

Vision: Smart Estonia

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Vision of the Estonian Association of Information Technology and Telecommunications (ITL) of Information Society in 2030

SMART ESTONIA

Estonian Association of Information Technology and Telecommunications

Tallinn, 2018

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Summary

Estonia has made great progress in many aspects. The World Happiness Report ranks us 63rd on a global scale. From the perspective of the traditional indicators of economic development, such as GDP per capita, we rank 48th in the world. We have taken a significant step forward with respect to both of the indexes.

On the other hand, compared to other EU member states, Estonian GDP per capita based on purchasing power standard has remained the same in the last few years. This is supported by the fact that, based on the attractiveness of the business environment, Estonia is in the role of a chaser: the legislative process is slanted towards increasing the administrative load, the structure of the state is labour-intensive, and no attention has been paid to reducing the tax load of jobs that potentially create a lot of added value.

The development of the ICT sector is more multi-layered than it appears at first sight. On the one hand, the percentage of the added value from the ICT sector in the economy as a whole has greatly increased, the share of e-services has improved at the national level, and large investments have been made in the development of digital skills. On the other hand, the low digitalisation and shortage of labour force in the private sector pose a serious problem.

In order to promote development, some large-scale and brave changes must be made. The second long-term vision paper of the Estonian Association of Information Technology and Telecommunications (ITL) describes how brave changes can create better opportunities for everyone in Estonia.

The vision is supported by three pillars: 1) smart and brave economy; 2) smart people; and 3) smart state with a vision.

The smart and brave economy in 2030 is a cooperation-oriented and the most agile implementer of new solutions and outcomes of research and development in the world, and exporter of this experience. The first milestone is reaching a new level in the development of products. 'Estonian product 4.0' offers an increase in added value through servitisation and productisation. This is supported by applied research which forms an integral part of the value chain of the economy. Secondly, it is important to participate in production chains with a high value in which our businesses have a significant role. The third aspect of the powerful and smart economy is the 'Real-time economy EE' in which the Estonian private sector must be *abruptly* digitalised and automated, creating new possibilities for collecting and using data in real time.

The smart people in 2030 is a singing technological nation, which is larger than its small numbers suggest due to the technology implemented in all fields of life and the development and use of smart labour force. In the education system of the future generations, development of technological skills will be ensured as an organic part of all levels of education. The prerequisites for this are acknowledging the work of our teachers by increasing their wages, as well as preparing teachers for implementing newer teaching methods, with employers being also part of the process. In order to overcome the labour shortage, foreigners who create a lot of added value will be involved, development centres of Estonian companies will be opened in other countries, and vacant job positions will be filled by automatisisation and robotisation.

The smart state with a vision is a state with the most convenient business and living environment and the most efficient organisation possible. Estonia 2030 is an 'Innovative Estonia' where the state is deliberately focused on promoting innovation and makes decisions accordingly. Estonia is not a country with cheap labour force, which is also reflected by smart foreign investments. The 'e-governance 2030' is not based on the presumption that a small state is expensive to maintain. The state only gets involved in case of market failures. E-services are based on convenient user experience and artificial intelligence, machine learning, and other technologies are used to increase efficiency. A radical new procedure of tax distribution has been launched. The living environment in 2030 supports people with good e-healthcare services, simple administration, functioning infrastructure, and a safe and healthy living environment.

This is smart Estonia.

The vision of the ITL of the information society in 2030

SMART ESTONIA

In 2030, the welfare in Estonia is based on the smart use of the ICT in the economy and in the organisation of the society



Introduction

You are holding the second long-term vision paper of the ITL. It is time to take a look at the next decade instead of 2020.

The Estonian economy, state, and society have been developing in the same direction with our vision for 2020 in several aspects in the last few years. The power of the ICT sector in the economy is felt increasingly¹; both the expansion of e-services at the level of the state in Estonia and exporting the services to other country have improved, and significant investments have been made in developing the digital skills of the society.

As quickly as we are able to solve problems, new concerns arise which require meaningful contributions and cooperation from the state, the private sector, and private persons. For example, the support from the state in creating a suitable innovation environment is still small; the ability and willingness of the industrial sector to digitalise, automate, and robotise their processes remains insufficient. In order to make a digital turn in the education, it is vital not to have a shortage of

¹ The added value from the ICT sector has been constantly and strongly increasing since 2009 – especially in comparison with other sectors. Source: Eurostat (online data code: nama_10_a10)

teachers and that the teachers are prepared to implement substantial changes in the teaching methods.

We have created the vision with the aim of showing which steps to take to have smart people, state, and economy after one decade. The road to achieving the goals is not easy and the demands set for ourselves may often seem impossible. However, let us not forget that Estonia has already launched some projects which test the limits of the current system and traditions. We have created an e-residency programme which is unique worldwide and have become a pioneer in the regulation of artificial intelligence and in giving meanings to the use thereof at the national level.

This document presents our vision of how to strive towards great and brave changes.

Facts about the economy and the ICT sector

The World Happiness Report, an initiative launched in 2012 to provide a more holistic measure of the development of countries, currently ranks Estonia in the 63rd place among 156 countries. Estonia has made a noticeable leap in the last five years, roughly rising ten places; our southern neighbours, Latvia and Lithuania, however, have climbed 35 and 21 places, respectively, in the same period². In order to find ourselves among the most satisfied countries in the world, our incomes and healthy life expectancy must increase; our place in the corruption index table, however, must drop significantly.

From the perspective of the traditional indicators of economic development, such as GDP per capita, we hold the 48th position on the global scale. We have also experienced a significant development in this respect within the same period, and at the same space with Latvia and Lithuania³. Yet, in comparison with other EU member states, our GDP per capita based on purchasing power standard has remained the same in the last few years⁴.

Positive

ICT export has increased by the total of 29% in seven years; the growth has accelerated in the last few years.

The increase in the profitability of the ICT sector has been proportional with the increase in turnover in the last seven years (except the decrease in the profitability of telecom).

From the perspective of attractiveness and innovation of the business environment, Estonia and the entire Europe tend to play the role of a chaser. There are no companies of European origin among the ten largest companies in the world⁵ and the situation is basically the same in the field of the powerful supercomputers of the world, with just one computer which is located in Europe among the top ten⁶.

² The World Happiness Report, <http://worldhappiness.report/download/>.

³ The World Bank, indicator: GDP per capita (current US\$).

⁴ Statistics Estonia, GDP per capita based on the purchasing power standard (PPS), <https://www.stat.ee/29955>.

⁵ Statista, <https://www.statista.com/statistics/263264/top-companies-in-the-world-by-market-value/>.

⁶ TOP500, <https://www.top500.org/lists/2018/06/>.

In our opinion, the Estonian government is not paying enough attention to the systematic improvement of the business environment. Referring to the data from the Ministry of Justice, the Estonian Employers’ Confederation highlighted in their manifesto that the legislative process is strongly slanted towards increasing the administrative load on businesses as well as the state. The governmental structure is also becoming increasingly labour-intensive. Estonia is the only OECD country next to Hungary and Czech Republic in which the labour-intensiveness of the state increased considerably in the period of 2007–2015. In total, this makes us the fifth most labour-intensive country in the OECD⁷.

In the Estonian context, we also cannot overlook the high labour taxes applicable to top specialists which constrain the creation of high-paying jobs⁸. We need to pay more attention to decreasing the tax load on job positions creating a lot of added value.

Even though the Estonian ICT sector is, based on the external image, currently making huge progress in its development, the actual statistical data is more multi-layered. For example, while the percentage of ICT companies in the total number of companies has consistently increased, the percentages of the sales revenue and net profit of such companies in the economy as a whole have dropped⁹.

Points to consider	Annual increase in turnover of <i>approx.</i> 2%; cumulated growth of 10% in the period of 2009–2016, 17% in the sector of software
	Labour taxes are not competitive with the growing hubs of the world (Belarus, India, etc.)
	Labour shortage
	The number of employees increases by approx. 2–3% per year
	The state is not developing as a smart buyer but as a competitor
	The preparedness of the internal market customers to digitalise lags behind the EU average

The vision of the information society in 2030

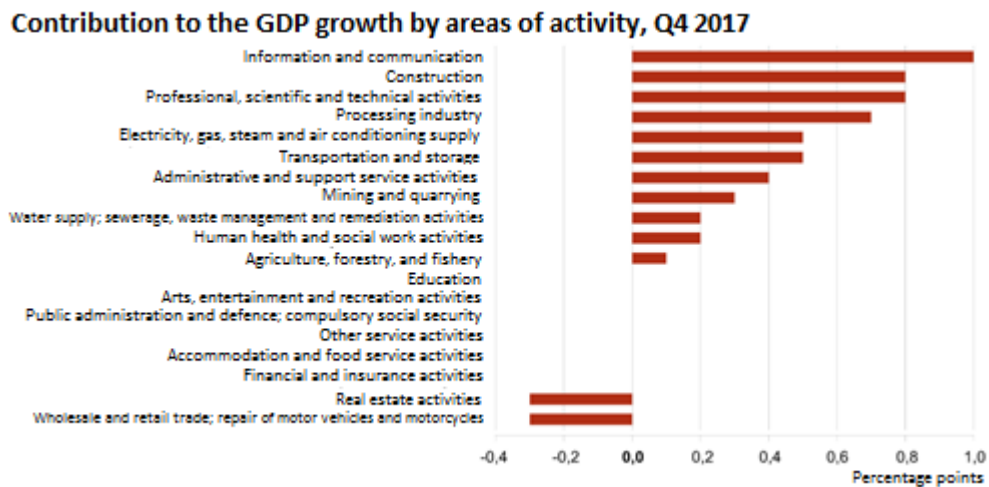
The vision of the ITL for 2030 is not limited to a narrow look at the interests of the sector. Our vision of the next decade is based on the concept of information society – thus, the glance on the problems and solutions is holistic, including the economy, the people, and the state, and the development of all sectors and groups of the society have been taken into consideration.

⁷ OECD, *Government at a Glance*, 2017. https://www.oecd-ilibrary.org/governance/government-at-a-glance-2017/employment-in-general-government_gov_glance-2017-24-en
⁸ OECD, *average tax wedge, single person at 167%*, <https://stats.oecd.org/Index.aspx?DataSetCode=AWCOMP>.
⁹ Analysis of the main economic indicators of Estonian information and communication technology companies, 2009–2016, p. 4.

I – Smart and brave economy

In the last decade, wages increased remarkably in the economy as a whole. Gross wages grew almost by half in the period of 2008–2017 and passed the limit of 1,000 euros for the first time in 2014¹⁰. The strong increase in incomes has been forecasted to continue in the next few years. The general development of the economy has, however, been more modest in the relative perspective. Compared to other EU member states, the Estonian GDP per capita at current prices has only climbed eight percentage points closer to the EU average¹¹.

The contribution of the ICT sector to the economic development has been strong. Even though the added value from most sectors has increased modestly, or even been negative, a clear increase in the added value can be observed in the case of ICT companies¹². ICT has also become the most important sector with the largest contribution to the Estonian GDP.



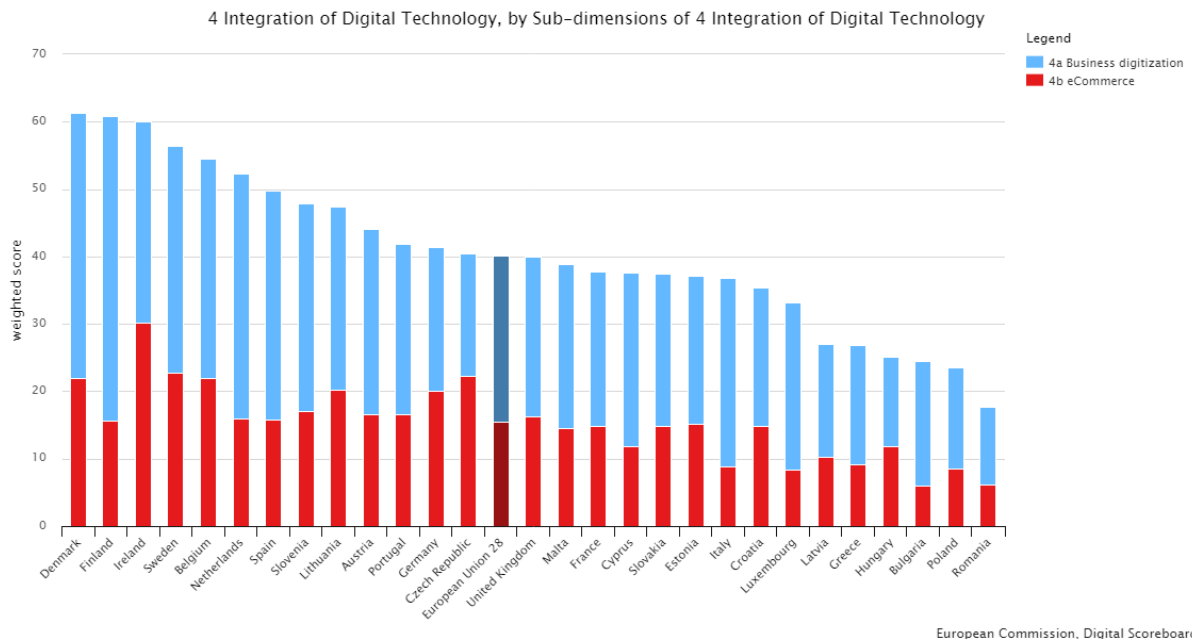
Source: Statistics Estonia, <https://www.stat.ee/pressiteade-2018-021>

Yet the potential for economic development through ICT still remains very high – especially in the private sector, where the level of digitalisation is low compared to other countries. The graph below provides an overview of the level digitalisation of the EU member states. Estonia is in the lowest third.

¹⁰ Statistics Estonia, statistical indicator: PA5211.

¹¹ Eurostat, statistical indicator: tec00114

¹² Compared to 2010, there has been an increase of 30% in most sectors; the increase in the ICT sector exceeds 70%. Source: Eurostat, statistical indicator: nama_10_a10



In the public sector, one of the key problems is the volume of research and development (R&D) activities. According to the latest data, R&D forms 0.7% of the GDP¹³. This indicator is more positive than the level of digitalisation of the private sector compared to other countries; in the case of investments, however, it is important to consider the absolute value of the developments which often tends to remain below the critical mass in the case of smaller economies.

Even though it is important to increase the percentage of the development activities in the GDP, a small country like Estonia cannot be one of the largest investors in research. Instead of focusing on the volume of investments, a more optimum strategy would act as a quick implementer of the outcomes of research and development activities.

Thus, ICT can be an important engine of GDP growth – for example, the clear differentiation of the increase in the added value from ICT from the added value from other sectors. In real economy, GDP growth can, above all, arise from offering higher added value. Two directions can be chosen: to be part of value chains with a higher added value or to increase the added value of own products and services.

A vision of the economy: Estonian economy is cooperation-oriented, the most agile implementer of new solutions and outcomes of research and development in the world, and exporter of this experience.

The vision of the economy of the Estonian Association of Information Technology and Telecommunications is based on three pillars – smart products, participation in production chains with a high value, and real-time economy.

1. Estonian product 4.0

First, 'Estonian product 4.0'. Our aim is to reach a new level in the development of products – to create smart products.

¹³ http://www.etag.ee/wp-content/uploads/2018/08/Teaduse-rahastamisest_IUT-infopaev_-06.09.2018.pptx

Added value must be increased through servitisation. For example, the ITL has implemented a pilot project with the Protex apparel factory in Estonia and other partners, in which functionalities were added to high-tech workwear with sensors for gathering information about how the workwear is used. This enables detecting when the person wearing the workwear has been involved in an occupational accident, and to respond operatively.

Second, productisation must be expanded, which would enable modulating the use of the existing technological solutions and selling it to next customers. The current design of service solutions based on the needs of a single customer sets remarkable limitations to the development of the company due to the labour time used.

Third, research must become applied research. Simply and generally put, research is currently publication-focused and the approach tends to be theoretical. For the economy to develop, however, an application-based perspective is needed. We need to enable scientists to work with practical and applied solutions, just like Germany and Finland have created special applied research centres which are separate from traditional universities. Thereby, the research activities can create outputs which can be directly implemented in the industrial sector and in the real economy in general. This will make research activities part of the value chain of the economy.

2. Participation in production chains with a high value

Currently, Estonian companies are mainly focused on making a product and then selling it – repeatedly and starting from the beginning again. The vision of the ITL is Estonia where businesses have become part of the global value chain with a high added value, in which our companies are integral and important parts of the production chain, thereby ensuring stable work flows and money for our companies.

We already have some companies that have achieved a significant role in the global production chain (e.g. Wendre's production for IKEA), but we believe that in the wider perspective, these developments do not occur accidentally. The state must take a brave step and choose three or four favoured fields of activity in which Estonia has potential to stand out.

3. Real-time economy EE

The third part of the powerful and smart economy is 'Real-time economy EE', in which the Estonian private sector must be *abruptly* digitalised and automated, creating new possibilities for collecting and using data in real time.

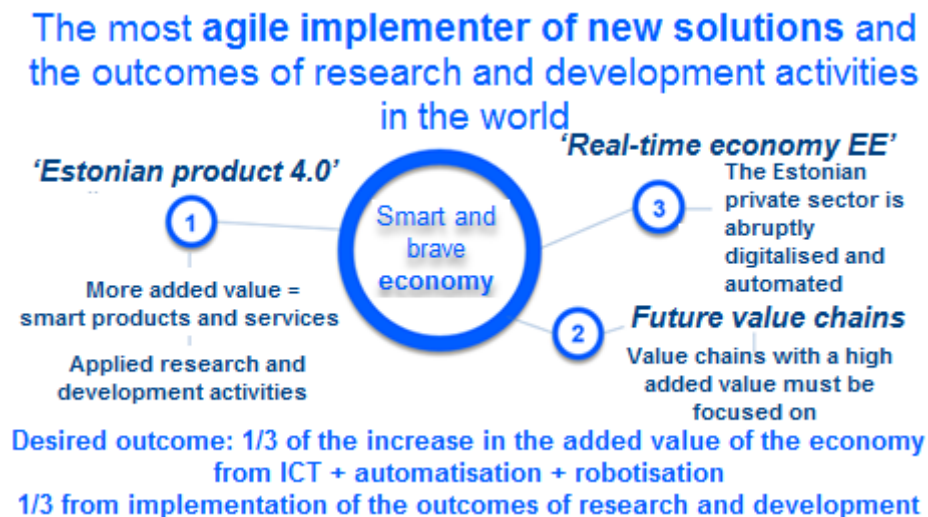
Organic growth alone is not enough – specific and brave actions are needed. For example, one option would be a decisive choice of the state to put businesses under the obligation to use e-invoices. This will certainly create negativity and opposition among a certain share of the companies, but it would only be temporary. Implementing a new paradigm is difficult, but the gain will be worth it.

For digitalisation and automatisisation, a general environment supporting innovation is important. While different countries have currently suggested ideas for potential robot taxes, Estonia should not tax robotisation but facilitate and encourage it.

Table 1. Smart and brave economy – the vision of the ITL

Estonian economy is cooperation-oriented, the most agile implementer of new solutions and outcomes of research and development in the world, and exporter of this experience.		
<i>'Estonian product 4.0'</i> Higher added value is achieved through productisation, servitisation, and brave implementation of research and development activities	<i>'Participation in production chains with a high value'</i> Estonian brave economy is focused on global value chains with a high added value	<i>'Real-time economy EE'</i> Estonian private sector is abruptly digitalised and automated
1.1. <i>'Estonian product 4.0'</i> The economy (every company) pays attention to and invests in developing smart products and services	2.1. From a single export transaction → to part of the value chain	3.1. A brave move for digitalisation of the private sector – joining the data system is as easy and compulsory as declaring taxes
1.2. Applied research and development. Creating a centre of applied research in Estonia	2.2. The courage to select 3-4 leading sectors as preferred areas of activity for differentiation in the EU and globally	3.2. Benefits for digitalisation, automatisisation, and robotics
Desired outcome: 1/3 of the increase in the added value of Estonian economy comes from implementation of ICT with automatisisation and robotisation, and 1/3 from implementation of the outcomes of R&D.		

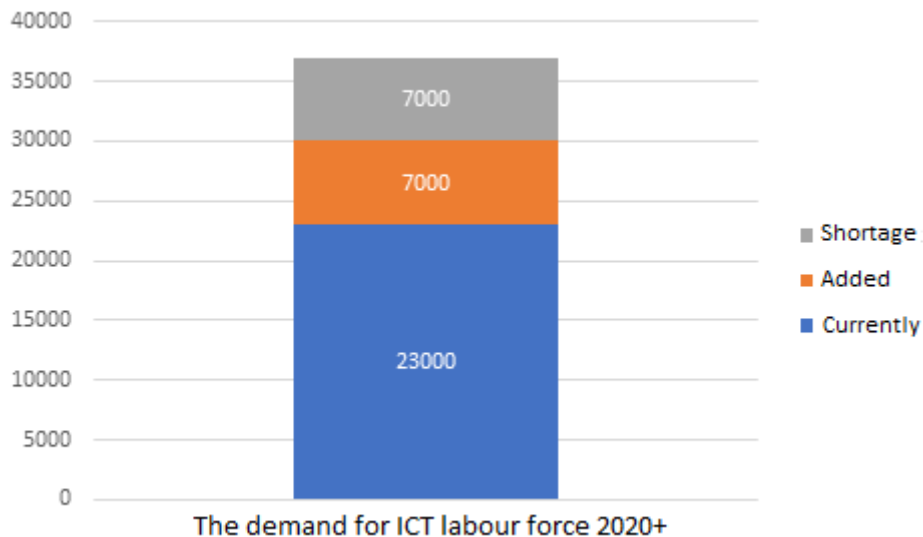
Figure 1. The areas of activity with the greatest impact in 'Smart economy'



II – Smart people

The main problem in the area of the population is the shortage of people with ICT skills. Taking into consideration the labour demand in the near future, the new additions from the educational system, and migration, the shortage of ICT specialists amounts to roughly 7,000 people over the entire ICT sector, for ICT companies as well as for other sectors as internal specialists¹⁴.

¹⁴ The calculations of the labour demand are based on an ICT study conducted by OSKA: <http://oska.kutsekoda.ee/field/info-ja-kommunikatsioonitehnoloogia/>



The ability of the current educational system to ensure the availability of suitable skills is also a problem. Estonian success in the PISA test is widely known; the prerequisite for the successful use of ICT skills, however, is the ability to put the learned facts and knowledge successfully into use. Based on the results of the PIAAC test which measures the problem-solving skills of the adult population, Estonia is below the average among the OECD countries. Finland, for example, has achieved high results in both tests.

A vision of the population: the people living in Estonia or working for Estonia are members of a singing nation of technology which is larger than its small size thanks to the technology implemented in all fields of life and thanks to the development and use of smart labour force.

The vision of the ITL of a smart nation foresees better skills in technology, more successful implementation of the knowledge in solving real problems, and a more flexible labour policy from the state as well as businesses.

1. Smarter than a robot

Technology skills should be an organic part of every level of education. Thereat, we view education in a wider scope than merely the education acquired at school – development of hobby education and stressing the technological perspective in other services provided by the state (such as research-focused programmes in public broadcasting) are equally important.

School education is based on a good level of the teaching of sciences in the general education, which enable ensuring a wide base for the spreading of ICT skills. Based on the vision of the ITL, the ICT education must be integrated into the education system in its entire extent from basic education to higher education, irrespective of what or where is studied. Information technology has become an integral part of life today; therefore, people must be ensured the right to acquire the skills needed for their daily lives and work in every field of activity and in every stage of their lives.

2. From knowledge to skills

In order to enable widespread development of ICT skills, it is necessary to ensure that there is a sufficient number of teachers of the subject and to involve businesses into providing education.

First, the career as a teacher – especially as a teacher of sciences or technology – must be made more attractive. Currently, the wages of the specialists employed in the ICT sector are several times higher than those of the teachers of general education schools. It is naïve to hope that a sufficient number of competent young people with education in mathematics or physics are prepared to prefer the difficult work of a teacher to a clearly better-paid career as an IT engineer. In order to motivate young people in the field of technology to choose a career as a teacher, a faster increase in the wages of the teachers of sciences must be ensured, which would be differentiated from the wider wages of teachers and would significantly decrease the difference in wages compared to the private sector.

The teachers must also be prepared and have the skills for teaching differently from the current practices: for example, in teaching physics, numerous elements of project-based learning should be used, in which the laws of physics are entwined with ICT solutions. Increasing problem-solving skills calls for a more practical and applied approach in which the facts learned are given a meaning and the students are taught how to reach new solutions based on their knowledge.

Employers must also be involved in this process by providing the young people a so-called real-life experience through internships and by sharing their experience within the framework of the curriculums.

3. e-Employee 2030

We can see that the educational processes cannot cover the labour force demand of smart sectors. Automatisations is a logical and important part of the further solving of the problem but it must be supported by additional developments.

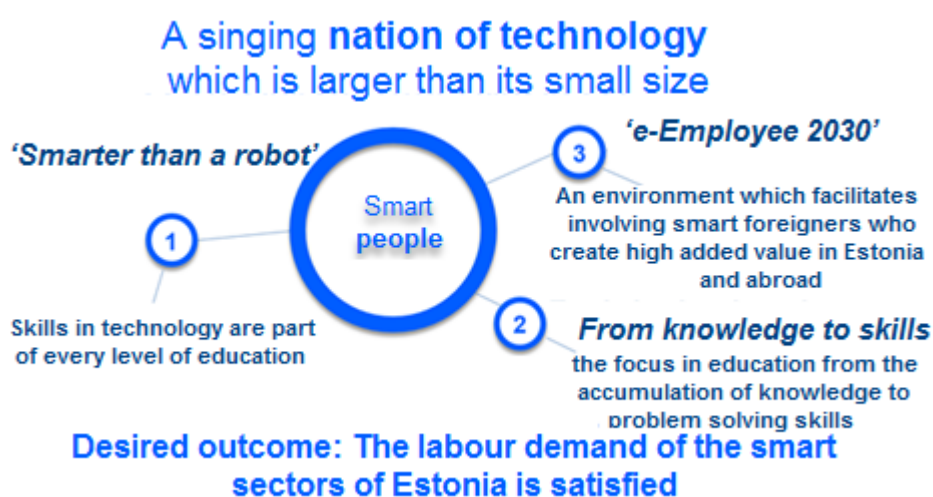
In order to decrease the shortage of the labour from education, re-training, and immigration, we can focus our policies on supporting immigration and on enabling cross-border teleworking. In order to involve foreigners who create high added value, it is important to create a favourable environment. In the case of Estonia, it is possible to adjust the labour taxes, with retirement tax exemption for short-term employees providing one potential solution. A highly paid person who remains in the country for a limited period of time would not be using the payments from the Estonian pension system in the future. Thus, binding their wages with pension payments is not justified. Enabling short-term movements is a very good option for creating a great environment for knowledge migration.

Employing the labour force from foreign countries for Estonian companies with the people working from their country of residence also offers possibilities. Such flexible working solutions are increasingly spreading and there is a lot for us to gain from them, with the e-residency programme helping to benefit from such possibilities. We already have some good examples from the ICT sector in the form of Nortal and Helmes, in which the implementing the projects of Estonian companies are supported by the different development centres of these companies in other European countries.

Table 2. Smart people – the vision of the ITL

The people living in Estonia or working for Estonia are members of a singing nation of technology, which is larger than its small size due to the technology implemented in all fields of life and thanks to the development and use of smart labour force.		
<i>'Smarter than a robot'</i> Technology skills must become an organic part of every level of education	<i>'From knowledge to skills'</i> Focus of the education from acquiring knowledge to problem-solving skills	<i>'e-Employee 2030'</i> The ability to overcome labour shortage by employing smart foreign labour force abroad and in Estonia
1.1. No leaving certificate from any level of education or any school can be obtained without acquiring ICT skills	2.1. A teacher's education is popular and the positions of science teachers are filled	3.1. An environment which supports involving foreigners who create high added value (e.g. a social tax ceiling)
1.2. A good level of the teaching of sciences in the general education system to form a basis for education in technology	2.2. Preparedness and motivation of the teachers to teach differently	3.2. Manufactures and subcontractors from other countries are involved through the abilities of a smart buyer
1.3. Hobby education in technology is as important as forming the singing nation (the singing programmes and the 'Rakett' technology programme on TV are equally important)	2.3. The skills and motivation of the employers to participate in the different teaching	3.3. Vacant job positions are filled by automatisisation and robotisation
Desired outcome: The labour demand of the smart sectors of Estonia is satisfied.		

Figure 2. The areas of activity with the greatest impact in 'Smart people'



III – Smart state with a vision

There are currently almost 117,000 people employed in the Estonian government sector; this number has not decreased significantly in the last ten years and forms approx. 18% of all employed

people¹⁵. Thereat, the wage bill of the government amounts to almost 2.4 billion euros, a fifth of the total expenditure of the state.

We would like to ask: what if we replaced 30,000 routine-based public service jobs with the help of e-services and artificial intelligence? This would largely form a third of the people employed today and would, over ten years, mean an annual decrease of 4.5%. Calculated into a financial value, it would mean almost 90 million euros of additional resources for the state budget every year. The money saved could, on the one hand, be used for the wages and, on the other hand, for the development of services. This means that we could invest almost 1 billion euros over ten years!

The innovative system of the state which is supported by e-solutions must be seconded by providing high-quality and convenient services, which can make the Estonian business and living environment attractive at the international level.

A vision of the state: Estonia is the country with the most convenient business and living environment and with the most efficient organisation of the state in the world.

In order to build a smart state, we must deliberately direct the activity of the state based on the goals of innovation, to continuously create better e-services, and to ensure a more convenient living and business environment for the current as well as future residents of Estonia.

1. Innovative Estonia

We would like Estonia to be the best region which facilitates innovation and entrepreneurship in the European Union in 2030. This must form the vision of governance – the goal to strive toward and based on which all new potential changes can be assessed. The entrepreneurship environment consists of numerous different parts and unequal attention to these parts may often result in the shortage of new investments or employees. Innovation must be supported by tax-related as well as education policy-related decisions, but also by urban planning; for example, to make the living environment as comfortable as possible for the employees who create high added value. Once an informed and widespread focus has been set, all of the above can be achieved.

In the case of foreign investments, we must be able to break out of the modern models. We can no longer be a country with a cheap labour force. A higher satisfaction of the population and competitiveness of the economy are concealed in new models which are based on knowledge and high-tech solutions – by continuing with the current economic relationships, we would only preserve our current level of wealth. Hence, investments with a higher added value are accompanied by higher-level specialists with the help of whom it is possible to promote knowledge migration into the sectors of Estonian economy.

In addition to the courage to take into use new models of economy, we must carry on with the innovative national initiatives, such as the ID card, e-residency, and a legal framework supporting using artificial intelligence, which is currently being developed.

2. e-Governance 2030

Following the example of intentionally developing the policy of innovation, the state must make a strategic decision to become the country with the most efficient governance system in the world. We should no longer proceed from the presumption that it is expensive to maintain a small country.

¹⁵ The Ministry of Finance, 2018. The public service report of 2017.

Achieving the efficiency would involve many different aspects. The activities of the state should focus on market failures – the state is not a coach company or an IT company; hence, the national IT development centres must function as smart buyers, not competitors. The e-services provided by the state in all sectors should be based on the convenient user experience. In the development of e-services and internal processes, efficiency can be increased by widespread implementation of artificial intelligence, machine learning, and other new technologies.

One of the most radical changes could entail changing the tax distribution procedure. The current expensive system requires a new approach. We could create a system in which every citizen has their own educational account, their own healthcare account which would enable spending only in these fields. Such or other radical changes of the tax system are worth considering and would enable reaching a new level in the organisation of the state.

3. Living environment

The third pillar of a smart state with a vision is a convenient living environment. One of the most important activities of the state as a collective body is the ability to shape our shared living environment. When the people can contribute their time primarily in the areas in which they can create more added value and spend less time on various administrative operations, transport, etc., then the first important steps towards faster economic development have already been taken.

By 2030, Estonia will have an exemplary e-healthcare system, it will be easy for the citizens to communicate with the state, we will have an efficient transport system, and a safe and healthy living environment. These pillars will enable us to build an innovative society.

Table 3. A smart state with a vision – the vision of the ITL

Estonia is the country with the most convenient business and living environments and with the most efficient organisation of the state in the world.		
<i>‘Innovative Estonia’ Estonia is the best region which supports innovation and entrepreneurship in the European Union</i>	<i>‘e-Governance 2030’ Estonia has the most efficient organisation of the state in the world</i>	<i>Estonia is the most convenient living environment</i>
1.1. An intentional focus based on which all decisions in the country are made – convenience, stability, taxes	2.1. A strategic decision to continuously develop the model of a lean and smart state, in which the state is not a competitor, but facilitates the growth of the private sector	Estonia has healthy people and an environment that supports them: <ul style="list-style-type: none"> • High-level e-healthcare services • Simple administration system <ul style="list-style-type: none"> • Good infrastructure • Safety • Healthy living environment
1.2. Foreign investments and smart foreign labour force	2.2. Radically convenient e-governance services in all fields of administration, implemented at the level of the Prime Minister or Deputy Prime Minister and with the private sector involved in providing services	

1.3. The courage to test radical changes is preserved (e.g. e-residency, legal status for artificial intelligence, etc.)	2.3. Widespread use of business analysis, artificial intelligence, machine learning	
	2.4. Radical changes in the procedure of tax distribution	
Desired outcome: Estonia is the country with the highest level of satisfaction with public services and the lowest governance expenses per GDP, with 20% of the public servants replaced by digital equipment and machine learning.		

Figure 3. The areas of activity with the greatest impact in 'Smart state'



The paper on the vision of 2030 was edited by Meta Advisory Group