

► Discussion note

December 2020

Digital skills and the future of work: Challenges and opportunities in a post COVID-19 environment

Key points

- Connectivity is becoming a new human right. Access to medical services, education, training and work opportunities increasingly depend on connectivity in today's world. At the same time as a new type of inequality in the form of access to connectivity is widening the gap between those that have and those that have not.
- The pandemic has shown that it is disruptive, accelerating some trends that impact both short-term and long-term transformations, which puts pressure on adapting "traditional" employment policies to the new circumstances. The ILO advocates for a human-centred approach to these transformations.
- Many jobs are fully or partially being transformed into digital jobs, expanding the digital economy and related activities. As the COVID-19 pandemic has introduced an additional disruption in this trend, it is crucial that decent jobs for all regardless of age, gender, race, location, disabilities, etc. is addressed within a fair and coherent employment policy framework that avoids inequalities.
- The digital economy (including digital jobs) require different digital skills, which differ from country to country and from cohort to cohort, based on levels of development, both economic and technological. Therefore, the methods of assessments and implementation of digital skills upgrade suggested by ITU are adapted to each (national) situation.
- Data has revealed that people with low skills have been more impacted by the pandemic, and that women have been more impacted than men have.
- A national e-governance structure can alleviate some negative effects of the COVID-19 crisis as it creates and enabling environment for its residents to explore work opportunities.

This note is based on the WISIS Forum 2020¹ session "Digital skills and the future of work: challenges and opportunities in a post COVID-19 environment" hosted

online by ITU. The session was launched by Dr Eun-Ju Kim (Chief of the ITU's Innovation and Partnership Department) and Ms Sukti Dasgupta (Chief of the ILO's Employment, Labour Market and Youth Branch).

¹ <https://www.itu.int/net4/wsis/forum/2020/>

Challenges and opportunities, an introduction²

In the context of a changing world of work and education, many are the challenges and opportunities. In 2019, debates on the future of work were conducted at all levels of society in the spirit that the world needed to address the mega trends and disruptions that were transforming the world, including debates on climate change, demographic changes, technology, geopolitical trends, etc. The arrival of the COVID-19 Pandemic further exacerbated many of these trends/disruptions and unleashed a series of mega shocks to society as a whole, and to work and education in particular.

Challenges are emerging on both the supply and the demand side of work and education. On the supply side, an increase in demand for appropriate skills (and notably digital skills) as well as access to infrastructure (and notably connectivity) and services; on the demand side, the need for the creation of an enabling environment through adequate recovery packages conducive to decent job creation and to successful implementation of lifelong learning.

It transpired during the WISIS session on “Digital skills and the future of work” that the emergence a new type of inequality in the form of access to connectivity is widening the gap between those that have and those that have not. This year, 2020, we are facing an unprecedented situation which has brought to the surface a connectivity challenge. This challenge includes not only online connection but also the infrastructure needed for the proper functioning of a digital economy (including adequate transport, storage, etc.).

Everyone in the global workforce, during the crisis, has resorted when possible to remote working or teleworking and homework. In addition, schools and training institutions around the world are also providing, where possible, remote teaching and e-learning. According to ITU’s recent estimates, 4.1 billion people were using the internet in 2019, which means that half the

world’s population is still not connected, and thus does not have the option of teleworking or e-learning. A number of initiatives around the world, with and without the support of the UN, are being carried out to expand connectivity in order to mitigate exclusion from working life, education, training and society in general. Successful interventions adopt a holistic approach to digital transformation that includes infrastructure and skills development.

It is important to note that the COVID-19 crisis has reinforced the digital divide in education, where wealthy schools and learning institutions are able to continue with education and the less wealthy cannot. This is forcing the hand of governments to address the digital divide and thus, in the best of cases, redirect support towards transforming a challenge into an opportunity.

The COVID-19 crisis has given an additional push to the ongoing trend of the digital transformation of the labour market. The ILO estimates that job losses could be equivalent to 495 million jobs in the last quarter of 2020.³ The ILO is continuously exploring the impact of the crisis in order to provide recommendations on the way ahead. The recommendations are framed in the ILO Centenary Declaration for the Future of Work.⁴ Adopted in 2019 which highlights the necessity to continue developing and implementing a human-centred approach to the future of work.

During the Pandemic, the ILO has endorsed a policy framework⁵ to stimulate the economy and employment; support enterprises, jobs and incomes; protect workers in the workplace and rely on social dialogue for solutions. In each one of these policy areas, there is enormous potential for digital solutions. Social dialogue and collective bargaining, for example, can support the development of better and decent work in the digital economy.

One of the messages of the WISIS session on “Digital skills and the future of work” was that the challenge is not only one of infrastructure development; expanding connectivity is not enough. Each person needs to have access to the material/equipment/software and the skills

² Maria Prieto, ILO Employment and Future of Work Specialist (and monitor of the WISIS session “Digital skills and the future of work: challenges and opportunities in a post COVID-19 environment”).

³ ILO Monitor 6th Edition, September 2020. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_755910.pdf

⁴ ILO Centenary Declaration for the Future of Work. https://www.ilo.org/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_711674.pdf

⁵ A policy framework for tackling the economic and social impact of the COVID-19 crisis <https://www.ilo.org/global/topics/coronavirus/impacts-and-responses/lang--en/index.htm>

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to use the new technologies. Also, a digital economy needs “hard” infrastructure to be able to work. This is widely recognised and debated and a number of initiatives, including some examples described in this note, are being undertaken. Many such initiatives reach out to populations that had been left behind prior to the pandemic and are today at risk.

As the world is transforming towards a digital society, countries are urged to look at their skills needs and anticipate future skills and labour demand to create appropriate job opportunities through adequate infrastructure. Strengthening the link between digital skills and digital jobs is critical, as highlighted in the joint work of ITU and ILO under the Global Initiative on Decent Jobs for Youth (in Africa, where the challenge is greatest, an initiative on digital jobs for youth was launched⁶) and ILO’s work on skills for the future.

Creating decent jobs for all regardless of age, gender, race, location, disabilities, etc. within a fair policy framework that avoids inequalities using the digital transformation of society is a opportunity to build a better and safer tomorrow.

It is also important to point out that we need to constantly update our knowledge of the ongoing digital transformation. Research and data collection can feed into policy formulation and implementation and turn digitalization from a challenge into an opportunity.

The following four presentations made during the WISIS session on “Digital skills and the future of work: Challenges and opportunities in a post COVID-19 environment” are summarized below:

1. ITU’s Support to countries in addressing the digital skills challenge – a tailor-made approach. By Halima Letamo, ITU
2. Are labour market policies adapting to meet challenges and opportunities, especially for youth, and what are the emerging skills needed? By Juan Chacaltana, ILO
3. A massive introduction of telework has changed the way we work and has long-term implications. By Jennifer Brooks, Microsoft

4. Estonia’s journey towards “full digitalization”. By Florian Marcus, e-Estonia Briefing Centre.

1. ITU’s Support to countries in addressing the digital skills challenge – a tailor made approach⁷

ITU considers digital skills as a very important component of the Organization’s mandate.

To deliver on this mandate, the organisation follows two impact pathways: (i) Development and delivery of specialized training programmes and capacity development workshops for ICT professionals, in partnership with centres of excellence and other UN agencies, as well as partners from the private sector and academia; (ii) development of knowledge resources and delivery of digital skills training at basic and intermediate level, promoting skills development for digital inclusion and producing publications focusing on cross-cutting themes. This includes training delivered through the Digital Transformation Centres as well as development of toolkits and publications.⁸ With the advent of COVID-19 it became apparent that there was need to accelerate interventions which have digital skills development at the core. This acceleration requires a comprehensive needs assessment. In order to assist countries to undertake such needs assessments and make them as comprehensive as they should be, the ITU developed the Digital Skills Assessment Guidebook which was launched in May 2020.

- The first chapter of the Guidebook is a review of existing skills assessment frameworks, with examples of countries that have already undertaken national digital skills assessments.
- The second chapter is on assessment of current national skills levels or the current supply side of skills. This chapter includes guidance on how to choose governance models. It also offers guidance on how to compile an inventory of existing data, on how to collect and analyse and disseminate data. This chapter focuses on what is available in the country at the time of assessment.
- Chapter three looks at assessment of skills needs and gaps, which constitutes the demand side. This chapter

⁶ A joint programme to boost decent jobs and enhance skills for youth in Africa’s digital economy https://www.ilo.org/africa/whats-new/WCMS_758887/lang--en/index.htm

⁷ Halima Letamo, ITU Capacity and Skills Development Officer.

⁸ <https://academy.itu.int/>

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includes guidance on how to undertake desk reviews, appropriate methods to respond to data gaps and different methods of data gathering and analysis, including focus group discussions, sectoral studies, graduate surveys and tracer studies. The chapter also provides guidance of how to use the data from Chapter 2 (skills supply) and data from Chapter 3 (skills needs/demand) to conduct gap analysis.

- Chapter Four concentrates on forecasting future skills requirements. It provides guidance on how to review resources to understand global and regional technology trends, and on how to conduct anticipation exercises. This chapter gives guidance on how to use the information to make strategic decisions and to plan ahead.
- The appendix contains a list of knowledge resources on skills assessments.

The Digital Skills Assessment Guidebook is designed to provide as much flexibility as possible. It was designed with the understanding that each country has different digital skills needs and requirements based on its level of development, both economic and technological.

Therefore, the methods of assessments that the country chooses will depend on the availability of resources and their chosen method of stakeholder engagement.

ITU encourages countries to use the Guidebook and to facilitate policymakers' engagement with relevant partners, including the private sector, non-governmental organizations and academia to craft assessment approaches that match their needs and goals.⁹

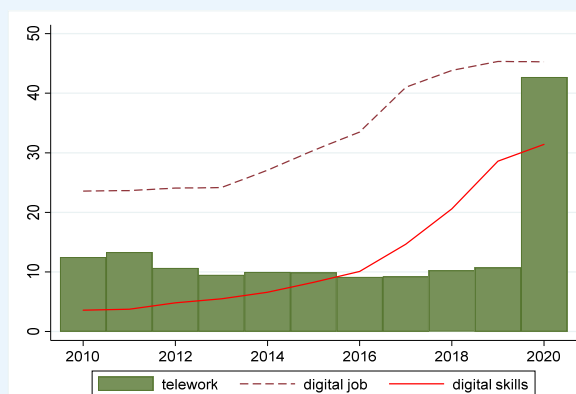
2. Are labour market policies adapting to meet challenges and opportunities, especially for youth, and what are the emerging skills needed?¹⁰

We are currently witnessing tremendous transformations in the labour markets. Before the pandemic, the key topic with respect to the employment policy discussion was the future of work, and particular attention was given to the role of new technologies, the risk of losing jobs and/or the

type of jobs generated. Many concerns were expressed, for example, about new forms of work and their quality.

The pandemic has generated additional disruptive changes in the labour markets. Not only in the short term, associated with the responses during the periods of lockdown and/or reopening phases, but also in the long term. For example, in general, supply-side restrictions generate both winners and losers which will have long-term consequences for the labour market and its structure. In addition, we are observing a sudden increase, a discontinuity, in the use of technology-based solutions such as e-commerce, telework, etc. that will also have long-term consequences such as, for example, in the skills content of labour demand. Focusing on the latter, the graph below uses data from Google Trends and focuses on searches such as digital skills or digital jobs. What can be observed is an increasing trend in the interest in digital jobs and digital skills in the last decade, and a gap between digital jobs and digital skills as labour and educational markets evolve at different speeds. The latter are usually slower. Concerning the term telework, the word of the moment, what was observed was also expected. The trend in searches was almost flat in the last decade, except in 2020, when interest in it jumps sharply due to the imposed pandemic lockdown and containment measures imposed to combat the pandemic.

► Worldwide: Google Trends search for "digital jobs", "digital skills" and "telework"



Source: Own elaboration based on Google Trends (27.07.2020). Annual averages. (*) Average 1 Jan-27 July

⁹ For more information on the Guidebook: <https://academy.itu.int/main-activities/research-publications/digital-skills-insights/digital-skills-assessment-guidebook>

¹⁰ Juan Chacaltana, ILO Employment Policy Specialist

Trends like the ones shown above have triggered discussion on the possibility that the future is already here, at least with regard to technologies. Many questions are thus raised, including:

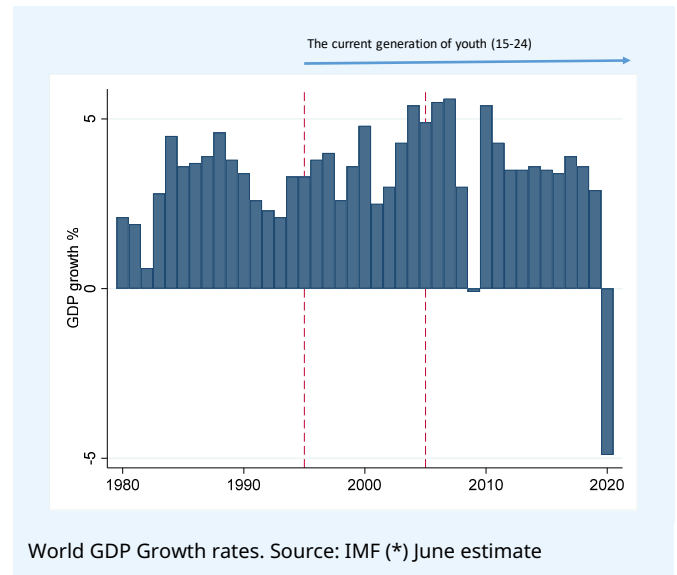
- Are these changes here to stay?
- Is this going to be temporary?
- Is this going to be permanent?
- Are all jobs “teleworkable”?
- For whom is this happening?

Not for everybody, of course, as was mentioned above, which will have implications for the increase in inequality, as there are broad regional and individual disparities across the world.

The discussion on how to increase digital skills in the labour market has acquired a sense of urgency as the uncertainty about COVID -19 remains. This discussion is particularly relevant for youth.

The current generation of youth has a digital advantage, relative to other generations, at least in those places where there is access to these technologies. They are even more participative than other generations, via social media, although not necessarily via traditional means of representation (Chacaltana and Prieto, 2019¹¹). On the other hand, however, as we see in the graph below, the current generation of youth, born between 1995 and 2005, have grown up in a period of multiple and diverse shocks. A financial crisis and now the pandemic, all of which have created new and increasing uncertainties. Thus, there is a question on how young people shape their future expectations of life and work trajectories.

► **Worldwide: Lifespan of the current generation of youth**



The discussion on the effects of the lockdown on the youth looks at how “scars” will follow these generations through decades, probably throughout their entire lives. There is the issue of education and loss of general and specific skills for those that are still in education. In addition, of course, the effects of the current crisis in shaping lifetime expectations.

In the short term, the immediate effect is on the transitions that all young generations go through: the reproductive transition, the educational transition, the school-to-work or to-business transition. The literature shows that the first job in a person’s life is key in influencing lifetime trajectories (Chacaltana, et al., 2019¹²).

In summary, before the pandemic we were discussing disruptive forces related to the future of work. Now, the pandemic itself turns out to be highly disruptive, accelerating some trends that imply both short-term but also important long-term transformations, which puts a lot of pressure on adapting traditional employment policies to the new circumstances. The ILO advocates for a human-centred approach to these transformations.

¹¹ Chacaltana J and Maria Prieto (2019). [Evolution and future of youth employment policies. Global debates and their implications for Latin America](#). In: Bertranou F and Marinakis A (eds). Reflections on work. Perspectives from the southern cone of Latin America on the occasion of the ILO Centenary. ILO. Santiago de Chile.

¹² Chacaltana Juan, Sara Elder and Miso Lee (2019). [Youth transitions and lifetime trajectory](#). Employment Working Paper 253. ILO Geneva.

3. A massive introduction of telework has changed the way we work and has long-term implications¹³

There is a before and an after COVID-19 in the way we work. Rapidly advancing technology is creating great opportunities, but it is also raising challenges. These advances, for example in artificial intelligence and cloud computing, are reshaping our global economy and transforming how we live, how we work, and how we learn.

New technologies have tremendous potential, including how we address society's biggest challenges. However, the rapid pace of this change is creating challenges in itself, especially for those who are not advancing as rapidly in the adoption of these new technologies and the digital skills required to match the changes. Entire communities still lack access to affordable connectivity and its benefits, which make it impossible for many to address the need for learning the required skills, and notably digital skills.

One thing that has been very clear during COVID-19 has been how connectivity has become the new human right. The opportunity of access in telemedicine or accessing opportunities for education depend on connectivity in today's pandemic situation.

Many refer to recovery and the before and after situation. We should however think of this situation as a new normal since we do not see any immediate changes in the sanitary situation in the horizon. Another important realization is that innovation cannot come at the expense of our core values and core needs. Thus, Microsoft's aims at empowering every person and every organization to achieve more. Specifically, as it concerns the humanitarian approach to digital inclusion and livelihoods, Microsoft tries to focus on and ensure reaching those underserved by benefits and opportunities. These include populations such as refugees, displaced people, and especially women

and young girls that can have a disadvantage in the digital economy due to lack of access.

Before COVID-19 almost a billion people were going to need to learn new digital skills. In Microsoft's commitment to the Global Initiative on Decent Jobs for Youth (hosted by the ILO), specific actions on digital skills and youth is taken in fragile situations. The latest UNHCR report¹⁴ shows that more than 85 per cent of the world's refugees live in developing or least developed countries. , only 31 per cent of child refugees attend secondary school rarely finish it, and only three per cent access tertiary education.

On top of the fragile humanitarian situation and the lack of opportunities for livelihoods comes COVID-19, which has two sides of a coin. On one side, it has accelerated digital transformation in three months that would have normally taken years, which provides a tremendous opportunity to expand digital jobs. On the other side, the situations in refugee camps, like in Kakuma in Kenya, the lockdown has closed programmes on digital skills for young people who have no connectivity and cannot go to centres. As a response, UNHCR has developed creative initiatives such as lending hardware and connectivity packages to ensure a certain continuity.

Microsoft has recognised the urgency of the pandemic in its humanitarian action and made resources available to tap into new opportunities. Using the information from LinkedIn to assess the most important and most in demand digital skills opportunities and learning pathways to ensure digital jobs.

Data has revealed that people with less skills have been more impacted by the pandemic. Women and underrepresented communities have been even more impacted than others. Microsoft takes very seriously its commitment to create a future where every person accesses skills, knowledge and opportunities to succeed in this new digital economy. In that commitment Microsoft aims to ensure that 25 million people can acquire those digital skills needed.¹⁵ Not only for the future of work, but also during these difficult times triggered by the COVID-19 pandemic.

¹³ Jennifer Brooks, Microsoft.

¹⁴ Coming together for Refugee Education. <https://www.unhcr.org/publications/education/5f4f9a2b4/coming-together-refugee-education-education-report-2020.html>

¹⁵ Microsoft launches initiative to help 25 million people worldwide acquire the digital skills needed in a COVID-19 economy. <https://blogs.microsoft.com/blog/2020/06/30/microsoft-launches-initiative-to-help-25-million-people-worldwide-acquire-the-digital-skills-needed-in-a-covid-19-economy/>

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In its humanitarian work on COVID-19, Microsoft will accelerate the work with UNICEF on making available the “Learning Passport”¹⁶ for remote learning opportunities for 30 million children that are on the move (geographically displaced), as well as for the one and a half billion children that have been displaced from education.

The long-term implications of COVID -19 are not yet clear to all. None can really understand the full picture. However, it is clear that we need to continue to work also post-COVID - 19 to ensure that remote jobs are possible, that parents and families are able to continue to work from home, and to understand further skills and opportunities on which platforms for digital jobs and digital skills can be accelerated.

There is no perfect recipe that fits every country and every situation. Partnerships are needed to address all the needs and demands. A good example is “Giga”¹⁷, a partnership with ITU, UNICEF. Another good example of collaboration is the mentioned Learning Passport already deployed in 10 countries with ongoing plans to reach an additional 40 countries. These countries want to implement the Learning Passport as a solution that bridges children’s and young people’s education, in a pandemic situation, but also to enable people who are on the move to continue their higher education and become lifelong learners. People who are on the move, who have been displaced from education, or who also have had to stop their education, can use the Learning Passport to continue formal education, a certification that we all need.

It is important to note that there is a sense of urgency; a billion people have no digital skills, and no connectivity. It will take collective and massive action to ensure the livelihoods of a billion people that were already in very fragile situations, to transform the world during this global pandemic, and come together to find global solutions.

There is therefore an urgent need to disseminate knowledge, investments and all our collective intelligence to accelerate this digital transformation and change the way we work, the way we study, and the way we manage inclusive opportunities for education and livelihoods.

4. Estonia’s journey towards “full digitalization”¹⁸

Estonia became independent (again) in 1991, this time from the Soviet Union. The country was not rich, nor did it have people that would want to work in the public sector. It has a relatively small population in a relatively big country. The population density is around the same as Canada and the US, with big cities but also very little in between. That was a challenge for Estonia.

In 1994 the Government took the decision to create the first digital strategy, which was passed by Parliament. For the following five years, Estonia wrote legislation. For example: to allow data exchange between different government authorities, which authority has the right to ask for what data from whom, and so on.

The next thing was the creation of a digital identity for every single person living in the country, both citizens and residents.

► An Estonian ID card



This card is not just an ID card, it is also a medical insurance card and a driver’s licence, and many other things. It is used by private sector companies to register but could be also used as gym membership card, or a bookstore loyalty card. All these different entities can sign up to the same system and thus making the card much more user-friendly and accessible to those who are interested in using services through that card.

In Estonia, 96 per cent of income tax declarations are filed online. It does not matter if you are 18 and starting your first job or 65 years old, about to retire. Most people do their tax declaration online because it is simple.

¹⁶ <https://www.learningpassport.org/>

¹⁷ <https://www.unicef.org/innovation/giga>

¹⁸ Florian Marcus, e-Estonia Briefing Centre, Estonia.

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How did Estonia get people to use these services regardless of age and education level? Education played a big role. In the 1990s and 2000s, the Government funded training for its population through big circus tents, travelling the entire country from village to village to teach basic digital skills. Today, most people know how to work the Internet.

Estonia has a very strong focus on IT studies in the higher education sector. Every 10th university student studies IT, which is a good average. The country's lifelong learning strategy is an important policy as the current programming language might be the best thing right now, but in three years, there is going to be something faster, something better, something more convenient and old skills are no longer needed, thus lifelong learning is a necessity in today's world.

As a consequence, some important questions that are now debated are: Is an entire transformation of the educational sector thus need? Do we still need PhD degrees? Maybe for some things, but for most situations, people do not. Do we still need a Master's degree? This might be the last generation that really wants to do a Master's degree as they might prefer a series of online courses and micro masters.

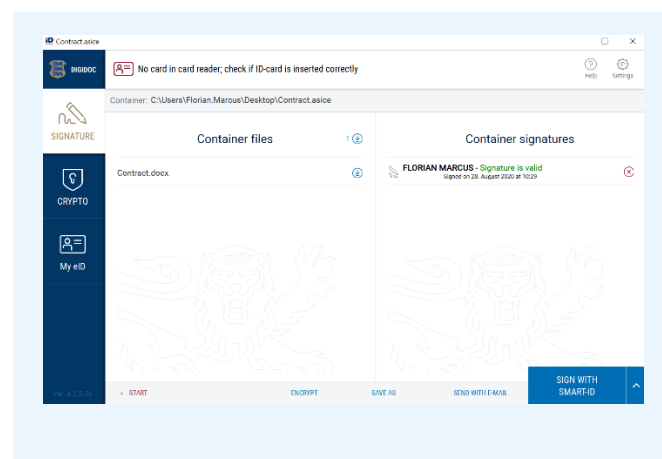
In Estonia, 99 per cent of government services are digital based. For example, every angle of health care is digital, whether it is occupational health or personal health care. Family issues such as marriage, early childhood and pregnancy issues, elderly people, pets, registration of a death or funeral, etc.

Estonia also facilitates the establishment of a company online, in 30 minutes, the payment of invoice, payment of

taxes, etc. Almost 100 per cent of companies created last year were created online.

This high level of e-governance supporting Estonians and their economy during COVID-19. In Estonia, over the last three years, in the first quarter of each year, the average unemployment rate was somewhere between five and six per cent. Last year it was 4.7 per cent and this year, 2020, it is 5 per cent as people have been creating new companies, creating new side incomes and so on, which supports the formalization of labour and the economy as a whole.

► Digital signature in Estonia



The above illustration shows how digital signatures work in Estonia. These are legally binding, so it does not matter whether one has a paper signature or an online signature. They are equally valid and the Government guarantees their security with several million euros. The digital signature alone saves two per cent of GDP in Estonia every year.

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