

DURING THE NEXT 15 YEARS, THE DEVELOPMENT OF THE RURAL REGIONS OF ESTONIA IS THE MOST AFFECTED BY TECHNOLOGICAL INNOVATION IN INDUSTRIAL PRODUCTION AND ENERGY, AS WELL AS POPULATION TRENDS AND THE SPREAD OF NEW FORMS OF WORKING.

On the basis of the studies and research articles of international think tanks, the innovations with the greatest regional impact potential in information, biological and energy technologies and governance models were selected.



**Automation** and robotisation of industry alleviates labour shortage but aggravates income inequality. Automation reduces the demand for labour force, and this will raise the competitiveness of rural areas that are located further away from the centres. On the other hand, the requirements on the qualification of workers will increase, and there is a risk that the existing business models of many companies will become exhausted.



**The internet of things** (IoT) and its implementation in production process increases efficiency and flexibility, but the maintenance of servers is energy intensive and requires high operating reliability as well as fast and high-quality internet. It will also bring about new risks in cyber security.



**Distributed energy systems** increase supply security and energy security, and promote renewable energy. Developing of smart energy systems has a positive impact on the companies that are located further away from the centres by providing them with additional income and work.



**Self-driving vehicles** may provide alleviation to the main problem of low population density – great distances in space and time. With the spread of self-driving cars, the commuting will become more convenient and its area will grow. This increases the attractiveness of rural regions as places of residence, but may also foster the processes of peripherisation and urban sprawl.



**Circular economy** brings along transition from waste management to materials management. The growth in availability of local materials will reduce the economy's dependency on import and increase resource security.

Implementation of innovative solutions is faster and more realistic in wealthier regions that possess the capacity for research and development. The potential positive impact of innovations might be the greatest in peripheral regions with low population density.

Innovations have an impact on regional development through socio-economic and ecological processes.

### Population and society



- Estonia's population is decreasing and ageing.
- The proportion of working-age population is decreasing but people are remaining in the labour market longer in their advanced years.
- Job-related mobility grows.

### Health and work life



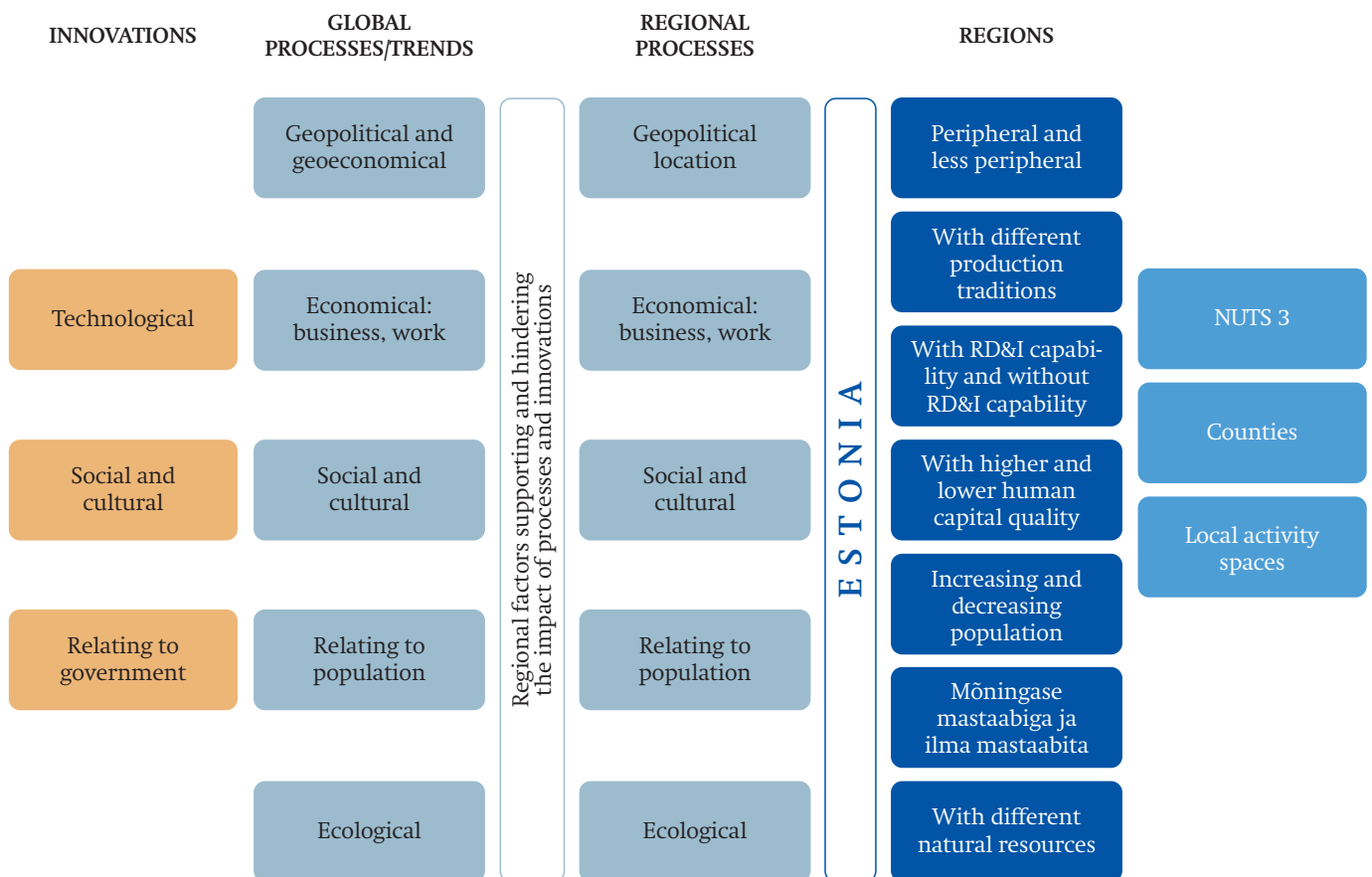
- New forms of work allow working independently of location.
- People's lifestyle becomes more health-conscious.
- New services emerge with the increasing proportion of the elderly.

### Environment and climate



- Warmer climate reduces heating costs and increases the competitiveness of agriculture.
- Extreme weather phenomena affect people's sense of security.
- Immigration pressure increases as several regions in the world become unfit for habitation.

The impact of innovations and socio-economic processes on the regional development in Estonia depends on the characteristics of each region, like the settlement system, level of socio-economic development and the existence of natural resources. On the basis of these preconditions, Estonia is divided into five groups.



Generally, the implementation of innovative solutions is faster and more realistic in wealthier regions that with certain level of activity volume, and capacity for research and development. However, the potential positive impact of innovations is the greatest in peripheral regions with low population density.

The latter are also provided additional development opportunities by counter-urbanisation that may accompany ageing of population and deepening of cultural diversity, spread of teleworking brought about by flexible models of work, increasing need for food resulting from climate change, etc. Thus, having a location-based regional policy that takes into account the existing economic structure, level of digitisation of industry and services and the skills of labour force is important for sustainable regional development.

The study "An Analysis of the Trends and Innovations Impacting the Economic Development of Estonian Regions" was conducted by Veiko Sepp and commissioned by the Foresight Centre. The purpose of the study was to define the innovations and processes having the greatest influence on the future prospects of regional economy in 15 year perspective, and to describe their expected impact.

Research contact: Uku Varblane, Project Manager of Regional Economy Research, Foresight Centre, uku.varblane@riigikogu.ee.