gaining experiences with emerging standards.

To avoid a proliferation of working groups with overlapping mandates, it was recommended to the Commission to consider a joint working group which reports to both, the DEI high-level governance group and the Multi-Stakeholder Platform (MSP) for ICT Standardisation. Relevant EU working structures (e.g. AIOTI and ConnectedFactories) and working groups of Member States' initiatives (e.g. the German Standardisation Council and the Trilateral DE/IT/FR Working Group on Standardisation) must play a key role.

10. A **DEI Working Group on future partnerships** should be launched addressing issues such as the configuration of new PPPs
  - to support strategic programming at the EU level,
  - to inspire national strategies to align between themselves and with the PPPs on jointly achieving European strategic goals,

- to become a vehicle for critical co-investments.

Such DEI Working Group must include competences from the existing Programme Committee of Horizon 2020.

### Skills and Jobs, Regulatory Framework, Socio-economic Aspects

11. **Digital Skills and Jobs:** While education and training primarily is a competence of the Member States, participants urged the Commission to maintain a strong emphasis on actions to encourage a broad skills and training development offer across the EU, notably through schemes like the Digital Skills and Jobs Coalition and the Digital Opportunity Scheme pilot. As conduits for European and national schemes, Digital Innovation Hubs play a vital role in broadening the training and skills development offer on the latest digital technologies to any businesses. The workshop session also highlighted the importance to train SMEs in raising value of their data in the light of emerging affordable Artificial Intelligence systems to boost their own productivity.

Participants emphasized the importance of the skills issue to the digitalisation agenda. Given the richness of the existing landscape and the key role for the Member States, this is **best addressed within existing initiatives and mechanisms**, including the Working Group on Digital Innovation Hubs.

12. **Regulatory Frameworks:** A digital-friendly regulatory framework is important for European industry to thrive and is the central aim of the DSM strategy. Participants welcomed the strong emphasis on digitalisation of industry within the renewed Industrial Strategy adopted in September, and the recent adoption of two regulatory packages on Cybersecurity and Free Flow of Data. Participants suggested that the concept of 'non-personal data' be clarified and that access to public sector data and to privately held data with interest for a community, with adequate incentives for the data holder, be further developed. They also welcome the announcement of an Artificial Intelligence initiative.

While some refinement of the proposals may be necessary, these could be addressed through existing channels and mechanisms **without a need for a specific working group on regulation within the DEI initiative**.

13. **Socio-economic Aspects.** The effects of digitalisation will not be confined to industry. Policy making in areas such as industrial policy and research policy needs to take account of its impacts on all levels of the society and economy, such as labour markets, education, new business models, taxation, and cohesion.

### Conclusions

The Commissioner is grateful to all participants for their attendance and contributions and welcomed their on-going support as work continues towards key milestones.

The second European Stakeholder Forum<sup>2</sup> for wider consultation and outreach involving stakeholders from the full digital value chains was announced to take place in Paris-Nord, Villepinte, France. The Commission is co-organising it together with the French Ministry for the Economy and Finance, on 27-28 March 2018.

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<sup>2</sup> <https://ec.europa.eu/digital-single-market/en/news/digitising-european-industry-stakeholder-forum-2018>

# Full Report of the High-Level Governance Meeting of the European Platform of National Initiatives on Digitising Industry

## Context

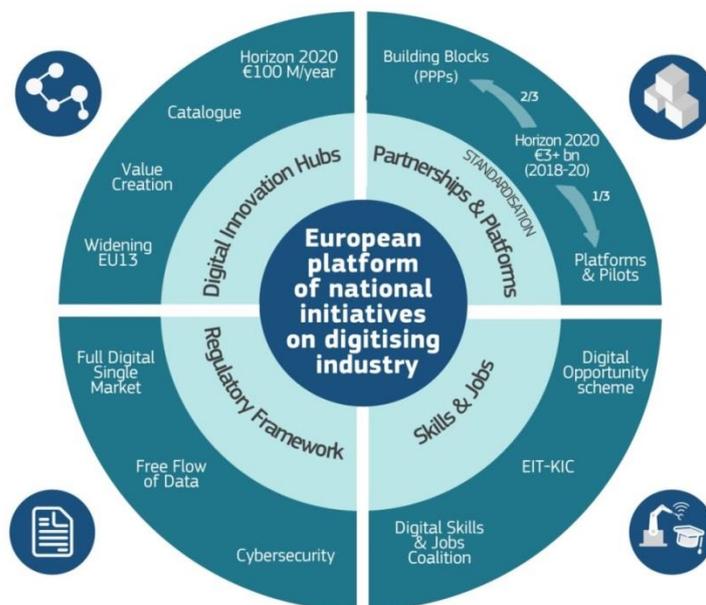
The Digitising European Industry (DEI) strategy, adopted in April 2016, aims to reinforce the EU's competitiveness in digital technologies and ensure that any industry in Europe, big or small, wherever situated and in any sector can fully benefit from digital innovations. This requires not only a dynamic digital sector in Europe but also the full integration of digital innovations across all sectors of the economy.

Political and industry leaders have committed to work together on digitising industry within a European Platform of National Initiatives. This collaboration is an important step to strengthen the European economy and society so that business can thrive in a world transformed by digital, share experiences, explore shared approaches and, above all, set a common European agenda for investments.

The High-Level Governance Meeting held on 21 November, organised by Commissioner Gabriel was complemented by sessions at working level in order to further discuss the ideas and future actions. It is one of the biannual series of meetings with stakeholders in order to monitor progress and agree future orientations of the European Platform of National Initiatives. It builds on a preparatory workshop held on 27 June 2017.

The high-level governance meetings are a key element of the governance framework outlined in the DEI Communication, and ensure delivery on the digitalisation initiatives at European and national level.

Discussion at the meeting focused on: how to capitalise on the achievements of national initiatives; how to build on the work performed by the Working Groups established in 2016 for Digital Innovation Hubs and for digital industrial platforms; and on the identification of next steps needed to further support the efforts of digitalisation of industry in Europe.



Numerous high-level representatives of Ministries, industry and various associations across the EU discussed how to capitalise on the achievements of national initiatives; how to build on the work performed by the Working Groups established in 2016 for Digital Innovation Hubs and for digital industrial platforms; and on the identification of next steps needed to further support the efforts of digitalisation of industry in Europe, such as addressing the skills gap and raising awareness on cybersecurity, and the importance of a bottom-up approach in addressing the needs of SMEs.

Participants (full list in Annex) outlined significant achievements and ambitions to the digital transformation of European industry, demonstrating an excellent degree of alignment and commitment on the overall priorities. The richness and breadth of the discussions calls for focusing future high-level meetings to a deeper dialogue on a limited number of action lines.

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Background information was distributed to participants to guide the discussions:

- <https://ec.europa.eu/digital-single-market/en/news/high-level-governance-meeting-european-platform-national-initiatives-digitising-industry>

It was accompanied by:

- a brochure taking stock of the achievements of the last 18 months (<https://ec.europa.eu/futurium/en/implementing-digitising-european-industry-actions/digitising-european-industry-taking-stock-18>).
- An analysis of the 15 national initiatives on digitising industry (<https://ec.europa.eu/futurium/en/implementing-digitising-european-industry-actions/national-initiatives-digitising-industry>)

## Main Findings

- Accessing the benefits of digital technologies remains critical to the growth and prosperity of the European economy and society. With its strong position in manufacturing and business services, digitalisation presents a major opportunity for Europe to drive innovation and value creation. All companies, from manufacturing industries to creative industries, must be able to make the best use of new technologies and manage their transition towards higher value digitised products, processes and services. It is a matter of digitise or die.
- National and EU digital innovation and industrial policies aim at ensuring a broad diffusion of these technologies to every business in Europe and reinforcing the competitiveness in digital technologies. Substantial progress has been made in the 18 months since the DEI was launched. Already 15 national initiatives for digitising industry are in operation and several others are due to be launched soon or are under preparation.
- These national initiatives are gaining in scale and reach. At their most ambitious, such initiatives put digital growth at the centre of national economic strategy and support this by fiscal and regulatory reforms. A rich range of instruments is being adopted, including tax credits, depreciation schemes, soft loans, and ‘patent boxes’. At European level, too, digitalisation forms the centrepiece of the EU’s renewed industrial policy adopted in September 2017.
- Participants saw a significant **added value in EU-wide actions to support the digitalisation of industry primarily in terms of: i) realising a true Digital Single Market, e.g. on data, interoperability and standardisation; ii) collective and synchronised actions to reach the necessary scale, e.g. through co-investment and access to finance; iii) supporting industrial value chains that are increasingly spread across Europe; and iv) sharing experience and best practice between the various European, national and regional initiatives. In particular, participants stressed the need for complementarity and speed of action.**
- Participants welcomed progress under the Initiative to date. The Working Groups have provided concrete outcomes that are being acted upon by the Commission, Member States and other stakeholders. The Catalogue of Digital Innovation Hubs, for example, provides a vital mapping of existing service provision for SMEs, while the digital platforms report identifies priority actions for decision-makers in this crucial area for Europe. Future working group activities should, in addition, emphasize more practical aspects.
- The participants reaffirmed the strategy set out in the Communication on Digitising European Industry adopted in April 2016 and its supporting implementation plan. They observed that the following overall framework conditions should also be taken into account going forward:
  - i. **Creating the right growth environment for SMEs:** SMEs still find the digital world confusing. While some are alert to the opportunities, many have not yet integrated digital into their core business. Surveys show that companies continue to be held back by issues such as fragmentation, shortage of skilled workers, and access to finance. Too often start-ups find conditions are not conducive to growth and leave Europe altogether. We have to find ways to include SMEs in the digitalisation process and address the huge asymmetry in information. This requires tailored technology transfer services that address the diverse needs of SMEs, from traditional industries at one end of the spectrum, to high-growth start-ups and scale-ups at the other. Only by balancing the supply and demand for

innovation will we create the right environment for SMEs to embrace digital transformation.

- ii. **Liberalising data flows across Europe:** Data has become the most valuable resource of the global economy and is a key driver of economic growth. Removing unnecessary localisation restrictions is key to unlocking its full potential. We have to put data-driven innovation at the centre of the European approach. Participants welcomed Commission proposals on free flow of non-personal data and called for further action to encourage the free flow of data at European level.
  - iii. **A European approach to cybersecurity:** Cybersecurity is essential for fostering the trust necessary for a prosperous digital economy and society. The Commission has proposed a series of new measures, including strengthening the mandate of ENISA, the EU Cybersecurity Agency, and the introduction of a European cybersecurity certification framework. A Cybersecurity Public Private Partnership (PPP) has also been launched. Digitalisation initiatives need to establish strong links to these cybersecurity activities, for example through cybersecurity testbeds, in particular taking into account the specific needs of SMEs.
  - iv. **Closing the skills gap.** Europe has a critical shortage of digital skills and faces a major challenge in addressing the structural changes affecting the labour market and the nature of work. Major investments in reskilling and in adapting our education and learning systems are needed to ensure all Europeans are able to seize the digital opportunities.
- In relation to the future development of the Digitising European Industry initiative, it was noted that:
    - **The European Platform of National Initiatives** is helping to mobilise all stakeholders, notably at a high political level in the Member States, around concrete actions that meet the needs of industry. It has played an essential role in shaping national strategies and in mobilising Member States with 15 national initiatives on digitising industry already launched, and more initiatives in preparation, with Greece announcing its intention to also launch such an initiative.<sup>3</sup> As these national initiatives develop, the European Platform can play a key role in facilitating cross-border exchanges and collaboration, and in linking existing initiatives at regional level.
    - **Digital Innovation Hubs** play a vital role in creating a Europe-wide ecosystem to support digitalisation in industry. Experience so far shows a big demand for these centres from all business sectors and in all regions. ‘White spots’ are disappearing as new hubs are formed and in some regions dedicated initiatives have been launched to stimulate hub creation and build competences. Participants affirmed a key role for Digital Innovation Hubs in addressing the skills gap and raising awareness on cybersecurity, and the importance of a bottom-up approach in addressing the needs of SMEs.
    - **Financing Digitalisation.** Business development requires financing not only of equipment but also of intangibles necessary for a successful digital transformation, such as reorganization of processes and upskilling of the workforce. This is especially the case for SMEs and start-ups. The financial arena is becoming more attuned to the needs of the digital economy, with measures such as venture capital funds and soft loans available in some countries. However, financing for digitalisation still falls far short of what is required and at present suffers from the lack of a dedicated financing structure for

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<sup>3</sup> Achievements and plans under Member State initiatives are summarised in *National Initiatives for Digitising Industry across the EU*.

digitalisation , **especially when it is easier and less risky for financial institutions to finance** "traditional" investments. Overall, this amounts to clear evidence of market failure.

A digitalisation investment programme providing financial instruments (loans, equities, guarantees) and grants, when needed, would further support the roll out of innovations and the development of hubs. Such a dedicated fund would be a useful addition to the European landscape. However, it should be closely articulated with EU and national programmes and must not duplicate existing funding structures. Safeguards should be linked to such fund to ensure that it benefits all stakeholders and is not biased towards the digitally advanced countries. Careful planning will be required so as to ensure that the fund directly addresses the market failure rather than adding up investments for SMEs.

- **Partnerships** are crucial to secure significant long-term resources for research and innovation in key digital technologies and their integration in **digital industrial platforms**. The WG2 on Digital Industrial Platforms made concrete recommendations in this area. Both the WG and the Mid-term Review of the cPPPs have called for the PPPs to be reinforced and for greater collaboration between the PPPs in coordinating EU-wide R&I efforts. However, the PPPs are only one of several mechanisms available and, while they have a valuable contribution to make, their funding should remain proportionate with the expected outcomes. Piloting and deployment of industry-driven platforms should also be pursued. Testbeds have a critical role to play, in particular for facilitating access for SMEs. Efforts are needed to establish European networks that add value by coupling testbeds and tools in innovative ways. The ECSEL initiative is an interesting model, as it caters for deriving, jointly with Member States and industry, European industrial priorities and its tripartite funding arrangement mobilises significant co-investments by countries, regions, industry and the European Union on projects of critical importance.
- **Standardisation** is key to fostering the development of digital industrial platforms and to realising the objectives of the DSM agenda as a whole. Standardisation is primarily the domain of industry – including through the digital industrial platforms – but EU-level strategies and actions can help to synchronise and strengthen EU positions. We need a more inclusive and transparent examination of the European approach to standardisation and interoperability, taking account also of user/SME requirements so as to ensure an open process. Working groups in Member States and in PPPs, as well as in European standardisation organisations, play an important role in promoting an open dialogue that helps consolidate EU positions and strengthen EU actors in international fora.
- **Digital Skills and Jobs**. While education and training is primarily a competence of the Member States, participants urged the Commission to maintain a strong emphasis on this issue. This includes action through the Digital Skills and Jobs Coalition to encourage a broad skill and training development offer across the EU. The Digital Opportunity Scheme pilot, which provides hands-on experience for students and recent graduates through a paid cross-border traineeship, is also a welcome development. Further efforts should be made to tap into the knowledge of older workers by linking them to the digital generation; and to upskill existing workers. As conduits for European and national schemes, Digital Innovation Hubs can play a vital role in broadening the training and skills development offer available to their constituencies.
- **Regulatory Frameworks**. A digital-friendly regulatory framework is important for European industry to thrive and is the central aim of the DSM strategy. Participants welcomed the strong emphasis on digitalisation of industry within the renewed Industrial Strategy adopted in September, and the recent adoption of two regulatory packages on

Cybersecurity and Free Flow of Data. However, still more needs to be done to provide Europe with a smart regulatory framework that is fully coherent. Europe is at its strongest when research, standardisation and regulation work together, as in the oft-quoted but still relevant case of GSM. We must close that circle.

- **Socio-economic Aspects.** The effects of digitalisation will not be confined to industry. We need to widen the discussion to consider the impacts of the ensuing digital transformation – including artificial intelligence – on all levels of the society and economy, such as labour markets, education, new business models, taxation, and cohesion. In turn, the priorities that emerge from these discussions should be channelled back into policy-making, in areas such as industrial policy, social policy, education policy, and research policy.

## Next Steps

Participants affirmed the continuing role for the HLG and agreed to maintain two meetings per year.

The High-Level Meeting provided agreements in principle to prepare with Member States and industry future orientations for access to finance, European technology leadership and partnerships as a means for joint strategic decisions and significant co-investments. These were translated into 3 Working Groups in the workshop sessions:

- 1. Digital Innovation Hubs, investments and skills: focus on the development of a pan-European investment fund to support the digitalisation of all businesses and notably SMEs, on business and financing models for DIHs, and on the reinforcement of the role of DIHs in skills development.**

Digital Innovation Hubs allow digital innovations to reach out to any industry across all sectors of the economy. There is not one single definition of digital innovation hubs. They provide services to support industry to digitally transform and produce new products, services with new processes and business models. The report of the Working Group outlines the operations and functions of a DIH and the remaining challenges in terms of business models (for the DIH) and investments (for businesses).

The creation of a dense network of Digital Innovation Hubs requires mobilisation of many sources of national and regional investments, including ESIF and EFSI.

DIH have a key role in closing the gap for SME to adopt proven digital solutions, innovative digital products or innovative business models at the regional/local level and in strengthening the demand from SMEs for digitalisation. Such a dedicated support in form of advice and trainings that are tailored to specific company needs has to be complemented by dedicated financing instruments.

The Working Group has to reflect on:

- Encouraging Member States to have national plans for the development of DIHs with sustainable business models and a key role in the broad training and upskilling of digital competences
- Setting up a pan-European digitalisation investment fund in the next Multiannual Financial Framework.

All high-level representatives were asked to nominate their investment experts with the objective to report at the next governance meeting of the European platform.

- 2. Public private partnerships are the European response to match the volume of R&I investments mobilised by other regions of the world by mobilising co-investments. Moreover, an efficient partnership requires better alignment of national R&D&I programmes, both with each other and with EU programmes. We strive towards a reinforced role for the PPPs as coordinators of EU-wide research and Innovation efforts, national initiatives and industrial strategies, as announced in the DEI Communication.**

It must also translate into co-investment by industry along the continued support to digital innovations from development of technology building blocks to roll-out of digital industrial platforms. Each stage of support has different requirements of means and intensity of public intervention. There is a clear need for the public sector to act jointly on the different stages.

The Working Group has to reflect on how partnerships can be a means for strategic programming at the EU level, inspiring national priorities, and a vehicle for critical co-investments, notably starting with the next Framework Programme for Research & Innovation (2021-2027).

Such DEI Working Group must include competences from the existing Programme Committee of Horizon 2020, and reflect on partnership for strategic joint priorities and co-investments, with the objective to report at the next governance meeting of the European platform.

- 3. Development and roll out of digital industrial platforms in all industrial sectors – focus on synchronisation of large scale piloting and acceleration of standardisation efforts across the EU towards stronger weight of EU actors in global standardisation and platform building activities.**

The challenge is to seize the opportunities arising from digitalisation to establish European leadership in the next generation digital industrial platforms and reinforce the necessary, underlying essential digital technologies on which all economic sectors are increasingly dependent.

There is a need to have an ambitious approach to develop digital industrial platforms, experiment and validate them, and facilitate their roll-out to allow industry to capture the added value which is generated by putting technology building blocks together into platforms. Fostering the acceleration of standardisation of the building blocks and industrial platforms aims at a strategic EU industry leadership on global standards:

- **Co-ordination of platform-building and piloting activities.** This includes strategic roadmapping via collaboration of European, national, and private initiatives under common strategic goals; improving links to testbeds and Digital Innovation Hubs (DIHs); as well as identifying relevant business models..
- **Synchronisation and acceleration of standardisation efforts.** This includes consolidation of use cases; strengthening considerations of the global context; reinforcing contributions to standardisation by R&I projects - especially platform development and piloting projects; as well as supporting SMEs in gaining experiences with emerging standards.

To avoid a proliferation of working groups with overlapping mandates, it was recommended to the Commission to consider a joint working group which reports to both, the DEI high-level governance group and the Multi-Stakeholder Platform (MSP) for ICT Standardisation. Relevant EU working structures (e.g. AIOTI and ConnectedFactories) and working groups of Member States' initiatives (e.g. the German Standardisation Council and the Trilateral DE/IT/FR Working Group on Standardisation) must play a key role.

The Working Group has therefore to reflect on how to accelerate digital industrial platform initiatives along the lines of the European priorities laid down in the Horizon 2020 Work Programme 2018-2020, and establish a framework for better synchronisation on standardisation to strengthen cooperation and weight of EU stakeholders.

The three working groups will be launched, with a first meeting of the experts to be nominated for the Working Groups to take place early 2018. Further discussion will take place within the context of the DEI Stakeholder Forum, to be held on 27-28 March 2018 in Paris.

## Full Reports of Workshop Sessions

### Session 1. Boosting Digital Innovations in Europe: Digital Innovation Hubs

*Chair: Anne-Marie Sassen, Deputy Head of Unit, Digitising Industry, DG CONNECT*

#### Digital Innovation Hubs

**Caroline de Clock (Service Public de Wallonie)** outlined Wallonia's experiences in setting up Digital Innovation Hubs at regional level, building on the results of WG1.<sup>4</sup> Wallonia followed the methodology set out in the WG1 report, namely i) mapping of existing actors and measures; ii) definition of SME/industry needs; and iii) identifying services to be offered. An ecosystem approach was emphasized, bringing together clusters, living labs, research centres, creative hubs, financial experts and other actors within the region. A roadshow was organised to reach out to companies.

Communicating with companies turned out to be a key challenge. It requires experts who are able to talk about digitalisation at general/global level, rather than experts in specific technologies. There is also a need to 'train the trainers' so that they are able to reach out to companies in the right way. Networking between hubs was also found to be an issue which could, perhaps, be addressed through a system of portable vouchers that are interchangeable between regions. Funding of infrastructures and awareness of the banking and financial sector were other issues encountered 'on the ground'.

Good practices in training and skills development were identified. Mapping sectorial ecosystems can provide useful inputs for developing a skills offer adapted to companies' needs. Existing professional training needs to be adapted to the new requirements of digital transformation, for example by improving the offer available through competence centres. Finally, business vouchers can be used to fund activities such as coaching, mentoring and strategic/technological training that are essential to improve the skills of managers and employees.

#### Digitalisation Investment Fund

**Bjorn-Soren Gigler (European Investment Bank)** presented a view on how to enhance access to finance for DIHs and the digitalisation of SMEs. When it comes to digital transformation, SMEs face both a knowledge gap and a funding gap. We need to find solutions to address both of these concurrently: separate approaches are unlikely to produce expected results. DIHs should not only enable businesses to access the latest knowledge, expertise and technology for digital innovation, but also facilitate access to financing. Besides grants, DIHs should promote linkages between businesses and providers of risk finance through partnerships with investors, such as local banks.

At EU level, there are already instruments, such as risk-sharing mechanisms (for example the SME Initiative) aimed at reducing the financial risk for lenders and improving access to finance for SMEs, and riskier projects can be adapted/adjusted to the needs of digitalisation. Similarly, in the context of a partnership between a DIH and a local bank, existing risk-sharing mechanisms can be adapted/adjusted to allow for riskier digitalisation projects.

But there is no dedicated EU instrument for this purpose at present. The EIB has launched a study to look at the financing of hubs and SMEs that will present an overview of current conditions, trends and challenges. The study will provide a set of policy relevant inputs and recommendations on how to set up a digitalisation fund at EU level with possible co-financing with national or regional schemes/contributors (such as EFSI platforms).

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<sup>4</sup> See the full WG1 report on Futurium: <https://ec.europa.eu/futurium/en/content/report-wg1-digital-innovation-hubs-mainstreaming-digital-innovation-across-all-sectors-final>

## Discussion

In discussion, participants welcomed the opportunity to continue the WG1. DIHs are urgently needed and the challenge now is to convince other actors that they are able to add value. Hubs are like shops and we have to provide them with ‘products’, and for this we will need money. We should create a set of products that are given to the hubs to activate.

Regions will be important players and it is necessary to distinguish between inter-regional collaboration within countries (which can be addressed by Member States) and collaboration across borders. Some participants cautioned against too much reliance on regional funding which could lead to hubs becoming regionally biased: it may be better to offer financing through national authorities instead. The whole issue of collaboration models requires further thought.

InnovFin’s involvement in this area was welcomed, but this programme is hardly known in the Member States and needs to be better publicised. From a practical point of view, the fewer the number of potential financing routes the better.

Turning to the issue of hub development more widely, participants welcomed the growth of new hubs across Europe. But we cannot stop there: we must continue to develop them. We need long-range goals on what we are trying to achieve and means to build trust between hubs. The latter is essential if one hub is to introduce its clients – with whom it owns the relationship – to another hub. While their activities will never be fully standardised, there should be at least some commonalities in the way hubs operate (e.g. in terms of diagnostic tools, methodology and evaluation).

In terms of closing the knowledge gap, it is clear that we have to build hubs from the bottom up: hence, the importance of initiatives such as ‘train the trainer’ in building hubs’ competences.

The DIH Catalogue was welcomed and it is essential that this is maintained and built on. The catalogue was intended as a tool for policy-makers rather than as an advertising mechanism. Hubs should use it to identify potential partners and providers of complementary services.

## Conclusion

It is clear that Digital Innovation Hubs, and especially new hubs, face many difficulties in reaching out to SMEs. In finance, too, there are gaps in both capacity and understanding. It was proposed that **the activities of WG1 on Digital Innovation Hubs be continued through a series of one-day workshops focused on specific, high priority topics**. These should include:

- 1) Communication/Engagement: How to motivate SMEs to engage with hubs and how hubs can create demand for their services;
- 2) Access to Finance: How to improve access to finance for SMEs and for hubs themselves, and the role of an Investment Fund for Digitalisation.
- 3) Networking and Collaboration: How to network hubs effectively and build collaboration between them so as to make the most of the available competences and realise sustainable business models.
- 4) Skills and Training: How to focus hubs’ activities in relation to training and skills development, including ‘train the trainer’ initiatives.

## Session 2. Boosting Digital Innovations in Europe: PPPs and Platforms

*Chair: Max Lemke, Head of Unit, Digitising Industry, CONNECT*

### Digital Industrial Platforms

**Prof. Marco Taish (Politecnico di Milano)** summarized results of the WG2 on Digital Industrial Platforms. The WG2 had sought to support the creation of next-generation digital platforms by: defining possible next-generation platforms; reflecting on how building platforms should be approached on European level; and considering how existing and planned EU-wide, national and/or regional platform development activities could contribute. It had focused on three vertical sectors (Connected Smart Factories, Smart Agriculture, and Digital Transformation of Health and Care) and two horizontal topics (Industrial Data Platforms and IoT).

As a result of its work the WG2 had formulated **five recommendations**:

- 1) **Member States should enhance their R&I programmes on digitalisation and digital industrial platforms;**
- 2) **Coordination and orchestration of platform development are needed to reduce fragmentation;**
- 3) **An environment should be created to support promising initiatives to achieve critical mass;**
- 4) **Mechanisms need to be developed that can help to federate dispersed activities and establish industry-relevant platforms;**
- 5) **Socio-economic aspects should be considered when assessing industrial platforms.**

In addition, a key message was that the **Public Private Partnerships (PPPs) should be reinforced and play the role of coordinators of EU-wide R&I effort by coordinating among themselves**. The full report is available via the Futurium website.<sup>5</sup>

### Public-Private Partnerships

Also in relation to the PPPs, **Carmen Constantinescu** presented highlights from the Mid-term Review of the contractual PPPs (cPPPs) under Horizon 2020 by an Independent Expert Group. The review had taken account of the fact that the existing PPPs were at different stages of their lifecycle and that they had different orientations (technology vs sector). These factors meant that the same KPIs could not be used for all PPPs. The main recommendations from the Mid-Term Review were:

- 1) Improve roadmap definition and execution process; participatory process of translating priorities from the roadmap into calls; more focused calls.
- 2) Revise governance of cPPPs. Systematically disseminate and transfer results. Foster participation of SMEs and EU-13 countries.
- 3) Strengthen links between cPPPs and other instruments. Develop joint programming, cross-fertilisation and partnerships.
- 4) Redesign KPI framework of all cPPPs, coordinated by European Commission.
- 5) In order to **enhance the impact of the cPPPs on national and regional policies as a way to increase their EU value-added, Member States should be represented in the cPPPs**. The Commission should explore jointly with Member States suitable mechanisms.

The workshop supports the Lab- Fab-App recommendation to move towards a mission-driven approach in the next Framework Programme. Industrial associations and the European Commission should cooperatively mobilise joint investments in order to tackle industrial, scientific and societal challenges. Mobilising joint investment in established missions, through a dynamic and flexible co-fund mechanism may be a way to take the cPPP instrument forward.

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<sup>5</sup> <https://ec.europa.eu/futurium/en/implementing-digitising-european-industry-actions/report-wg2-digital-industrial-platforms-final>

## Standardisation

Turning to standardisation, **Haydn Thompson** reported on a workshop held on 17 October 2017. The objective of the meeting, which brought together stakeholders from industry, standards development organisations and Member States, was to move towards an EU-wide approach to standardisation in support of the DEI strategy. It aimed to identify what common high-level standardisation issues need to be tackled by European or national initiatives, and where support, mediation or coordination is needed at an EU level. There were two key messages. Firstly, there is a strong need to synchronise fragmented activities and the EC should enable this. Secondly, test labs or field labs are a core element in driving standardisation. These are key assets that can be used to test and validate emerging standards across the value chain, while at the same time giving access to, and providing support to SMEs.

The workshop advocated clearly defined roles for industry and the EC with respect to coordination. Industry is best positioned to drive standardisation and so take the lead in orchestrating activities. **The Commission can support pilot actions and work in partnership with industry through PPPs, FoF, BDVA or ECSEL, or with alliances like AIOTI. The Commission also acts as a facilitator for standardisation coordination. Working in partnership, industry can provide strategic guidance on standardisation needs and the Commission can support requests through political endorsement for new governance schemes proposed. Finally, there is a need to bring the key actors together in order to address in more detail how these recommendations can be taken forward within the context of digitalisation.**

**Christoph Winterhalter (DIN e.V)** looked at lessons learnt from the German Standardisation Council. He emphasized the inter-play between standardisation and piloting. Many competing standards are available and, as the October workshop had advocated, better orchestration is needed to decide which are mature and relevant and which require further development. This is where the German Standardisation Council comes in. It coordinates relevant standardisation activities, creates guidelines for pilot projects, and develops specifications that provide structured input to standardisation. It also provides support and guidance to SMEs on how to use digital technologies.

The implications for the DEI are fourfold:

- 1) Coordination on European level requires clear mandate and institutional funding for “European Standardisation Council”.
- 2) Analysis, mapping and evaluation of existing standards and participation in standardisation committees require project funding.
- 3) Possible KPI for technology transfer potential of research project requires additional funding for development and publication of related specifications.
- 4) Development of guidelines for SMEs identifying relevant standards to be used and most suitable standardisation committee to participate in requires project funding.

The Trilateral DE/IT/FR Working Group on Standardisation was briefly discussed. The Group has created a conference in Turin and has recently held its first meeting. Activities are being ramped up, starting with an exchange of information. It will focus on standardisation activities at international level.

## Discussion

In discussion it was noted that the European Commission has allocated €300m to PPPs under H2020 and €1bn more widely towards these initiatives. It has done so according to the principle that European money is used to federate existing activities in the Member States, such as supporting testbeds, ecosystem building, leading eventually to standardisation. Hence, it is already addressing the WG2 recommendations.

Participants drew attention to other relevant activities such as the ECSEL Lighthouses and Factory of the Future projects being run by EFFRA. ECSEL is a useful model that allows Member States to collaborate on specific themes. These serve to show that platform building is being addressed under several umbrellas, and that financing can be either tightly or loosely coupled to the Member States. Testbeds is an area where there is scope for greater collaboration between Member States. The platforms need to be

more closely aligned with the Digital Innovation Hubs, and also to be able to experiment with new business models.

The PPPs should have higher visibility and the Grand Missions proposed under FP9 could facilitate this. Most of the PPPs have social missions to some extent but the mission concept should not be allowed to divert attention from technology development, which is the PPPs 'core mission'. Also, it is important to retain Member States as partners in PPPs in order to access national funding.

The Mid-term Review has called for closer working across the PPPs but we also have to keep an appropriate balance. The issue is to find mechanisms to help the PPPs *synchronise* their activities, rather than coordinating from the top down. It is more a matter of synchronicity rather than coordination. Efforts should be made to 'blur the edges' by using the PPPs as a means of bringing together technology capacities from different initiatives, in relation to autonomous driving for example. Greater efforts in roadmapping PPPs are also required, which can serve as inputs for funding schemes.

## Conclusion

**A new WG2 on Digital Industrial Platforms should be started**, with emphasis on:

- i. monitoring of platform development;
- ii. making platforms strategic through roadmapping and other activities;
- iii. improving links to testbeds and Digital Innovation Hubs; and
- iv. identifying business models for SMEs and for Digital Industrial Platforms themselves.

**A separate Working Group should be established in relation to future PPPs**, to address issues such as:

- i. how new PPPs should be configured;
- ii. what conditionality they should have; and
- iii. how to synchronise PPPs with national programmes.

This dialogue should include actors within the Commission Services responsible for the planning of FP9.

In relation to standardisation, the Commission will review the field further and scope a potential working group, possibly as a sub-group of an existing body, such as the Multi-stakeholder Platform for ICT Standardisation.

## Session 3. Regulatory Initiatives

*Chair: Max Lemke, Head of Unit, Digitising Industry, CONNECT*

### Data Economy

**Jiri Pilar (Data Policy and Innovation, DG CONNECT)** outlined the Commission's proposal for a Regulation on Free Flow of non-personal Data (FFD), issued in September 2017. In a consultation earlier in the year, a majority of respondents (62%) were in favour of removing data localisation restrictions within the EU.

There was also a strong consensus that there was no need for additional regulation: freedom of contract should prevail.

APIs (Application programming interfaces) received the biggest support as a technical way forward.

The FFD Regulation aims to create a framework for the free flow of non-personal data within the EU. It addresses restrictions to data mobility and provides guidelines to Member States to make data for reuse in a machine-readable format as much as possible. Data held by authorities for regulatory control and collected for research purposes should be made available wherever possible. In addition, actions are proposed to encourage cloud service providers and users to develop self-regulatory codes of conduct for easier switching of provider and/or porting data back to in-house servers.

Further regulatory initiatives are likely under a data package foreseen for 2018. This will include a review of Directive 2003/98/EC on the reuse of public sector information. It is also planned to set up a support centre to facilitate B2B data sharing as a means to help identify and share the best practices in Europe and provide guidance documents, e.g. model contractual terms or technical guidance.

In discussion, participants welcomed the FFD as an important and very constructive piece of legislation and urged that it should be passed quickly. 'Non-personal data' may need to be more precisely defined. It was suggested that the Commission look not just at public sector data but also access to privately held data for the interest of the community. What are the possibilities and conditions that will incentivise companies to share their data?

### Artificial Intelligence

**Bjoern Juretzki (Assistant to the Director, Digital Industry, DG CONNECT)** outlined a forthcoming European initiative on artificial intelligence (AI). AI promises to be a game changer for Europe's economy and society, and at a special meeting on this issue in October 2017 the Council requested the Commission to come forward with a European approach. This will be based on three pillars: i) building up Europe's technology and industrial capacity in AI and facilitating its uptake; ii) addressing new ethical, societal and legal issues; and iii) tackling emerging socio-economic challenges.

Liability is a key issue. The Liability for Defective Products Directive (85/374/EEC) is currently being evaluated to see whether it is still fit for purpose for new technological developments. This will look at how autonomous, software-powered systems should be regulated, including whether to apply risk exemption in relation to such systems as a new regulatory principle.

Social acceptance of robotics and AI varies widely and changes over time. Artificial intelligence is not about the future: it is here now and we must act accordingly. Some Member States are already pushing ahead. Germany, for example, has revised its road traffic act to allow deployment of semi-autonomous vehicles; Estonia has plans for an AI law. The problem is that we can only regulate what already exists: we need to find approaches that will enable us to deal with self-learning systems and prevent them potentially going down the wrong track.

### Cyber-security

**Jakub Boratynski (Head of Unit, Cybersecurity and Digital Privacy, DG CONNECT)** provided an update on developments in relation to cybersecurity. Cybersecurity is essential for fostering the trust necessary for a prosperous digital economy and society. Under the Cybersecurity Package presented

earlier this year the Commission has proposed a series of new measures, including strengthening the mandate of ENISA, the EU Cybersecurity Agency, and the introduction of a European cybersecurity certification framework. A Cybersecurity PPP has been launched and in 2018 the Commission will explore the creation of a network of European Cybersecurity Competence and Research Centres supported by a core EU centre. The network would develop and roll out the tools and technology needed to protect Europe from cyber threats.

### Conclusions

Participants welcomed the policy proposals in all three areas. While some refinement of the proposals may be necessary, these could be addressed through existing channels and mechanisms, including the High-Level Group and its associated working groups. Hence, **there is no need for a specific working group on regulation within the DEI initiative.**

## Session 4. The Digitalisation of Work and (Re)skilling the Workforce

*Chair: Lucilla Sioli, Head of Unit, Digital Economy and Skills, CONNECT*

### Digitalisation and the Labour Market

**Martin Ulbrich (Senior Expert, DG CONNECT)** provided an overview of the Commission Services' paper "Digitalisation, Employability and Inclusiveness".<sup>6</sup> Digitalisation brings major challenges for all developed economies. On average, around 10% of jobs are seen as 'highly automatable' (>70% of substitutable tasks) and a further 25% have medium potential for automation (50-70% of substitutable tasks). Tasks that lower the risk of automation including presenting, influencing, reading books or professional publications, writing articles or reports, using programming languages, and training others. Tasks that increase the risk of automation include exchanging information, selling, and using fingers or hands.

AI could lead to further polarisation of the labour market. Recently, Japanese insurance firm Fukoku Mutual Life Insurance was reported as having made 34 employees redundant and replaced them with IBM's Watson Explorer AI. The company was quoted as saying it believed the move would increase productivity by 30%. Early indicators such as these suggest that the EU needs to take a close look at the implications of digitalisation and automation on employability and labour markets.

### (Re)skilling Workforces for the Digital Age

**Heidi Cigan (Head of Sector for Digital Skills, DG CONNECT)** provided an update on Digital Skills policy, focusing on the Digital Skills and Jobs Coalition and the Digital Opportunity Scheme. Most jobs now require at least basic digital skills, but still substantial minorities of workers and of citizens in general lack basic skills or have no digital skills at all. ICT specialist employment is the fastest growing job category, accounting for 3.7% of total employment in 2016: however, Europe already lacks 350,000 specialists and this figure is growing.

The Digital Skills and Jobs Coalition is one of 10 key actions in the New Skills Agenda for Europe.<sup>7</sup> It is a multi-stakeholder partnership that aims to take action to tackle the lack of digital skills in Europe within four target areas: education, labour force, ICT professionals, and citizens. Currently, 18 national coalitions have been set up under the initiative and more than 7 million trainings have been delivered. Organisations may join by endorsing the objectives and principles of the Charter, pledging to take action in specific areas (including thematic pledges such as women in digital, coding), and/or participating in or starting a national coalition.

The Digital Opportunity scheme is a pilot project to provide up to 6,000 on-the-job, cross-border traineeships in 2018-2020. It is open to students and recent graduates from all faculties, with opportunities advertised through online platforms, and will be implemented through Erasmus+. Enterprises who are members of the Digital Skills and Jobs Coalition and businesses active in Horizon 2020 are at the core of the initiative, but all companies are welcome to offer digital traineeships. Companies willing to host trainees should publish their offers on Drop'pin<sup>8</sup> and ErasmusIntern<sup>9</sup> websites, or advertise them through direct contacts with university career offices.

### A Practical Example of Reskilling

**Davide Meinero (I&D Consulting)** described the role of ecosystem knowledge integrators, such as Digital Innovation Hubs, in support of reskilling the workforce. The digitalisation of everything entails a dramatic increase in the quantity of information available. Finding new ways to transform information into knowledge is paramount to bestow power to citizens in the new digital society. New ecosystem

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<sup>6</sup> A *Concept Paper on Digitisation, Employability and Inclusiveness: the role of Europe*, European Commission, May 2017

<sup>7</sup> See <https://ec.europa.eu/digital-single-market/en/digital-skills-jobs-coalition-initiatives>

<sup>8</sup> <https://ec.europa.eu/eures/public/fr/opportunities>

<sup>9</sup> <https://erasmusintern.org/>

business models transcend the boundaries of the single enterprise: while cross-sectoral partnerships and new value chains entail social inclusion and participation.

The capacity to translate data into useful information will be essential for the competitiveness of organisations. An Italian-based collaboration between entities specialised in digitalization (clusters, SMEs, academia, associations) has led to the creation of a pilot project which will start in spring 2018, with a focus on producing content, building knowledge, and spreading awareness. A new course is being developed aimed at re-skilling the workforce through a combination of training, capacity building, and cooperative learning. Topics addressed will include market trends, technologies, required competences, and finance. Several audiences are targeted for the course: directors and executives, HR managers, public sector managers, as well as university and technical school students.

The key points of the discussion were:

- SMEs (including companies that are not attached to digitalisation) should be granted access to financial schemes. A policy with a common methodology on financing these SMEs should be developed, together with awareness raising and provision of information regarding the available financing schemes.
- The inclusion and retraining programs should take into consideration also people without any degree.
- The innovation hubs could serve the role of (re)training SME's personnel.
- Focus should be put on the training of the trainers of the digital hubs.
- In this vein, it would be useful to organise a one-day event bringing together members of innovation hubs for sharing best practices and exchanging ideas.
- STEM mentors at high school level could help STEM students finishing their studies by providing guidance and support.
- Awareness on the Blue Card should be increased.

## Conclusion

Participants emphasized the importance of the skills issue to the digitalisation agenda. Given the richness of the existing landscape and the key role for the Member States, **this is best addressed within existing initiatives and mechanisms, such as the Digital skills and Jobs Coalition and, where relevant, including the WG1 Digital Innovation Hubs, rather than through a separate working group.**

## Annex 1: List of Participants

### High-level Representatives from Ministries and National Initiatives (order by country)

#	FIRST NAME	LAST NAME	POSITION	REPRESENTING	PLATFORMS	From
1	Roland	Sommer	Managing Director	Platform Industry 4.0 Austria	Industrie 4.0 Austria	AT
2	Michael	Wiesmüller	Abteilungsleiter Informations-, industrielle Technologien und Raumfahrt (III/i5)	BMVIT Bundesministerium für Verkehr, Innovation und Technologie	Industrie 4.0 Austria	AT
3	Benoît	Hucq	General Manager	Agence du Numérique (Digital agency under the supervision of the Walloon Government)	Digital Wallonia	BE
4	Leo	Van de Loock	Transition Manager Industry 4.0	Flanders Innovation and Entrepreneurship	Flanders Industry 4.0	BE
5	Jeliaz	Enev	Director Economic Promotion	Ministry of Economy		BG
6	Lyubomir	Ganchev	Councillor to the Minister	Ministry of Economy		BG
7	Eduard	Muřický	Deputy Minister, head of delegation	Ministry of Industry and Trade of the Czech Republic	Průmysl 4.0	CZ
8	Wolfgang	Scheremet	Director General Industrial Policy	German Federal Ministry for Economic Affairs and Energy	Plattform Industrie 4.0	DE
9	Thomas	Zielke	Head of Division VI D 1	BMWi - Federal Ministry for Economic Affairs and Energy		DE
10	Nigel	Edmondson	Managing director	MADE (Manufacturing Academy of Denmark)	MADE	DK
11	Søren	Gaard	Deputy Permanent Secretary for Business Affairs	Ministry of Business and Growth	MADE	DK
12	Jüri	Jõema	CEO (ITL)	Estonian Association of Information Technology and Telecommunications (ITL)		EE
13	Kristi	Talving	Deputy Secretary General in	Ministry of Economic Affairs and		EE

			Internal Market	Communications		
14	Stylianos	Rallis	SECRETARY GENERAL	SECRETARIAT GENERAL FOR DIGITAL POLICY		EL
15	Mario	Buisán	Director General of Industry and SMEs	Ministry of Economy, Industry and Competitiveness	Industria Conectada 4.0	ES
16	Emilio	Lora-Tamayo D'Ocón	President of CSIC, Chair of the ECSEL JU evaluation panel	CSIC		ES
17	Julien	Tognola	Directeur	Service de l'Industrie, Directorate-General for Enterprise, Ministry for Economy, Industry and Digital	Alliance pour l'industrie du futur	FR
18	Mario	Antonić	State Secretary	Ministry of Economy, Labour and Entrepreneurship		HR
19	Antal	Nikodémus	Head of Department	Ministry For National Economy	IPAR4.0 Platform	HU
20	József	Váncza	Head of Engineering and Management Intelligence Research Laboratory	Institute for Computer Science and Control	IPAR4.0 Platform	HU
21	Stefano	Firpo	Director General for Industrial policy, competitiveness and SMEs / Direttore Generale per la politica industriale, la competitività e le PMI	Ministry of Economic Development / Ministero dello Sviluppo Economico	Piano Industria 4.0	IT
22	Giulio	Pedrollo	CEO Pedrollo Spa, Steering Committee Industria 4.0	È amministratore unico della Linz Electric Spa e amministratore delegato dell'azienda Pedrollo Spa	Piano Industria 4.0	IT
23	Vaidas	Gricius	Director of Industry and trade department (Industry and Trade)	Ministry of Economy	Pramone 4.0	LT
24	Gintaras	Rimša	Vice-President LINPRA, Member of government initiative group of Lithuanian national platform Industry4.0	Engineering Industries Association of Lithuania (LINPRA)	Pramone 4.0	LT
25	Mario	Grotz	Director General	Ministry of Economy	D4I	LU
26	René	Winkin	Director General	Luxembourg Business Federation (FEDIL)	D4I	LU
27	J.B.M.	Heijs	Manager	MT Directorate for Top Sectors &	smart industry	NL

	(Jeroen)			Industrial Policy, Ministry of Economic Affairs		
28	Justyna	Romanowska	Deputy Director, Department of Telecommunications	Ministry of Digital Affairs	Smart4.0PL	PL
29	Andrzej	Soldaty	Ministry of Economic Development	Founder of "Initiative for Polish Industry 4.0"	Smart4.0PL	PL
30	Jan	Stanilko	Deputy Director, Department of Innovations	Ministry of Economic Development	Smart4.0PL	PL
31	Ana	Lehmann	Secretary of State for Industry	Portuguese Government, Ministry of Economy	Industria 4.0	PT
32	Pedro	Matias	president of ISQ, member of strategic committee of industry 4.0 in Portugal	president of ISQ, member of strategic committee of industry 4.0 in Portugal	Industria 4.0	PT
33	Lars-Henrik	Jörnving	Vice President, Head of Global Industrial Development (Scania) and Member of the Innovation Partnership Program Connected Industry and New Materials	Scania	IPP	SE
34	Christina	Nordin	Director-General, Department for Business, Competitive and Agriculture	Ministry of Enterprise and Innovation	Smart industry	SE

## PPP representatives

#	FIRST NAME	LAST NAME	POSITION	REPRESENTING	Association
1	Xavier	Aertsens	Director	ERTRAC	ERTRAC
2	Josef	Affenzeller	Secretary General	EGVI	EGVI
3	Lucie	Beaumel	Head of Office	EGVIA	EGVI
4	Jean-Pierre	Bienaime	Secretary General	5G PPP	5G
5	Paul	Cartuyvels	President	ECTP platform	EeB
6	Andrea	Cuomo	Chairman	ECSEL Governing Board	ECSEL
7	Pierre-Yves	Danet	Head of Collaborative Research - Europe(DIO/DPR)	Orange Labs	NEM
8	Bert	De Colvenaer	executive director	ECSEL	ECSEL
9	Hugo	Falter	member of the ETP4HPC board, Chief Operating Officer (Executive Management)	ETP4HPC Association (The European Technology Platform for High Performance Computing), ParTec Cluster Competence Center	HPC
10	Maurizio	Gattiglio	Chairman	EFFRA	FoF - EFFRA
11	Daniel	Gauthier	President	Sustainable Process Industries (SPIRE)	
12	Laila	Gide	Director Advanced Studies Europe - Chair of ECSEL PB and of ARTEMIS IA	THALES	ECSEL
13	Reinhard	Lafrenz	Secretary-General	euRobotics aisbl	SPARC
14	Jean-Dominique	Meunier	President	NEM (New European Media)	NEM
15	Stephan	Neugebauer	Chairman of EGVI and ERTRAC	EGVI-ERTRAC	EGVI
16	Angels	Orduna		SPIRE	

17	Željko	Pazin	Executive Director	European Factories of the Future Research Association - EFFRA	FoF - EFFRA
18	Luigi	Rebuffi	Secretary General	ECSO - European Cyber Security Organisation	CyberSecurity
19	Hugo	Thienpont	Vice-President Photonics21	Photonics21	Photonics 21
20	Kees	van der Klauw	Chair of AIOTI Management Board, Head of Research PHILIPS Lighting	Philips Lighting	AIOTI
21	Markus	Wilkens	General Secretary of Photonics21	ETP Photonics21 / Photonics PPP Secretariat (c/o VDI Technologiezentrum GmbH)	photonics21

## Representatives of Business, Industry and Union Associations

#	FIRST NAME	LAST NAME	POSITION	REPRESENTING	From
1	Jiří	Holoubek	Member of the Board of Confederation of Industry of the Czech Republic and President of Electrotechnical Association of the Czech Republic	Confederation of Industry of the Czech Republic (CzechInno)	CZ
2	Tereza	Šamanová	Digital Economy Manager at the Confederation of Industry of the Czech Republic and Executive Director of CzechInno Association	Confederation of Industry of the Czech Republic and CzechInno	CZ
3	Oliver	Blank	Director European Affairs	ZVEI- German Electrical and Electronic Manufacturers Association	DE
4	Carolin-Charlotte	Kosel	Head of Unit Digital Economy and Society	ZDH (Brussels office)	DE
5	Karin	Rögge	Managing Director of ZDH's European Affairs Division in Brussels	ZDH - Zentralverband des Deutschen Handwerks	DE
6	Cecilia	Bonefeld-Dahl	Director General	Digital Europe	EU
7	Luis Angel	Colunga	Deputy General Secretary	industriAll European Trade Union	EU
8	Uwe	Combüchen	Director General	CEEMET	EU
9	Adrian	Harris	Director General	ORGALIME (European Engineering Industries Association)	EU
10	Malte	Lohan	Director General designate	ORGALIME (European Engineering Industries Association)	EU
11	Sebastiano	Toffaletti	Secretary General	European DIGITAL SME Alliance	EU
12	Laurent	Zibell	Policy Adviser - ICT, technology, innovation (Industrial Policy)	IndustriAll European Trade Union	EU
13	Jean-Marie	Danjou	General Manager	Cercle de l'Industrie	FR
14	Gabriel	Ranaivoson		Cercle de l'Industrie	FR
15	Andrea	Bianchi	Managing Director	Confindustria	IT
16	Cinzia	Guido	Senior Policy adviser (EU)	Confindustria	IT

			Delegation)		
17	Luigi	Perissich	General Counselor for Innovation and Industry Digitization (Italian technology Platform Future of Internet)	Confederazione Generale dell'Industria Italiana (Confindustria) Servizi Innovativi e Tecnologici	IT
18	Jorge	Portugal	Diretor-Geral	COTEC Portugal - Associação Empresarial para a Inovação	PT

## Observers

#	FIRST NAME	LAST NAME	POSITION	REPRESENTING	From
1	Jan	Larosse	Independent Adviser	Vanguard Initiatives Consult&Creation	BE
2	Carmen Lucia	Constantinescu	Prof. Dr.-Ing., MBA	Fraunhofer Institute for Industrial Engineering - FhG IAO	DE
3	Sibylle	Gabler	Head of Government Relations	DIN e. V.	DE
4	Jan	Jürjens	Professor and Director Research Projects(Compliance Innovation Lab)	Fraunhofer ISST	DE
5	Dennis	Kolberg	Head of Research at the department of Innovative Factory Systems	German Research Center for Artificial Intelligence (DFKI)	DE
6	Julia	Schmalenberg	Senior Policy Advisor	Fraunhofer-Gesellschaft	DE
7	Daniel	Wentzlaff	referent - KMU, Cluster- und Industriepolitik, Digitale Agenda, Energie, Tourismus und Standortmarketing	Sachsen Anhalt	DE
8	Christoph	Winterhalter	Chairman of the Executive Board	DIN	DE
9	Detlef	Zühlke	Scientific Director, Innovative Factory Systems (IFS)	German Research Center for AI	DE
10	Oscar	Lazaro	Managing Director	ICT Unit (Innovalia Association)	ES
11	Ashok	Ganesh	Director Innovation	CEN & CENELEC	EU
12	Bjorn-Soren	Gigler	Innovation Finance Advisory Services		EU
13	Luis Jorge	Romero Saro	Director General	ETSI	EU

14	Bernhard	Thies	CENELEC President	CELENEC	EU
15	Arnold	Verbeek	Innovation Finance Advisory Services		EU
16	Petri	Liuha	Action Line Leader	EIT Digital	FI
17	Bertrand	Deprez	Vice-President	Schneider Electric	FR
18	Valerie	Ferret	Public Affairs and sustainability director	Dassault Systèmes	FR
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21	Christophe	Leroux	Manager European Affairs	Interactive Robotics Laboratory	FR
22	Ivan	Meseguer	Research and Innovation Direction	Institut Mines-Telecom	FR
23	Jean-Noel	Patillon	Scientific Director	CEA-LIST	FR
24	Eszter	Krahl	International Director	Digitális Jólét Nonprofit Kft.	HU
25	Michael	Sharpe	Director	MS Consulting & Research Ltd	UK
26	Haydn	Thompson	Managing Director	THHINK Group/Haydn Consulting	UK

## Other Representatives from Ministries and National Initiatives (order by country)

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5	Daniela	Schmidova	EU policies official (Department of Sector Expertise and Industrial Policy)	Ministry of Industry and Trade of the Czech Republic	Průmysl 4.0	CZ
6	Markus	Dicks	Referent Key Technologies	Federal Ministry of Education and Research		DE
7	Carsten	Dippel	Deputy Head of Unit "Industrie 4.0"(Industry)	German Federal Ministry for Economic Affairs and Energy	Plattform Industrie 4.0	DE
8	Thomas	Hahn	Senior Expert Industrie 4.0, Chief Expert	Siemens AG	Plattform Industrie 4.0	DE

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10	Anu	Kull		Ministry of Economic Affairs and Communication		EE
11	Georgios	Drosos	Head of New Technologies and Business Applications Dept , Business Innovation and New Technologies Directorate , General Secretariat of Industry	Ministry of Economy and Development / General Secretariat for Industry		EL
12	Leda	Karabela	SPECIAL ADVISOR TO SECRETARY GENERAL FOR DIGITAL POLICY	MINISTRY FOR DIGITAL POLICY, TELECOMMUNICATIO AND MEDIA-GR		EL
13	Fernando	Valdés Verelst	Deputy Director Industry Digitization and Collaborative enviroments - Subdirector General de Entorno Institucional y Programas de Innovación para la PYME	DG Industry and SME - Spanish Ministry of Economy, Industry and Competitiveness - Dirección General de Industria y de la Pequeña y Mediana Empresa	Industria Conectada 4.0	ES
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16	David	Servat		Ministère de l'économie et des finances, Direction Générale des Entreprises (DGE)		FR
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					future (DIGIMP 2020-Industry4Future)	
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20	Karen	Hynes	Principal Officer	Department of Business Enterprise and Innovation		IR
21	Antonello	Lapalorcia	Director	Ministero dello Sviluppo Economico	Piano Industria 4.0	IT
22	Marco	Taisch	Full Professor	Politecnico di Milano	Piano Industria 4.0	IT
23	Donata	Gustaite	Attache for Economic Affairs	Permanent Representation of Lithuania to the EU	Pramone 4.0	LT
24	Gintaras	Morkis	Chief Representative in International Organizations	Lithuanian Confederation of Industrialists (LPK)		LT
25	Gintaras	Vilda	Director	Engineering Industries Association of Lithuania (LINPRA)	Pramone 4.0	LT
26	Gabriel	Crean	Strategic Advisor to Deputy Prime Minister and Minister of the Economy	Ministry of Economy	D4I	LU
27	Stéphanie	Schmitz	Adviser, Head of Fedil Brussels office & Permanent Delegate to BusinessEurope	The Voice of Luxembourg's Industry (FEDIL)	D4I	LU
28	Celmins	Rinalds		permanent representation LV		LV
29	Johann	Caruana	Head, Incentives Design and Implementation	Malta Enterprise		MT
30	Casper	Garos	Head of Public-Private Partnerships	Philips		NL

31	Henk	Gritter	Policy Officer(Department of Industrial Policy & Top Sectors)	Ministry of Economic Affairs		NL
32	Egbert-Jan	Sol	Program mgr Smart Industry/CTO TNO Industry	TNO/Smart Industry	smart industry	NL
33	Martyna	Perek	First Secretary / Attache (Economic and Trade Section)	Permanent Representation of Poland to the EU		PL
34	Ana	Costa Paula	Head of Unit	Ministry of Economy, Directorate-General for Economic Activities		PT
35	Jose	Sequeira	Special Adviser	Portuguese Government, Ministry of Economy	Industria 4.0	PT
36	Cosmina	Miu	Minister Counselor, Industry, Public Procurement	permanent representation of Romania In EU		RO
37	Emilie	Anér		Ministry of Enterprise and Innovation	Smart industry	SE

## Annex 2: Further References

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