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Committee on Innovation, Competitiveness and Public-Private Partnerships

Team of Specialists on Innovation and Competitiveness Policies

Eleventh session

Geneva, 1 – 2 November 2018

Report of the Team of Specialists on Innovation and Competitiveness Policies on its Eleventh session

I. Attendance

1. The Team of Specialists on Innovation and Competitiveness Policies held its eleventh session on 1–2 November 2018.
2. A total of 65 delegates participated in the session representing national government ministries and agencies, academic institutions, the private sector, non-governmental organisations and international organisations.
3. Representatives of the following UNECE member States attended: Armenia, Belarus, Cameroon, Georgia, Greece, Italy, Kazakhstan, Kyrgyzstan, Poland, Russian Federation, Sweden, Tajikistan, Ukraine, United Kingdom.
4. Representatives of the International Labour Organization, International Trade Centre, the United Nations Conference on Trade and Development, the United Nations Industrial Development Organization, The World Health Organization, the World Intellectual Property Organization participated in the session.
5. The following international organizations also attended: the World Economic Forum and the World Business Council on Sustainable Development.

II. Adoption of the agenda and election of officers (agenda item 1)

6. Mr Siarhei Shuba (Belarus), Vice Chair, opened the 11th session of the Team of Specialists on Innovation and Competitiveness Policies and welcomed the delegates. The

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Director of the Division of Economic Cooperation and Trade, Ms Ivonne Higuero, made introductory remarks and subsequently the Vice Chair proceeded to the election of officers.

7. Mr Ivan Bortnik (Russian Federation) completed two consecutive terms of office as the Chairperson of the Team of Specialists. Mr Hannes Leo (Austria), Ms Ivic Pavlovski (Croatia) and Mr Charles Wessner (United States) completed their terms of office as Vice-Chairpersons of the Team of Specialists. The Team thanked them for their service.

8. The Team elected the following Bureau members in accordance with the Guidelines on Procedures and Practices for ECE Bodies (E/ECE/1468, Annex III para.V.8. p. 18):

- Mr Salvatore Zecchini of Italy as Chairman of the Team of Specialists
- Mr Goran Marklund of Sweden as Vice-Chair of the Team of Specialists
- Ms Ani Vashakmadze of Georgia as Vice-Chair of the Team of Specialists

9. The term of office of newly elected officers begins at this session.

10. Mr Zecchini took his place as Chair of the session and the Team adopted its agenda as contained in document ECE/CECI/ICP/2018/1.

III. Substantive segment Part I (agenda item 2)

11. The substantive segment of the eleventh session of the Team of Specialists was devoted to an Applied Policy Seminar on “The Fourth Industrial Revolution – reshaping innovation policies for sustainable and inclusive growth”. It provided an opportunity for international knowledge sharing, exchanges of experience and policy learning in this area.

12. Under the substantive segment, policy makers and experts shared experiences from the ECE region in an interactive manner on the opportunities and challenges that the Fourth Industrial Revolution will pose for sustainable development. They discussed how industrial and innovation policies and institutions can contribute to harnessing its benefits and addressing its challenges and trade-offs, especially for the achievement of the Sustainable Development Goal 8 on “Decent Work and Economic Growth”.

13. As the World Bank recognizes, “economic growth has been the single most important instrument” for the decline in global poverty levels in the past 25 years. But not all countries have been equally successful at generating poverty-reducing growth, and income inequality has risen within some of the fast-growing countries. Moreover, it has become increasingly evident that economic growth based on current products and production processes cannot be sustained within planetary boundaries. The United Nations 2030 Agenda for Sustainable Development is now calling for Member States to pursue a different kind of growth, one that is socially inclusive and environmentally sustainable.

14. This ambitious pursuit takes place in a rapidly changing, uncertain economic environment. The concept of the Fourth Industrial Revolution or, Industry 4.0, has emerged over the past years to understand the potentially disruptive changes to the world economy and society at large that may be observed over the next decades. The driving force will be innovation, with new physical, digital and biological technologies that transform how we produce, consume, and interact and, ultimately, how we can meet the Sustainable Development Goals. These include technologies such as artificial intelligence, robotics, the Internet of Things, 3D printing, nanotechnology, and biotechnology.¹

¹ The World Economic Forum, “The Fourth Industrial Revolution: what it means, how to respond”, 2016.

15. The applied policy seminar was organised in 3 sessions:
 - Session 1 – The Fourth Industrial Revolution: perils and opportunities
 - Session 2 – Innovation policies for sustainable growth
 - Session 3 – Innovation Policies for inclusive growth
16. Professor Robert Wade of the London School of Economics and Political Science opened the seminar delivering a keynote speech.

Perils and Opportunities of the 4th Industrial Revolution

17. There was broad agreement that the 4th Industrial Revolution presents both opportunities and challenges. There was no agreement on whether the opportunities or the challenges dominate.
18. Depending on specific national institutional and even cultural circumstances, challenges might dominate in the short term, as workers, industrial sectors and perhaps entire economies struggle to adjust to the structural changes wrought by the 4th Industrial Revolution. However, in the longer term, the benefits of technological progress in terms of higher productivity and cleaner production processes would dominate and would be shared broadly.
19. At the same time, it was also argued that the short-term costs of the 4th Industrial Revolution, in particular rising unemployment and wealth inequalities, might undermine the basis for long-term sustainable development.
20. This being said, there was broad consensus that the future is not deterministic, and that appropriate government policies can influence the direction, speed and societal impact of innovation and technological progress, including the 4th Industrial Revolution.
21. Much of the debate centred on which policies have proven effective and can be recommended. This debate was wide-ranging and touched on many policy areas, including areas that are outside the realm of innovation policy proper, such as income redistribution through tax reform, or proposals for corporate governance reform.
22. The benefits that the 4th Industrial Revolution can bring at the global level and to countries ready to harness its opportunities are large. New business ideas and technologies promise transformative gains in efficiency and productivity. For example, 14.4 trillion dollars is the estimated value of the global Internet of Things market by 2022. The latter will be a primary economic driver—and likely the single largest contributor - to increase GDP in the decade ahead. In parallel, through improvements to operational efficiency and productivity, 84% of the Internet of Things deployments are also advancing the Sustainable Development Goals.
23. Economies in transition may be able to leapfrog to the latest technologies and standards, bypassing intermediate stages. Mobile telephony and banking, for instance, have supplanted the need to invest in cable networks and bank branches in many developing countries.
24. Artificial Intelligence has made possible to automate functions in established processes, value chains and operations; develop new business models, products, services and systems; transform value chains and sectors for new trajectories. A considerable increase of Artificial Intelligence applications in business, the public sector and society has not only a potential to improve the quality and efficiency in various operations, but also to increase growth and improve welfare.

25. Yet, ECE countries face many challenges to capture these benefits – potentially differing widely depending on level of development, location, and skills. Panellists broadly agreed that the potential perils of the 4th Industrial Revolution are two often related issues: the level and quality of employment, skills and education, and increasing inequalities in the distribution of income and wealth.

26. Innovation has always resulted in some occupations becoming obsolete, as old products and industries were being replaced by new ones. Industry 4.0, including robotics and automation, will certainly have this effect. Nevertheless, in the past, innovation has generally not led to sustained declines in aggregate employment, because new products, industries and occupations emerged as old ones were displaced.

27. In the past, the new jobs created through innovation tended to be in more productive sectors and therefore tended to pay better wages. Several panellists presented evidence that recently, much of the growth in employment in advanced countries has been in low-paying, precarious jobs with little social protection. To what extent these developments have been caused by innovation, as opposed to globalization or labour market de-regulation, is not always clear. For example, in Germany, unemployment has halved in the past 20 years, from 11 percent to 5 percent, private wealth has doubled, real wages have risen. Nonetheless, one million people are employed in temporary work without protection against dismissal, over 3 million have only temporary work contracts with only mild protections.

28. A related concern shared by many panellists was that the 4th Industrial Revolution risks to exacerbate existing trends towards rising unemployment and income and wealth inequality, both within and across countries, in part due to the growth in precarious employment. It was also argued, for instance, that rising inequality, by depressing aggregate demand, would undermine the incentives of businesses to invest, including in innovation, therefore rising inequality, rather than being the result of rapid innovation, may be a cause of slow or declining productivity growth. In this context, it is paramount to find other ways of sustaining demand and employment, raising public revenues and distributing income and wealth more equally.

29. When it comes to CIS countries, the region faces unique challenges, in particular related to the use of local content, indigenous knowledge and their small size. Local content policies can achieve economic and social objectives if adequately designed, implemented and used in conjunction with innovation strategies. The key areas of industrial policy in the CIS region should vary depending on the level and paces of countries' industrialization and their capabilities to develop various technologies and innovations.

Innovation policies for sustainable growth

30. The 4th Industrial Revolution has also the potential to increase energy and resource efficiency and hence protect the environment and reduce carbon emissions. It can be an enabler for the transition to a circular economy, and to more sustainable consumption and production patterns. Innovation is already driving the move to the circular economy. The circular economy business model is based on digital technologies- the internet of things, big data, blockchain; physical technologies – 3D printing, robotics, energy storage, nanotechnology; and biological technologies such as bio-energy, bio-based materials etc. New technologies, processes, services and business models are re-shaping product life cycles from design through production and usage on to disposal and recycling. Similarly, innovative forms of sustainable consumption, such as sharing platforms, are emerging in areas such as transport and housing.

31. Policies are now needed to speed up and implement the transition to more sustainable production patterns. The discussion highlighted the need of policies to

incentivize and adapt to new business models; the necessity of coordinated and multi-dimensional policies across departments and of adaptable policies able to take into account unforeseen outcomes. Policies need also to consider their impact on local communities.

32. Experience from the UK industrial policy strategy and the UK clean growth strategy to lower carbon emissions, underlined the need to encourage innovation, develop high quality jobs and support businesses to thrive and grow. A key part of the UK Industrial Strategy involves taking on grand challenges – society-changing opportunities and industries for the future, as well as building long-run partnerships with sector-specific deals between Government and the private sector.

33. Industries needs to be incentivized to shift to clean growth, through leading the world in the development, manufacture and use of low carbon technologies, systems and services that cost less than high carbon alternatives. The first Clean Growth Grand Challenge mission was announced by the UK Prime Minister in May 2018, with the aim of using new technologies to halve the energy use of new building by 2030.

34. Italy showcased its National Plan on Industry 4.0 and its expected benefits from smart factories and supply chain integration. Italy is embracing a logic of technological and sectoral neutrality, preferring fiscal measures and horizontal actions to case-by-case “calls for tender”. Innovative investments, skills, enabling infrastructures and public support instruments are the four pillars of the Italian response to Industry 4.0.

35. Yet, a key challenge remains the slow rate of diffusion of Industry 4.0 technologies among SMEs, and poor uptake of policy instruments. One key standing policy priority is the upgrading of technological skills in the labour force, as well as more vocational training. A survey from MiSE-MET showed that only 20% of small firms have investment planned on Industry 4.0.

36. How can capability-based innovation policy instruments support sustainable growth? Standardization is a widely recognized tool to advance environmental sustainability. An international Guiding Standard for Innovation Management has been developed in response to perceived importance of innovation among companies, while management of most companies express concerns that innovation performance is poor. Work on international standardization on Innovation Management Systems has been carried out by the International Organization for Standardization.² This sets the framework for senior management in companies to create an environment that is conducive to innovation performance and enables systemic innovation.

Innovation Policies for inclusive growth

37. Innovation and technological upgrading are the main means to achieve the targets of Sustainable Development Goal 8, particularly because they boost economic productivity, entrepreneurship and resource efficiency. Connectivity and digitization have also created new opportunities– they have empowered citizens; transformed work, created new business models and accelerated innovation. Vodafone for example has been successfully using technology as an enabler to leapfrog development and fight inequality for the achievement of the Sustainable Development Goals 4, 5 and 8. For example the Initiative Instant Schools for Africa developed with learning Equality, provide millions of young people in the Democratic Republic of Congo, Ghana, Lesotho, Mozambique and Tanzania with free access to online learning materials.

² ECE is working in developing standards in this area, in particular through UN/CEFACT work on the Use of Standards for Blockchain and a project on Standards and Use cases of Internet of Things.

38. Yet, not all countries have been equally successful at generating poverty-reducing growth, and income inequality has risen within some of the fast-growing countries. Challenges for transition economies might include a widening of technology and knowledge gaps and its implication on skills and rising inequalities.

39. In many European countries, involuntary temporary and involuntary part-time jobs have increased since the financial crisis, which is not always reflected in official employment rates. There is evidence of people being at increased risk of poverty. This is a challenge for the achievement of the Sustainable Development Goals, which involve eliminating poverty.

40. There was broad consensus that Governments have a key role to play in ensuring that innovation-driven growth will be inclusive. The main policy areas to be targeted are increased investments in education and infrastructure, and appropriate competition and regulatory policies.

41. Education and infrastructure are key determinants of the capabilities of economies and societies to innovate, and to innovate in an inclusive way. Competition and regulatory policies have a key role to play in ensuring that the benefits of innovation do not accrue to a select few but are broadly shared throughout society.

42. Education is critical to sustain and broaden the knowledge base of a society. Transforming capabilities requires a comprehensive learning strategy. A key driver of capability to innovate are educational attainment structures (primary-secondary-tertiary). Education and training policies face the dual role of developing capabilities to innovate and supply the skills and competences needed in firms, industries and economy (matching). This requires a comprehensive learning strategy which includes education and learning in schools, families, communities and workplace. Governments are challenged with promoting learning and coordinating with industrial, innovation and trade policies to translate Research and Development into innovation, diversification and good jobs.

43. Infrastructure, including in particular ICT infrastructure, is critical to ensure broad-based access across society to information, educational resources, social services, and economic opportunities.

44. For innovation to provide benefits in an inclusive way, policymakers need to adopt clear and feasible national innovation strategies with objectives to enhance digital infrastructure, strengthen the societal knowledge base, and design proper responses in areas of taxation, competition and data privacy.

45. The 4th Industrial Revolution will affect entire systems of production, management and governance. An integrated, flexible and comprehensive response involving a wide range of public and private stakeholders and policy areas, carefully coordinated among countries and regions in line with clear principles and practices, will be essential.

46. Governments have to tackle the issues not only in the industrial domain but also the societal challenges. Some of the means to achieve this that were highlighted in the discussion are:

- (a) to promote technology diffusion and adoption;
- (b) to tackle the variables on level of income and level of employment;
- (c) to trigger employment opportunities through public management;
- (d) to invest in training and skills development;
- (e) to cooperate with all stakeholders, among countries and within each country.

IV. Substantive Segment Part II (Agenda item 3)

A. Discussion of potential high-level innovation policy principles for sustainable development

47. Following and building on the discussion in the Substantive Segment Part I, the Team of Specialists reviewed the ideas in a concept note on potential ECE high-level principles for innovation policies and institutions (ECE/CECI/2018/INF.3), developed upon the request of delegates in the twelfth session of the Committee on Competitiveness, Innovation, and Public-Private Partnerships in March 2018. Drawing from expertise and experiences across the region, delegates explored the utility, content, and process for the development and adoption of potential high-level principles. They asked for a timetable to this process. They also stressed the importance to take the issue of diffusion of innovation into account in the structure.

48. The principles should particularly take into account governance, and namely the importance of coordination among the different stakeholders, and several rounds of broad consultations. It was agreed to consider two layers of principles, the high-level principles and a second layer more specific to individual policy issues or sectors. The two need to be separated. Participants also stressed the importance to not duplicate the work of other international organizations and the importance to consult and cooperate with other international agencies depending on the scope of the principles.

49. Innovation policy principles should take into account the stage of maturity of certain technologies and the implications for diffusion potential.

50. There was agreement that any good policy should be informed by policy principles and that there is value in making those principles explicit and transparent.

51. The Team will follow-up on the request from the Committee and agreed to create a Task Force under the guidance of its Bureau that will further clarify the scope and modalities for developing ECE Innovation Policy Principles, and will lead, with support from the secretariat, the drafting of these Principles. The Team also agreed that the secretariat should ensure a wide-ranging multi-stakeholder consultation process to support the Task Force in finalizing the Principles.

B. Discussion of potential sub-regional innovation policy index

52. The Team of Specialists discussed a concept note on the content of, and process for, a proposed sub-regional innovation policy index (ECE/CECI/2018/INF.2), in line with the discussions at the twelfth session of the Committee in March 2018.

53. The main added value of this index is the comparative assessment and the policy learning process. In order to make the process of policy learning credible and fruitful and sustainable, it is critical to mobilize and cooperate with all relevant stakeholders in the countries.

54. The policy index might help to spell out different stages of policy development and help countries in prioritization and identification of the next steps.

55. Georgia and Armenia expressed their interest in supporting the pilot of the innovation policy index.

56. There was an extensive debate on the methodology and particularly on measurement issues, stressing that many if not most of the indicators needed for policy assessment are

not quantifiable, and a qualitative assessment will play a prominent role. The credibility of this assessment will depend again on broad based multi-stakeholder consultations.

57. The mutual policy learning process will benefit from a frank exchange of views, including difference of opinions on different elements of the policy process. In order to arrive to an agreed assessment, an elaborate reconciliation phase should be built into the process, bringing all stakeholders together.

58. It was suggested to have an external peer review to further ensure the validity of the assessment.

59. It was agreed that the draft methodology and questionnaire would be sent in advance for discussion to the pilot countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine). In the future the methodology will be reviewed periodically.

60. The Team welcomed the preparatory work undertaken on the planned sub-regional Innovation Policy Index, and the work to develop a pilot index, in accordance with milestones and timelines as presented in the concept note (ECE/CECI/2018/INF.2).

C. Discussion of the draft methodological guide for the national Innovation for Sustainable Development Reviews

61. The Team of Specialists discussed a concept note on updating the methodology for the national Innovation for Sustainable Development Reviews, with a view to developing a Methodological Guide (ECE/CECI/2018/INF.1), developed in response to the discussion at the twelfth session of the Committee in March 2018.

62. Participants suggested to take in consideration innovation at the enterprise level as well as the effect of indirect policies (e.g. science and technology policy, climate change policy, fiscal policy, competition policy) on innovation policy.

63. Insights from system innovation theories should be incorporated in the methodology, including systems directionality.

64. Work on the methodology should include consultations with innovation policy stakeholders.

65. UNCTAD pointed to their work on mainstreaming sustainable development into their national reviews on Science, Technology and Innovation and their willingness to cooperate with UNECE.

66. The Team requested the secretariat, under the guidance of the Bureau, to prepare a Draft Methodological Guide and to organize a peer review process, also involving other interested international organizations.

V. Review of the work of the Team of Specialists on Innovation and Competitiveness Policies since the tenth session (agenda item 4)

67. The secretariat briefed the Team on the outcomes of the activities carried out since its tenth session, which included:

(a) The Policy Document: “Towards the Circular Economy - Innovation Policies for Sustainable Production and Consumption” (ECE/CECI/2018/3) adopted by the twelfth session of the ECE Committee on Innovation, Competitiveness and Public-Private Partnerships.

(b) The 2017 United Nations Special Programme for the Economies of Central Asia Economic Forum, held in conjunction with the 12th session of the Special Programme Governing Council, with a focus on innovation for sustainable development, in Dushanbe, Tajikistan in November 2017.

(c) A Methodological Workshop “Towards an innovation policy index” held in Kyiv on 14 December 2017, organised with the Institute of Economics and Forecasting of the National Academy of Sciences of Ukraine and attended by stakeholders from European Union Eastern Partnership countries.

(d) The Roundtable on “Towards a circular economy: innovation for sustainable value chains” at the Regional Forum on Sustainable Development for the ECE Region, in Geneva on 1 March 2018.

(e) The Regional Capacity Building workshop on “Strengthening Technology Transfer and Technology Commercialization Capacity of Small and Medium Enterprises in Countries in Central Asia” in Astana on 30-31 May 2018, organised with the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and the Asia and Pacific Centre for Transfer of Technology.

(f) A Regional Workshop on “Innovation Strategy, Technology Applications and Infrastructure for the SDGs” in Baku on 4-5 July 2018, organised with ESCAP alongside the 10th session of the Working Group on Knowledge-based Development of the United Nations Special Programme for the Economies of Central Asia.

(g) The 10th session of the Working Group on Knowledge-Based Development of the United Nations Special Programme for the Economies of Central Asia organised with ESCAP in Baku, Azerbaijan on 5 July 2018.

(h) The side event “Technology and Innovation for Sustainable Development: regional experiences to promote youth employment and address inequality” organised with the other regional commissions and the chair of the Group of 77 and China at the 2018 High-Level Political Forum on Sustainable Development in July 2018.

(i) Several substantive contributions based on the Team of Specialists work to events and publications, including the Organisation for Economic Co-operation and Development Eurasia Week, the Astana Forum 2018, and the 2018 China International Finance Forum.

68. Participants welcomed the work on the circular economy, highlighting not only the environmental dimension but also its potential positive impact on competitiveness.

69. The Team expressed its gratitude to the Government of the Russian Federation for their financial contribution to its work.

70. The Team expressed its satisfaction as to the outcomes of the work carried out, which has effectively responded to the needs of countries, and particularly those with economies in transition, in accordance with its mandate.

VI. Inter-sessional implementation plan for 2018-2019 (agenda item 5)

71. The secretariat briefed the Team on the main outcomes of the twelfth session of the Committee on Innovation, Competitiveness and Public-Private Partnerships held in Geneva on 26-28 March 2018.

72. The secretariat presented proposals for work to be undertaken in the remainder of 2018 and in 2019 in accordance with the Inter-sessional Implementation Plan for 2018-

2019 of the Committee on Innovation, Competitiveness and Public-Private Partnerships (ECE/CECI/2018/2, Annex II).

73. The delegation of Kyrgyzstan expressed satisfaction and gratitude on the work undertaken and their willingness to host a sub-regional event in 2019.

74. The Team discussed and agreed on its implementation plan for work to be undertaken in the remainder of 2018 and in 2019 in accordance with the Inter-sessional Implementation Plan for 2018-2019 of the Committee on Innovation, Competitiveness and Public-Private Partnerships (ECE/CECI/2018/2, Annex II).

75. The following outputs and activities will be delivered, subject to availability of extra-budgetary resources:

(a) A policy advisory workshop on technology foresight and innovation policy monitoring in Minsk, Belarus will be held in November 2018.

(b) Publication of the Innovation for Sustainable Development Review of Kyrgyzstan and launch event in Bishkek in December 2018.

(c) A methodological guide on Innovation for Sustainable Development Reviews will be developed based on expert consultations within the Team of Specialists on Innovation and Competitiveness Policies (see concept note for discussion ECE/CECI/2018/INF.1).

(d) Further elaboration, integrating comments and preferences of the Team of Specialists, of potential high-level principles for innovation policies for sustainable development, based on the concept note presented (ECE/CECI/2018/INF.3).

(e) Further development of the methodology for a sub-regional Innovation Policy Index (see concept note ECE/CECI/2018/INF.2); a pilot version of the index will be undertaken in: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine.

(f) A new Innovation for Sustainable Development Review of Georgia will be carried out in 2019.

(g) Follow-up policy advisory workshops to support reform efforts in line with policy recommendations from earlier innovation reviews.

(h) Additional regional and national policy advisory and capacity building events on specific issues subject to demand from member States.

(i) A draft Innovation Strategy for Sustainable Development for the United Nations Special Programme for the Economies of Central Asia will be developed and presented for consideration by its Governing Council in 2019.

(l) A policy document on the 4th Industrial Revolution – reshaping innovation policies for sustainable and inclusive growth, reflecting the results of the discussions under the substantive segment, and to be submitted for endorsement to the next session of the Committee on Innovation, Competitiveness and Public-Private Partnerships in March 2019.

VII. Other business (agenda item 6)

76. The Team agreed that its next session be held on 6-7 November 2019, subject to confirmation of room availability. Any changes in these dates will be made in consultation with the Bureau.

VIII. Adoption of the Report of the session (agenda item 7)

77. The Team adopted the Report of the session.
