

CONCLUSIONS AND RECOMMENDATIONS

UNECE International Conference

“FROM APPLIED RESEARCH TO ENTREPRENEURSHIP: PROMOTING INNOVATION-DRIVEN START-UPS AND ACADEMIC SPIN-OFFS”

9 - 10 November 2010, Kiev, Ukraine

Drawing on the comprehensive discussions and exchange of views during the UNECE International Conference “From Applied Research to Entrepreneurship: Promoting Innovation-driven Start-ups and Academic Spin-offs” held on 9–10 November 2010 in Kiev, Ukraine, the participants endorsed a number of conclusions and recommendations.

Conclusions

1. The commercialization of the results of research and development (R&D) and their transformation into marketable goods and services increasingly determines the pace of economic development and national competitiveness. The experience accumulated in developed and emerging market economies shows that the factors facilitating commercialization are:

(a) **The scope of research and development**, which determines the stock of inventions and innovations to be commercialized. Among other factors, the scope of R&D depends on the number of universities, research institutions and research communities in the country, investment in R&D from public and private sources and its effectiveness;

(b) **The number, qualification and experience of researchers** in public research organizations and the corporate sector. The availability of highly qualified personnel depends on the quality of education, in particular higher (university) education which, in turn, is largely determined by the funds allocated to education by the state and private sources, university enrolment rates and the quality of education and training therein;

(c) **A regulatory and institutional environment** conducive to innovation, which implies transparency and accountability in public spending and investment, stable property rights including intellectual property rights, independence of the judiciary, harmonization of relevant laws and regulations in accordance with international norms, transparent and stable rules, low costs and simple procedures governing the registration and operation of enterprises, hiring of workers and the registration of intellectual property, transparent tax administration and reasonable taxation rates, as well as ease of access to finance at the various stages of enterprise development;

(d) **Openness to foreign technologies** and to cross-border cooperation in innovation. Research and development is increasingly carried out across national borders and the national capacity to absorb and adapt technologies developed worldwide is one of key drivers of innovation. By participating in international R&D networks and technology transfer, countries can also tap into foreign sources of innovation finance and investment, and into knowledge accumulated abroad, and can increase the pace and quality of their own innovation.

(e) Wide use of **information and communication** technology (ICT) as evidenced by international experience. The latter shows that well developed internet and communication networks provide support for enterprises, while rendering the business environment more conducive to entrepreneurship.

(f) **The intensity of linkages** between the various actors involved in innovation. These links are provided by public, private or public-private organizations that support entrepreneurs

in establishing spin-off companies, commercializing their innovations, bringing them to the market and finding financial solutions. Among others, such institutions include training, consulting and technology transfer centres, incubators and pre-incubators, seed capital funds and technology parks.

2. Available evidence shows that, during the 2000s, the drivers of innovation in emerging market economies of the UNECE region were generally less powerful than those in developed market economies. The emerging market economies lagged behind the OECD countries in terms of public and private investment in research and development, public expenditure on education and enrolment in higher education, the development of information and communication technologies, as well as the scope of the infrastructure supporting innovation. As a result, the process of commercialization in emerging market economies still faces considerable challenges regarding the effectiveness with which they convert the resources invested in R&D into commercial outputs.

3. While significant progress has been reported over the transition period, the overall business environment in many of the emerging market economies is still not sufficiently conducive to innovation and commercialization of R&D results. Weak protection of property rights, including IPRs, administrative hurdles and corruption, malfunctioning of the judiciary – all these factors hamper innovation. Equally significant, business operators often underestimate the critical role of innovation for remaining competitive in a market economy.

4. The available evidence also attests to the low level of financing from private sources, which is one of the major factors behind the insufficient funding for R&D in most of these countries. The lack of direct involvement of private companies in the process of applied research has discouraged the orientation of the latter towards commercial needs and has limited the demand for commercialized products of R&D.

5. As a result, during the 2000s, emerging market economies had rather low rates of resident patent applications per million inhabitants in comparison with more developed European economies. High cost of intellectual property (IP) protection (especially, for patents) as well as protracted patenting procedures also hamper the commercialization of R&D results by SMEs or public research organizations.

6. In emerging market economies, most universities and R&D institutions face additional, specific problems related to the commercialization of intellectual property, such as the lack of competent staff and internal expertise in the intellectual property area and insufficient financial autonomy of universities, which hamper them in developing their own policy vis-à-vis their research workers and IP protection of university inventions; as well as scarce resources to bear the costs associated with patent registration, renewal and litigation.

7. International experience shows that a coherent innovation and commercialization policy facilitates the transfer of academic knowledge produced by public research to the business sector (technology transfer). Methods of technology transfer include the sale or assignment of intellectual property rights, licensing, establishment of spin-offs and start-ups, various types of cooperation and partnership between academia and industry, and cooperation of companies with the education system.

8. Recently, many countries in the UNECE region have seen an increase in the number, scope and level of higher education courses that focus on commercialization and entrepreneurship. Inter alia, these programmes aim at facilitating communication between researchers and business managers. The curricula include cross-disciplinary issues related to technology, intellectual property rights, business management, entrepreneurship and IT, and emphasize practical know-how through established links with private business or university-based commercial operations.

9. The international experience also shows that high-technology SMEs grow and mature faster when effective innovation support institutions are in place. In particular, business incubators, proof of concept centres, science parks and innovation clusters demonstrate their

effectiveness as vehicles that support R&D commercialization and innovation. The science park-based companies are reported to outperform other firms in the same sectors in terms of revenues, quantity of new products developed and number of registered patents.

Recommendations to central and local governments:

10. Consistently implement measures aimed at improving the general business and innovation environment, in particular harmonizing the relevant laws and regulations with international norms; alleviating the administrative burden on enterprises, reducing costs and simplifying the procedures governing their establishment and operation and, where appropriate, implementing deregulation; preventing violations of property rights and fostering transparency of regulations and their application, in particular, with respect to intellectual property protection. ,.

11. Promote private investment and involvement of the private sector in commercialization and technology transfer, using the broad spectrum of public-private partnership instruments. To this end, facilitate and forge closer links between industry, academia and universities. Such closer collaboration could take the form of training and re-training of practitioners from industry at universities and science parks, establishment of joint research laboratories and opening research facilities to external users. Public sponsoring of science parks, as well as some fiscal incentives, could be instrumental in achieving this.

12. Ensure compliance of the rules and regulations of commercialization with the existing laws and regulations, thus guaranteeing a fair distribution of income stemming from commercial results according to inventors' and other stakeholders' contributions. Encourage universities to develop coherent policies regarding the ownership of intellectual property, thus creating financial and non-financial incentives for successful researchers. Facilitate the use of R&D outputs generated within the research institution in the interest of the public at large (technology transfer) through licensing or other forms of commercialization. The establishment of technology transfer offices in universities could contribute to this endeavour. Ensure that research results remain in the public domain for use in future research.

13. Explore international good practices of open innovation, particularly applicable to SMEs, and the feasibility of their use nationally for the purposes of commercialization. Foster the participation of academia and enterprises in cross-border open innovation and facilitate the diffusion of new products and technologies developed abroad in the domestic market through consistent promotion of foreign trade and international direct investment, and the international mobility of knowledge workers.

14. Adopt a proactive approach to facilitating and fostering the financing of innovation-based start-up companies using, among other instruments, merit-based awards and feasibility grants, facilitate the development of national business angel networks and their links with research institutions and universities, and promote partnerships between industry and government. Put in place public initiatives to encourage the involvement of venture capital, and corporate venture capital firms in early-stage financing, including through hybrid public-private funds that create more favourable risk-reward ratios for private investors. Closer collaboration between different types of investors should be promoted to ensure the continuity of financing for start-ups at various stages of their life cycle.

15. Draw on and share the international good practices of regulation and operation of innovation support institutions, use them as a model, and promote linkages and networking among those institutions. When establishing business incubators, proof of concept centres, science parks and innovation clusters, due attention should be paid to factors contributing to their success, e.g. proximity to universities and their research base, a firm technological base of

local industry and start-ups, well-educated and trained local workforce and adequate social infrastructure.

16. Collect information on existing innovative technologies, where appropriate, creating to this end national and subnational databases, and distribute this information through various channels, including the mass media.

17. Collect and disseminate information on good practices of promoting new innovative enterprises and strengthening industry-science linkages in developed and emerging market economies. On this basis, and in cooperation with interested private companies and entrepreneurs' associations, governments could initiate training courses and expert consultative services dealing with innovation and enterprise development, for company managers, academic entrepreneurs and public officials.

18. The International Conference invites the UNECE secretariat to review the good practices presented and discussed at the Conference, and ensure a wide dissemination of its outcomes to the stakeholders.