

14. Main scientific research projects for industrial development support

14.1 Introduction

Current moment of world economy is significant by the overall crisis which is inevitable phase of deep structural changes. Adverse moment for those changes could not have been imagined because economy and market ratio became so opened and hardly foreseeable at the same time. Our tendency for integration in globalized EU implies inevitable admission of imposed competition for the most productive environment for business activity on the grounds of effective business infrastructure. Therefore, export promotion and creation of attractive business environment for investment requires synergistic action of economic policy of Federation of Bosnia and Herzegovina and efficiency of its institutions. Process of recognition in which possible mistake is a luxury and a failure is ahead of us. We need to recognize business excellence of others, learn efficiently and build our own abilities towards better exploitation of mentioned openness. We need to understand and recognize that process as an existence process. Modern technologies in industrial development can be applied by higher educated staff on all levels and by that increase productivity, competition and quality of life in Federation of Bosnia and Herzegovina.

This way conditions for inauguration of society based on knowledge will be created. All former research in the world and here contributed to that education, both permanent and quality have powerful, positive and universal effect on economic growth, therefore on increasing the level of life quality.

14.2 Circle of prosperity

Education itself is not, and cannot be a "magic stick" for solution of problems and negativities in developing Federation of Bosnia and Herzegovina. New technologies and science do not provide answers on increasing challenges of modern world, which are numerous and have different shapes. In modern, opened and globalized world, business excellence is one of the ways for insurance of improvement and offers bigger opportunity in recognition of individual, regional and state advantages in developing simple, but

efficient working processes, products and services whose quality and price will provide advantage before competition.

People (qualified staff) and infrastructures are grounds for assured development, and that means that we have to invest in knowledge and education, develop flexibility and create conditions for creation and innovations, increase and advance infrastructure and informational connectivity and attend desired social cohesion.

Figure 14.1 Circle of prosperity

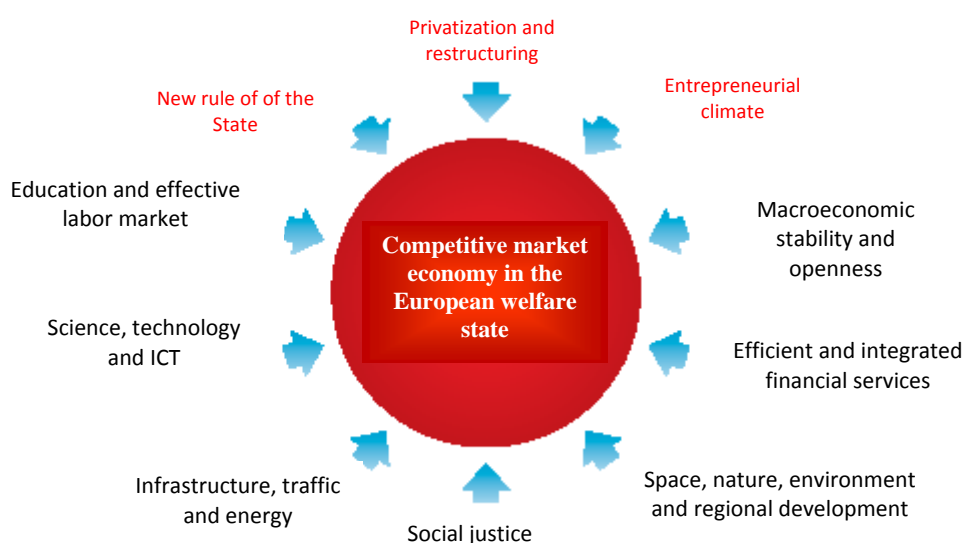


Figure 14.1 Circle of prosperity

All elements are equally important and only with synchronized and simultaneous actions in all areas could start spinning the wheel of prosperities. Yet, biggest developing reserves in short terms lay in developing the new role of the state, finishing privatization and reconstruction and improvement entrepreneurial climate. Education can permanently contribute to development.

14.3 Science information - communication technologies

Basic challenge for creation of competitive economy of Federation of Bosnia and Herzegovina and overall society of Bosnia and Herzegovina hides in acquirement of knowledge and its productive implementation, constant training and beneficiation. Information – communication technologies intrude as basic infrastructure of competitive society based on knowledge. In order to accomplish this it is essential to define and

respect certain technology of realization, which is based on premises like goals and instruments and arm of activities:

Goals

- to create modern equipped and flexible scientific – research centers of authenticity in which groups of researches will work on aimed projects;
- to rise absorption capacity of federal scientific organization for programs of EU in field of science and research, especially their connections with small and medium enterprises;
- to increase investment in science and research, create conditions for increased investments in private sectors, including attraction of foreign capital;
- to coordinate interest area and research work in which budgetary resources are invested for complete transfer of knowledge in development of economy and society altogether;
- to insure reorganization of public scientific institutes and universities;
- to insure conditions for transferring knowledge and technologies in entrepreneurial projects in Bosnia and Herzegovina;
- to insure polycentric development scientific – research activities in Bosnia and Herzegovina.

Instruments and activity arms

- Incorporate existing research in integrated scientific programs with goal of alleviation mobility, interdisciplinary and interinstitutional corporation and development of flexible research and educational system. According to this, reform doctoral studies in efficient studies of third circles. Networked groups of scientist will fit in EU scientific - research frame more easily.
- Make scientific profile and stimulate corporation of universities, especially of universities outside Sarajevo, in order with needs of balanced regional development of Bosnia and Herzegovina.
- To strengthen National foundation for science, higher education and technological development and the future state technological institute as promoters of excellence in Bosnian and Herzegovinian research space.
- To establish system of encouragement and support to include scientist and institutions from Bosnia and Herzegovina in EU programs like Seventh framework program. This includes making national action plan to increase investment in research and in development according Lisbon strategy (Action plan 3 per cent).

- To initiate research partnerships and strengthen the system of support for quality young researchers in order to alleviate mobility, interdisciplinary and interinstitutional corporation and development of flexible research and educational system.
- To invest in scientific infrastructure and institutions for knowledge transfer, in order to develop research capacities and introduce access to business solutions.
- To introduce measures for stimulation of commercialization of academic research in order to built scientific capacity and to provide access to business resolutions.
- To introduce measures for promotion of technological development and innovations in order to attract people and capital into innovation business projects.
- To assure appropriate budgetary resources for establishment of infrastructure for transfer of technology, start-up and incubation of spin-of companies from universities and research institutes. This will contribute to progressive restrain of differences between excellent scientific results and their execution into new products and services on market. It will also contribute exploitation of high quality innovations, which are results of scientific research on universities and in other public and private scientific organizations.
- To initiate creation of alternative resources for financing innovative technological project. To affirm foundation of funds for risk capital which will ensure additional instrument for financing introduction of research result into business use by combining public and private means and private manager expertise.
- To built system of evaluation and remuneration which will in a proper way be connected with scientific results and which will initiate private responsibility of scientists. This system will also initiate renewal of research population .
- To optimally use scientific equipment and infrastructure. To create partnerships of scientific - research institutes and private sector in order to modernize research infrastructure.
- To create legal and other assumptions for foreign scientist employment in Federation of Bosnia and Herzegovina and to create conditions for participations for scientists from Bosnia and Herzegovina abroad on projects of domestic scientific – research institutes. Big number of scientists from Bosnia and Herzegovina left their country because of better and quality conditions for work. It is necessary for science and economy of Bosnia and Herzegovina to benefit from this because knowledge and experience of our scientists are available to countries, which are scientifically and technologically ahead of us. Generally speaking, it is necessary straighten participation of scientific – research community of Federation of Bosnia and Herzegovina in international exchange of knowledge.

14.4 What to develop and in what to invest?

When legal and technical standards of Bosnia and Herzegovina harmonize with norms of Europe, industry of Federation of Bosnia and Herzegovina will be able to have developing opportunities if it accomplishes following:

- realization of quality human resources base through educational system and granting of continuous education through working life for all levels of human resources:
- cooperative partnership with leading companies in industrial complex in EU. This goal can be realized with quality development of technologies or with transfer of the same to our market.
- to aim activities in development its own products towards the market of EU and towards markets of other countries in which our economy was present until 1992, through synchronized activities of Chamber of trades and crafts and technologic centers in public institutions.
- Policy of products of our economy has to pass following criteria:
 - the big part of knowledge in designing constructions and technological performance
 - the bigger part of qualified work in construction and installation products
 - in system of individual low production and medium production with wide palette of assortment of products,
 - organization of production under the brand name of affirmed companies in Federation of Bosnia and Herzegovina,
 - Bosnia and Herzegovina has to define its strategy of development of industry, insure means for developing programs, and satisfy condition for inflow of capital for development of production capacity through Council of EU.

14.5 Priorities in scientific – research projects areas

In order to archive a goal in developing industry in areas of scientific research – work is necessary to realize research in following areas:

- constructive – technologic characteristic of new materials of ferrous and colored metallurgy polymers and composite structures for all activities in area of mechanical engineering, electrical industry, civil engineering, leather and textile, chemical – pharmaceutical industry;
 - foundry
 - welding and gluing
 - thermal treatments
 - plastic deformation

- treatment of pilled paring*
- anticorrosive protection
- fracture mechanics
- tribology*
- for quality development of products it is necessary to have evenful and creative scientific – research work in areas of:
 - thermodynamic
 - fluid mechanic
 - flight mechanic (ballistic)
 - composit material mechanics
 - fatigue strength of construction
 - mechatronics
 - ergonomy of work
 - production system control
 - diagnostic of quality machine equipment

14.6 Priorities in research – developing projects

Market of Federation of Bosnia and Herzegovina has to be offered products and technologies through research – developing programs, which will be able to satisfy market of Balkan through structure of human and productive resources. At the same time has to be concurrent on the other markets.

These principals can be satisfied by activities in these areas:

- dedicated industry
- miner industry
- agricultural – food processing industry
- energetic
- environment protection
- external and internal transport of goods and people
- wood industry
- construction industry
- process industry

* Technical standards in the EU generally do not cover all of these features, but they develop economic systems that are capable of organizing, but for its internal purposes, and are not available in the economic information market. Through academic information can be obtained only part of the non-commercial information.