

Program for improvement of the National Innovation System

Formally, the National Innovation System (NIS) has not been expanded in the programming documents of Latvia. However, all its components (higher education, research and development of new products/processes, knowledge and technology transfer, entrepreneurship based on its results, valorisation of benefits) are included in a series of programming and regulatory documents, and are practically implemented through different instruments and funding sources; unfortunately, mostly in a fragmented and poorly coordinated manner.

European Innovation Scoreboard 2016 ranked Latvia as the most dynamic innovator amongst EU countries with 4% annual growth rate of innovation performance; nevertheless it has been just enough to move up to range of moderate innovator, performance level of Latvia remains only 54% of that of the EU average.

The knowledge flows are stochastic and the efficiency of activities is low. The innovation resources in Latvia (human capital, technologies, funding) are scarce, and they are not used in an optimal way to achieve the benefits. The cooperation among the institutions involved is weak; the business environment does not promote innovative processes. Consequently, there are few economic and socio-economic benefits; they are not sufficient to maintain the process, not to mention the benefits to society and national economy.

To achieve growth of economy as well to create new and better jobs the government announced radical improvement of the innovation performance as the priority complex interministerial (ME, MES, MH, MA, MC, MF, MEPRD, MFA) action line. The aim is to increase the innovative capacity of Latvia, by fully implementing the *doing more with less* strategy and tactics according to the actual situation in Latvia by:

- concentrating the scarce resources of Latvia in the fields of knowledge with the greatest potential for growth;
- optimizing the regulatory and business environment for R&D, innovation, technology transfer and valorisation of results;
- stimulating researchers and businesses for innovative activities, providing them with the opportunity and motivation to use their skills efficiently;
- encouraging and supporting the creation/improvement of competitive innovative products (goods and services) in high and medium technology industries as well as in traditional industries of Latvia.

The Program provides reinforcement, coordination and acceleration of ongoing activities (including the implementation of changes needed in the regulatory environment), as well as

new complementary measures to facilitate the attainment of the goals. The Program envisages the activities:

- in the short-term (stage 1, 2016-2017) by breaking the *vicious circle* (fig. 1), through optimisation of regulatory and business environment, concentration and coordination of financial, technological and human resources, activation and coordination of already matured projects and activities;

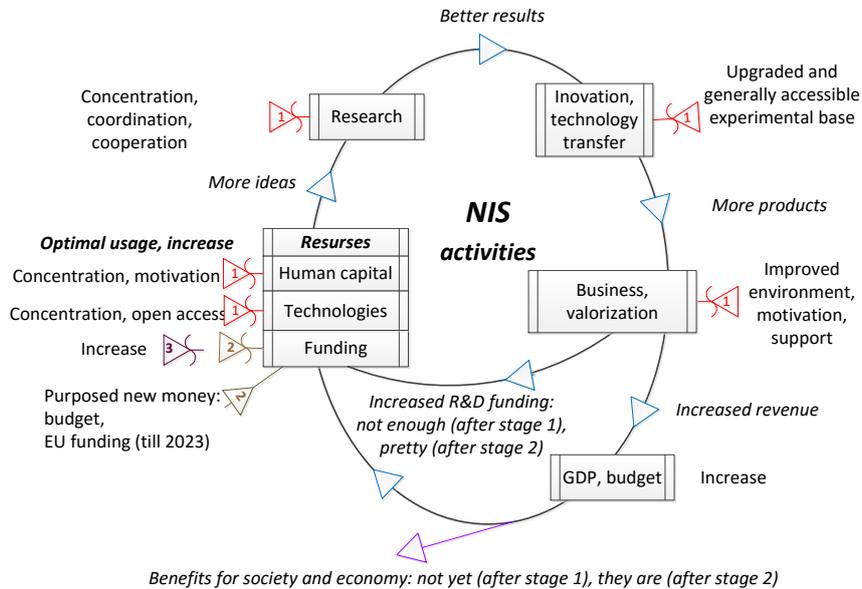


Fig. 1. National Innovation System: planned activities and stages.

- in the medium-term (stage 2, 2018-2023) by gradually increasing targeted investments in already legally and functionally improved NIS to implement the operations and activities of the Program in order of priority and in accordance with capacities of each budget year, thereby ensuring greater benefits and providing a positive return at the end of the stage;
- in the long-term (stage 3, after 2023), where the established (improved, using the medium-term experience) NIS will continue to function with a positive return after the end of the current programming period of EU funds.

The Program's activities focus on projects in thematic segments largely based on the priority areas of knowledge where Latvia has comparative advantages, and by synchronizing with already established clusters and centres of competence:

- smart materials (for electronics, photonics, power engineering, etc.) ;
- advanced technologies and engineering systems;
- ICT, engineering (electronics) and computer science;
- smart energetics (systems, storage, efficiency, etc.)
- new technologies on the basis of biological diversity, bionics;
- innovative solutions for agriculture, food production, forestry and wood processing;

- pharmaceuticals and biomedicine, products and processes;
- medical technologies and health care, diagnostics and treatment;
- creative industries, design products.

To achieve the objective, the activities of the Program aim to support efficient functioning of innovative processes on the basis of increasing synchronized performance of higher education, R&D, knowledge and technology transfer and innovative business in the implementation of specific projects. The Program envisages:

- an active progress towards innovation-friendly regulatory environment; introduction of the *principle of innovation* in the legislative process, by ensuring the assessment of impact of state policy and regulatory documents on the innovation process (*innovation check*); reasonable risk assessment avoiding overregulation;
- increase and improvement of the human capital:
 - reforms in secondary education, general STEM-friendly trend in schools, comprehensive selection and perfection of talents, advantages of admission to universities for winners of educational olympiads, authors of research papers, etc.;
 - revision of a structure of study programs in both sectoral and academic/professional aspects, development of excellence study programs at the universities, increase the number of STEM graduates and the level of their knowledge;
 - improvement of professional skills of STEM program students and their motivation for entrepreneurship, selection of themes for bachelor and master diploma papers from companies' offer, involvement of company experts in study process;
 - doctoral and postdoctoral support;
 - talent attraction from the EU and third countries with a focus on R&D and innovative activities; manageable terminated immigration on the concrete initiative of a hosting body;
- strengthening researchers' motivation to be strongly committed to industrial research and innovation; in addition to material stimulus aligning (and even prioritization) outcome of industrial research/innovative activities with those of fundamental research in context of academic positions and career as well removing academic and regulatory barriers for academia to practical participation and/or terminated parallel activities in innovative business with the following return to the academic position;
- concentration and coordination of the research activities by developing real national centres of excellence and increasing their innovative performance:
 - increasing requirements (including attained results and benefits in previous years) for acquisition of a terminated status of research institution, strengthening regional high schools, active involvement of private scientific institutions and R&D units of companies;

- strengthening technology transfer centres in higher schools; developing a national database containing information on research services that are possible and/or are offered to companies as well company information on the areas with interest/need for cooperation;
- implementing defined funding principles for research – stability of base funding in terminated period, mandatory co-financing of company and/or risk capital at the stages of technology transfer and valorisation, regular monitoring and assessment of studies and operational results;
- concentration, coordination and efficient use of technological resources:
 - development and maintenance of open access nationwide database on existing technological infrastructure in research institutions, high schools and vocational education institutions;
 - replenishment infrastructure in a coordinated manner, paying a special attention to technologies, which are needed and should be used in stages of prototyping, technology transfer and validation;
 - development and/or renovation of technology transfer units – workshops, testing laboratories, design and experimental units for prototype and experimental model developments, as well as for experimental manufacturing;
 - implementation of equal open access to infrastructure and real efficient collective use of the any infrastructure for every institution and company, for every adult citizen in Latvia; development of nationwide regulation, by setting infrastructure utilization costs, responsibility, duties, quotas and other conditions;
- increase of business motivation for high-risk innovative entrepreneurship, improving business environment, while maintaining company's resources for innovative activity and obtaining a reasonable profit:
 - improving tax policy – predictability in the long term, imposing zero tax on reinvested profit, as well tax rebates for employees' education;
 - strengthening targeted support to launching innovative start-ups – a simplified tax regime, stock option as an employee incentive, financial support (e.g., partly financed space and/or infrastructure (electricity, internet, water, heat, roads), state or local government guarantee for loan), a terminated opportunity to attract third country experts;
 - activating innovation vouchers as an instrument for the establishment of contacts with researchers and/or research institutions;
 - resolving the problem of commercial secrecy: the company's competitiveness interests vs EU openness rules;
 - updating public procurement principles, e.g., introducing innovative procurement, establishing a specialized nationwide on-line platform for small procurements of spare parts and materials for innovative activities;

- extending opportunities and areas for innovative business, e.g., by implementation of *offsets* or an analogue principle for procurements intended for national defence, by orders of innovative products for defence and internal security;
- the regular branding and marketing of Latvia and Riga as an innovative area.

Exact distribution of functions and responsibilities and pursue of interests of all stakeholders characterizes the overall management of the Program:

- the Deputy Prime Minister, the Minister for Economics is a head of the Program;
- the Ministry of Education and Science is responsible for the implementation of intended activities of the Program at the education and research stages;
- the Ministry of Economics is responsible for the implementation of intended activities of the Program at the technology transfer and valorisation stages.
- to coordinate the activities of the thematic segment and ensure coordinated interinstitutional cooperation, the research institutions and companies form a collegial expert group of each segment;
- the Chairmen of expert groups of all segments, as well as representatives of ministries involved and social partners form a Program Coordination Working Group led by the Minister for Economics), which ensures expertise and coordination of projects and activities of intersegments at the overall level of the Program;
- the Program Coordination Working Group regularly reports to the National Strategic Council for Research and Innovation (led by the Prime Minister) on the progress in the implementation of the Program.