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BRATISLAVA AGENDA

A call for a European Industrial Revolution
to Re-industrialise Europe

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A. Call for European Industrial Revolution

Global industry is changing faster than ever before. These changes are triggered by accelerating fusion of physical, digital and biological systems. The changes are characterised by a staggering confluence of breakthroughs in emerging technology covering fields including artificial intelligence, the Internet of Things, big data, cloud computing, robotics, autonomous vehicles, additive manufacturing, nanotechnology, biotechnology, materials science, energy storage and quantum computing. We are already witnessing profound shifts across all industries in other world regions, marked by the emergence of new business models, the disruption of incumbents and the reshaping of production, consumption, transportation and delivery systems.

Europe is at a crossroads: it will either catch up with other regions and embrace these changes, or spiral down, losing its industrial competitiveness, losing “earning power” to safeguard living standards, accumulating job losses and experiencing social instability.

The Bratislava conference therefore calls on all stakeholders to recognise that Europe is at a turning point. The conference calls for European Industrial Revolution that will bring nothing less than a fundamental paradigm-shifting transformation of the way we live, work and relate to one another. This revolution will help re-industrialising Europe and reinstate the Europe’s industrial power in the globalised world economy.

B. Key Pillars of Re-industrialising Europe

The process established by the 2016 Dutch and Slovak Presidencies of the Council of the European Union asserts the following key pillars of Reindustrialising Europe:

1. Focusing on distinctive European innovations, including disruptive innovations;
2. Fostering talent and skills for innovation;
3. Bridging the innovation divide in Europe;
4. Developing a common ecosystem for re-industrialising Europe;
5. Improving quality of life, protection of human health and the environment.

The Dutch and Slovak Presidencies invite future presidencies to review the progress achieved towards these objectives and adopt new measures for their delivery to keep the process dynamic, vital and relentless in pursuit of the desirable results.



C. Measures for delivering the key pillars of Re-industrialising Europe

1. Commercialising distinctive and market-disruptive innovations

We need to bring distinctive European innovations to the market that would have a market-disruptive effect and give European industry a competitive advantage, thus reinstating the global competitiveness of Europe. This includes reaping the benefits of the 4th industrial revolution, digitisation, smart technologies, new materials and business models.

This needs to be underpinned by research and innovation-friendly framework conditions, including better access to finance. Boosting investors' confidence in Europe as a manufacturing site is essential.

The accelerating pace of technological change does not necessarily match the rate at which legislation is being developed or updated. Regulation should anticipate future developments and be innovation friendly. The "Innovation Principle" will be crucial in prioritising regulatory and policy actions while it shall not prejudice the "Precautionary Principle". In addition, a permanent dialogue and knowledge sharing between innovators and regulators is essential for rapid adjustments to the regulatory system.

Therefore, reiterating the conclusions from Amsterdam, the Bratislava conference calls on:

1.1. Industry and Member States to:

- a) Work together to reduce the technological risks of upscaling, and therefore to render investments less risky and more attractive. It is important to link financing communities in such a way that private investors are confident to finance up-scaling and commercialising innovations across the 'valley of death'; and to improve coherence and synergies between funding instruments at regional, national and EU levels.
- b) Develop convincing storyline for industrial technologies as driver for European wealth for public debate – "What is in for Europe?".
- c) Use value chain concept as possible approach to bridge the innovation divide in Europe.
- d) Pursue integration of ICT, artificial intelligence, smart sensors and mechanical engineering in developing innovations.
- e) Promote dialogue at all floors: especially for societal acceptance of technologies and engagement of regulatory bodies.
- f) Strive for strategic alignment and innovation acceptance by communicating benefits of having European industry.

1.2. Member States to adopt the principle of "smart" regulation and its approach towards stakeholders in national legislative processes.

1.3. The European Commission to:

- a) Complete the Internal Market in all sectors by 2018 to avoid fragmentation that could be triggered by expanding digitisation of the economy that would exacerbate the Internal Market deficiencies.
- b) Reflect the five pillars of Reindustrialising Europe in the mid-term review of Horizon 2020, including reinforcing the fast-track-to-innovation instrument.
- c) Take a proactive approach in revising legislation that may impact the transformation of industry by the European Industrial Revolution using the REFIT platform and its approach to collaboration with stakeholders.
- d) Support coordinated standardisation to prevent fragmentation and confusion in the industry and on the market. This should also prevent barriers to competition on the market that could hinder take up of innovations linked to the European Industrial Revolution.
- e) Focus in innovation programmes at higher Technology Readiness Level also on private-public risk-sharing.

2. Fostering talent and skills for innovations

In the future, talent, more than capital, will represent the critical factor of production.

The competitive industrial skills and capabilities must be built up in both the upcoming and existing workforce. We have to ensure that all Europeans possess basic digital skills and that Europe continues to be attractive to talent. This means excellent multidisciplinary knowledge-based and technical skills in STEM, but also new business and innovation skills and soft skills, such as creativity, entrepreneurial and social skills.

Retention and/or attracting new talents from other world regions requires building up an ecosystem producing opportunities for creative and long-term careers in science, technology and engineering, as well as Europe-wide competitive remuneration packages, irrespective of the country of residence.

Empowerment and ownership by the entire society is needed to create a new and open innovation culture. Moreover, seizing the opportunities of advanced industrial technologies requires new skills. The skills need in the era of the 4th industrial revolution are also changing at an accelerated rate. This is why the continuing education and training will play a more and more important role in matching the skill requirements with labour markets that will experience major disrupting effects of the industrial revolution.

The World Economic Forum recently addressed various aspects of the 4th industrial revolution and recognised the Build Up Skills platform as best practice in the construction sector's efforts to bridge the skills gaps creating barriers in market uptake of key innovations (the platform aims at skills and knowledge of energy efficiency and the use of renewable energy sources in buildings). This platform has shown a model approach towards building robust continuing education and training schemes that would provide the critical skills for innovations in a quickly changing industrial environment.

Therefore, reiterating the conclusions from Amsterdam, the Bratislava conference calls on:

- 2.1. **Industry** to recognise the role of talent in the development and success of their enterprise and adopt talent-centred strategies aimed at commercialisation of distinctive European market-disruptive innovations. These innovations anticipate fostering talent and require creative long-term career opportunities in research, technology and engineering.

2.2. **Member States** to support, including through structural funding, development and operation of continuing education and training schemes that needs to follow the speed of innovation and will be critical for the success of local industries. Close dialogue and partnership between industry and education providers is essential.

2.3. **The European Commission** to:

- a) Develop in cooperation with Member States a strategy for development of talents, their retention in Europe and attracting talents (without age and gender discrimination) from other world regions to resettle to the European Union, and reflect this strategy in the Horizon 2020 rules, including Europe-wide competitive remuneration packages, irrespective of the country of residence and work. This strategy should prevent competition among Member States in attracting new talents and the brain drain inside the EU.
- b) Reinforce the Build Up Skills platform within Horizon 2020 and replicate it in other areas of innovation to deliver on the critical skills needed for the European Industrial Revolution.

3. Bridging the innovation divide in Europe

As the 2016 European Innovation Scoreboard shows, there is an innovation divide across Europe. The analysis also shows that this divide persists over time. The imminent industrial revolution, specifically smart technologies and digitisation, has the intrinsic potential to widen this divide. The accelerating market uptake of innovations will, therefore, challenge the cohesion of Europe.

Moreover, an evolutionary approach with quantitative measures are not enough to facilitate any further convergence between the innovation leaders and “moderate”/“modest” innovators.

Less innovative regions invest in less state-of-the-art research and see fewer ground-breaking innovations translating into quality of life improvements, with the result that these regions lag even further behind. This would even more disrupt the cohesion of Europe even more and bring social tension between regions and/or Member State.

This is why it is critical to close the innovation divide within Europe.

On the other side, as stressed at the World Economic Forum, the introduction of new key enabling technologies creates entirely new ways of serving existing needs and substantially disrupt existing industry value chains. Disruption can potentially come from agile, innovative competitors from “moderate” and “modest” innovator Members States, as we experienced in several, though isolated, cases in the last two decades. Competitors that are able to leap-frog technological and product innovations can oust well established incumbents faster than ever by improving the quality, speed, or price at which value is delivered, thanks to access to global digital platforms for research, development, marketing, sale, and distribution.

These innovators are also more capable of responding to major shifts on the demand side, as growing transparency, consumer engagement, and new patterns of consumer behaviour (increasingly built upon access to mobile networks and data) force companies to adapt the way they design, market and deliver products and services.

In this way, the 4th industrial revolution provides opportunity for “moderate” and “modest” innovators to leap-frog the development path by adopting the newest smart technologies and reaping the benefits of digitisation.

Therefore, the Bratislava conference calls on:

3.1. Industry to:

- a) Recognise and exploit the opportunities for “moderate” and “modest” innovators to adopt the newest smart technologies, state-of-the-art materials and other benefits of the 4th industrial revolution in catching up with innovation leaders.
- b) Facilitate participation of operators from “moderate” and “modest” innovator Member States in PPPs under Horizon 2020 through time-limited measures and facilitating membership conditions.
- c) Increase R&D expenditures and valorise the results of the research and innovation results accumulated in Europe.

3.2. Member States and the European Commission to:

- a) Work together on swiftly building up the stimulating ecosystem and time-limited measures to facilitate growth of agile companies that would create a critical mass for bridging the innovation divide.
- b) Review the impact of “smart” specialisation on boosting innovation activities and increasing participation of operators from the “moderate” and “modest” innovator Member States in the European research and innovation programmes such as Horizon 2020 and adopt corrective measures if necessary.

3.3. The European Commission to:

- a) Boost participation of research and industry from the “moderate” and “modest” innovator Member States in Horizon 2020, including PPPs, through a set of time-limited measures based on excellence.
- b) Boost participation of industry from the “modest” and “moderate” innovator Member States with time-limited measures based on excellence in the specific tools of Horizon 2020 such as SME Instrument and Fast Track to Innovation that have produced so far only minimal or no participation from the “moderate” and “modest” innovator Member States.

4. Creating the common ecosystem for Re-industrialising Europe

The latest Global Innovation Index shows that Europe dominates the chart of most innovative countries. The list of 10 most innovative countries is populated by 7 EU Member States: the EU innovation leaders. However, the examples of innovation excellence and strong growth based on cutting edge innovations in vital and powerful European “silicon valleys” did not spill over to other regions to strengthen the innovative potential and robust equable growth of the whole Europe.

To valorise this innovative potential and replicate the success in other corners of Europe, Europe needs to build up a vital and versatile ecosystem that will be able to underpin the qualitative changes the European industry needs to undergo to regain global competitiveness and assume the leadership in the global environment.

There will be no one-size-fits-all solution, but a “common” ecosystem should steer towards increasing the cohesion of Europe and force convergence among the groups of “innovation leaders”, “innovation followers”, the “moderate –”and “modest innovators”. Europe must review all components of the existing ecosystems, their efficiency and effectiveness. This is essential to developing the ecosystem that will facilitate the European Industrial Revolution and will challenge the effectiveness and efficiency of all revamped components and new constituents that need to work in concert to motivate desirable actions of all stakeholders.

This ecosystem should be built up by new forms of collaboration, novel system approaches, as well as revamped existing building blocks that have shown potential in triggering innovations and their commercialisation, for example centres of competence and innovation hubs focused on advanced technologies.

Therefore, the Bratislava conference calls on:

4.1. Industry to:

- a) Embrace the vision of open innovation, open science and openness to the world.
- b) Form European and Regional innovation partnerships around European distinctive innovations and value chains.

4.2. The European Commission and Member States to:

- a) Revamp European technology platforms under strong industrial leadership, including national mirror platforms.
- b) Incubate European and Regional innovation partnerships in industry formed around the key enabling technologies.
- c) Provide support to knowledge and innovation communities (KICs) and their cooperation with PPPs.
- d) Support setting-up technology-enabled platforms that combine both demand and supply (prosumers platforms) to underpin market disruptive innovations.
- e) Promote innovative financing for bringing innovations to the market.
- f) Use the possibilities in EU legislation to waive obligations for SMEs.
- g) Support ecosystem focus on all sizes of companies, having in mind the characteristics of industrial technology sector.

4.3. The European Commission to:

- a) Adopt corporate law for establishing a European SME that would facilitate cross-border growth of SMEs in Europe.
- b) Reduce data requirements for SMEs resulting from the EU laws where the objectives of the regulatory intervention in the public interest have been achieved to allow re-allocation of resources to the innovative process.
- c) Urgently increase the capacity of the SME Instrument of Horizon 2020 that proved to be very successful and increase the percentage of funded projects that reached an already high threshold in the evaluation process.

- d) Consider including support for start-ups in the SME Instrument, as they have important potential in absorbing the new capabilities brought in by the European Industrial Revolution.
- e) Facilitate more integration and synergy among different Horizon 2020 programmes and instruments, for example, by creating EU exchange platforms for interaction between projects, sharing know-how, information and results.
- f) Position and adjust “high financial volume” public programmes into overall complementary concept across “Valley of Death” concept.

5. Improving quality of life, protection of human health and the environment

The Re-industrialisation of Europe and the European Industrial Revolution would be futile if the new growth and regained global competitiveness did not improve the quality of life of all citizens of Europe, and improve the level of protection of human health and the environment. The benefits to our life, health and the environment need to be safeguarded and new attractive benefits should be the measure of the Europe's success.

The global competitiveness of the EU and the European ambition of becoming the leading industrial block are not absolute goals. These are tools and ways for the EU to improve quality of life of its citizens and for delivering on objectives of the European area of freedom, security and justice. The new industrial agenda and innovations brought in by the European Industrial Revolution should bring solutions to societal concerns and challenges and should not develop new ones in respect of quality of life, protection of human health and the environment.

Therefore, the Bratislava conference calls on:

5.1. **All stakeholders** to recognise that the societal challenges of today are the markets of tomorrow and to act in facilitating and stimulating this transformation, with jointly defined goals and timelines.

5.2. **The European Commission** to:

- a) Reinforce support to areas bringing multiple benefits to society such as energy efficiency and use of renewable energy sources in buildings (accounting for 32% of the EU's final energy consumption, 35% of EU's greenhouse gas emissions and over 50% of all extracted materials) that bring not only growth and jobs, but also help to reduce dependence on imported energy and assist in meeting EU2020 and EU2030 objectives for reducing CO₂ and increasing the share of renewables in the EU's energy mix.
- b) Refocus coordination and support actions (CSA) from overall concepts and strategies to bringing concrete solutions facilitating market up-take of innovations such as, for example, intelligent energy solutions.
- c) Promote research and innovation programmes in Europe focused on the breakthroughs that have potential to de-carbonise the European economy such as production of alternative, non-carbon based fuels, increased efficiency of artificial photosynthesis and other strategies.

D. Roadmap

NUMBER OF THE MEASURE	PROPOSED MEASURE	Actors			TIMELINE FOR ACTION
		Industry	Member States	European Commission	
1.1 a)	Work together to reduce the technological risks of upscaling, and therefore to render investments less risky and more attractive. It is important to link financing communities in such a way that private investors are confident to finance up-scaling and commercialising the innovations across the valley of death, and to improve coherence and synergies between funding instruments at regional, national and EU level.	X	X		2016-2020
1.1 b)	Develop convincing storyline for industrial technologies as driver for European wealth for public debate – “What is in for Europe?”.	X	X		2016-2017
1.1 c)	Use value chain concept as possible approach to bridge the innovation divide in Europe.	X			2016-2020
1.1 d)	Pursue integration of ICT, artificial intelligence, smart sensors and mechanical engineering in developing innovations.	X			2016-2020
1.1 e)	Promote dialogue at all floors: especially for societal acceptance of technologies and engagement of regulatory bodies.	X	X		2016-2017
1.1 f)	Strive for strategic alignment and innovation acceptance by communicating benefits of having European industry.	X	X		2016-2017
1.2	Adopt the principle of “smart” regulation and its approach towards stakeholders in national legislative processes		X		2016-2017
1.3 a)	Complete the Internal Market in all sectors by 2018 to avoid fragmentation that could be triggered by expanding digitisation of the economy that would exacerbate the Internal Market deficiencies.			X	2018
1.3 b)	Reflect the five pillars of Reindustrialising Europe in the mid-term review of Horizon 2020, including reinforcing the fast-track-to-innovation instrument.			X	2016
1.3 c)	Take a proactive approach in revising legislation that may impact the transformation of industry by the European Industrial Revolution using the REFIT platform and its approach to collaboration with stakeholders.			X	2016-2018
1.3 d)	Support coordinated standardisation to prevent fragmentation and confusion in the industry and on the market. This should also prevent barriers to competition on the market that could hinder take up of innovations linked to the European Industrial Revolution.			X	2016-2020

NUMBER OF THE MEASURE	PROPOSED MEASURE	Actors			TIMELINE FOR ACTION
		Industry	Member States	European Commission	
1.3 e)	Focus in innovation programme also on private-public risk-sharing rather than currently used funds at higher TRL (Technology Readiness Level).			X	2018-2020
2.1	Recognise the role of talent in the development and success of their enterprise and adopt talent-centred strategies aimed at commercialisation of distinctive European market-disruptive innovations. These innovations anticipate fostering talent and require creative long-term career opportunities in research, technology and engineering.	X			2016
2.2	Support, including through structural funding, development and operation of continuing education and training schemes that needs to follow the speed of innovation and will be critical for the success of local industries. Close dialogue and partnership between industry and education providers is essential.		X		2017-2020
2.3 a)	Develop in cooperation with Member States a strategy for development of talents, their retention in Europe and attracting talents (without age and gender discrimination) from other world regions to resettle to the European Union, and reflect this strategy in the Horizon 2020 rules, including Europe-wide competitive remuneration packages, irrespective of the country of residence and work. This strategy should prevent competition among Member States in attracting new talents and the brain drain inside the EU.		X	X	2017
2.3 b)	Reinforce the Build Up Skills platform within Horizon 2020 and replicate it in other areas of innovation to deliver on the critical skills needed for the European Industrial Revolution.			X	2017
3.1 a)	Recognise and exploit the opportunities for "moderate" and "modest" innovators to adopt the newest smart technologies, state-of-the-art materials and other benefits of the 4 th industrial revolution in catching up with innovation leaders.	X			2016-2017
3.1 b)	Facilitate participation of operators from "moderate" and "modest" innovator Member States in PPPs under Horizon 2020 through time-limited measures and facilitating membership conditions.	X			2017-2018
3.1 c)	Increase R&D expenditures and valorise the results of the research and innovation results accumulated in Europe.	X			2017-2018
3.2 a)	Work together on swiftly building up the stimulating ecosystem and time-limited measures to facilitate growth of agile companies that would create a critical mass for bridging the innovation divide.		X	X	2017-2020

NUMBER OF THE MEASURE	PROPOSED MEASURE	Actors			TIMELINE FOR ACTION
		Industry	Member States	European Commission	
3.2 b)	Review the impact of "smart" specialisation on boosting innovation activities and increasing participation of operators from the "moderate" and "modest" innovator Member States in the European research and innovation programmes such as Horizon 2020 and adopt corrective measures if necessary.		X	X	2017
3.3 a)	Boost participation of research and industry from the "moderate" and "modest" innovator Member States in Horizon 2020, including PPPs, through a set of time-limited measures based on excellence.			X	2016-2020
3.3 b)	Boost participation of industry from the "modest" and "moderate" innovator Member States with time-limited measures based on excellence in the specific tools of Horizon 2020 such as SME Instrument and Fast Track to Innovation that have produced so far only minimal or no participation from the "moderate" and "modest" innovator Member States.			X	2016-2020
4.1 a)	Embrace the vision of open innovation, open science and openness to the world.	X			2017-2020
4.1 b)	Form European and Regional innovation partnerships around European distinctive innovations and value chains.	X			2017-2018
4.2 a)	Revamp European technology platforms under strong industrial leadership, including national mirror platforms.		X	X	2017-2018
4.2 b)	Incubate European and Regional innovation partnerships in industry formed around the key enabling technologies.		X	X	2018-2020
4.2 c)	Provide support to knowledge and innovation communities (KICs) and their cooperation with PPPs.		X	X	2017-2018
4.2 d)	Support setting-up technology-enabled platforms that combine both demand and supply (prosumers platforms) to underpin market disruptive innovations.		X	X	2017-2018
4.2 e)	Promote innovative financing for bringing innovations to the market.		X	X	2017-2020
4.2 f)	Use the possibilities in EU legislation to waive obligations for SMEs.		X	X	2017
4.2 g)	Support ecosystem focus on all sizes of companies, having in mind the characteristics of industrial technology sector.		X	X	2016-2018
4.3 a)	Adopt corporate law for establishing a European SME that would facilitate cross-border growth of SMEs in Europe.			X	2017-2018

NUMBER OF THE MEASURE	PROPOSED MEASURE	Actors			TIMELINE FOR ACTION
		Industry	Member States	European Commission	
4.3 b)	Reduce data requirements for SMEs resulting from the EU laws where the objectives of the regulatory intervention in the public interest have been achieved to allow re-allocation of resources to the innovative process.			X	2016-2017
4.3 c)	Urgently increase the capacity of the SME Instrument of Horizon 2020 that proved to be very successful and increase the percentage of funded projects that reached an already high threshold in the evaluation process.			X	2016-2017
4.3 d)	Consider including support for start-ups in the SME Instrument, as they have important potential in absorbing the new capabilities brought in by the European Industrial Revolution.			X	2016-2017
4.3 e)	Facilitate more integration and synergy among different Horizon 2020 programmes and instruments, for example, by creating EU exchange platforms for interaction between projects, sharing know-how, information and results.			X	2018-2020
4.3 f)	Position and adjust "high financial volume" public programmes into overall complementary concept across 'valley of death' concept.			X	2018-2020
5.1	Recognise that the societal challenges of today are the markets of tomorrow and to act in facilitating and stimulating this transformation, with jointly defined goals and timelines.	X	X	X	2016-2020
5.2 a)	Reinforce support to areas bringing multiple benefits to society such as energy efficiency and use of renewable energy sources in buildings (accounting for 32% of the EU's final energy consumption, 35% of EU's greenhouse gas emissions and over 50% of all extracted materials) that bring not only growth and jobs, but also help to reduce dependence on imported energy and assist in meeting EU2020 and EU2030 objectives for reducing CO2 and increasing the share of renewables in the EU's energy mix.			X	2017-2020
5.2 b)	Refocus coordination and support actions (CSA) from overall concepts and strategies to bringing concrete solutions facilitating market up-take of innovations such as, for example, intelligent energy solutions.			X	2016-2017
5.2 c)	Promote research and innovation programmes in Europe focused on the breakthroughs that have potential to decarbonise the European economy such as production of alternative, non-carbon based fuels, increased efficiency of artificial photosynthesis and other strategies.			X	2016-2020



 **MINISTRY
OF EDUCATION, SCIENCE,
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