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On the Way to Welfare 4.0 – Digitalisation in Estonia

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ESTONIA

1. ABSTRACT

- Estonia is a pioneer in digitalisation. Since 2000, internet access has been a fundamental right of all citizens. Furthermore, Estonia has committed itself to consistent and regular renewal of its IT infrastructure, which has resulted in an extensive broadband infrastructure. However, while Estonia is a leader with regard to digital public services, e-government and private use of the internet. There is room for improvement with regard to the integration of digital technologies in the economy.
- Estonia is a forerunner of digitalisation in health care policy. The E-Estonian E-Health Foundation successfully coordinates digitalisation of the health care system. In 2008 Estonia was the first country in the world to implement a uniform nationwide system of electronic patient records, storing the medical history of every resident (Electronic Health Record or EHR).
- Estonian labour market policy has taken the path of deregulation. Since the outbreak of the financial and economic crisis in Europe Estonian labour market policy has been closely oriented towards the “flexicurity” model, along Danish and Dutch lines. The influence of the social partners is correspondingly low.
- Considerable resources have been put into improving the population’s digital skills. Furthermore, various programmes are targeted towards better serving the needs of business in future, taking account of digitalisation.
- Estonian innovation policy is based on digitalisation and especially the promotion of entrepreneurship. For example, the Estonian economy is based on a large number of SMEs and has an above-average founder ratio.
- In its Digital Agenda 2020 the Estonian government has bundled a range of measures aimed at improving the ICT infrastructure as a driver of Estonian competitiveness.

2. A BRIEF OVERVIEW OF THE POLITICAL AND ECONOMIC SYSTEM

The Republic of Estonia became independent from the Soviet Union on 20 August 1991; the current constitution came into force in July 1992, after a referendum. The constitution contains the basic principles of democracy and asserts that “the supreme power of state is vested in the people”. While the protection of living space and the environment are anchored in §53 of the constitution, it contains no fundamental social rights, so that the welfare state has little formal basis. The most northerly Baltic state acceded to the EU in May 2004 and adopted the euro as its currency in 2011. Estonia is also a full member of the OECD. After independence Estonia implemented comprehensive political and economic reforms. In this context the transition from a planned to a market economy was conducted consistently and successfully. Estonia’s economic development was interrupted in the crisis year 2009 and output fell by 14 per cent. Since 2011, however, Estonia has once more been on a growth path. Key economic branches include manufacturing industry, transport, telecommunications, tourism and trade. High growth rates have been achieved in the service sector. In 2015 real GDP grew by 1.4 per cent. Although in 2016 economic output and nominal labour productivity are below the EU average, the unemployment rate is also below average, at 6.8 per cent. Investment in research and development, at 1.44 per cent of GDP, as well as the number of people with a tertiary education (13.2 out of 1,000) in the so-called MINT subjects are also below the EU average (see Table 1).

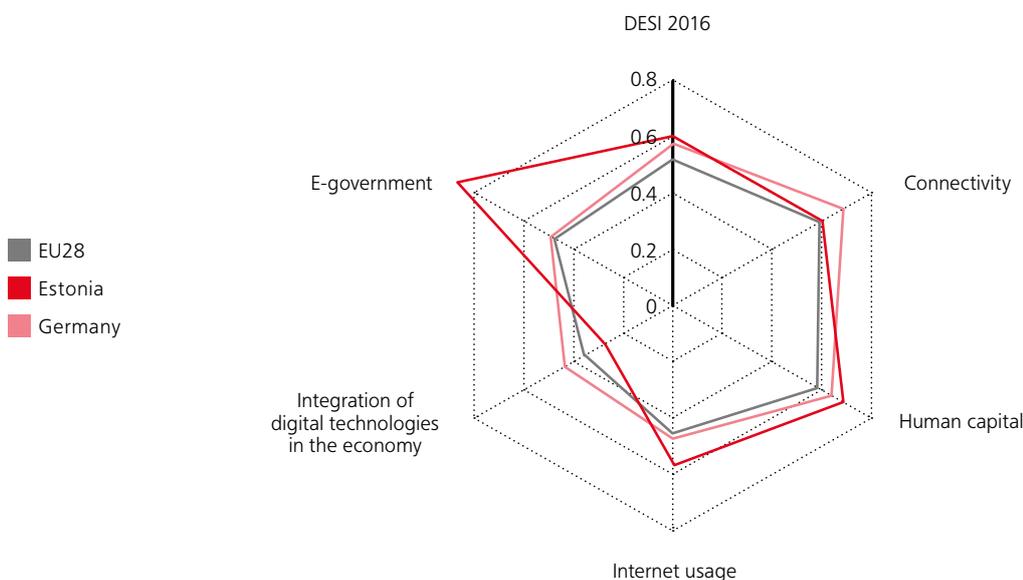
The economic reforms were accompanied by reforms of the welfare state. With a very low proportion of social spending in GDP of 14.8 per cent, above-average income inequality, a very low trade union density and weak institutionalisation of industrial relations the Estonian welfare state has markedly “liberal” (Esping-Andersen) characteristics. A particular social challenge is the integration of the Russian minority and the continuing shrinkage of the population due to emigration. Among other things, digitalisation represents a great development opportunity. Despite the country’s comparatively low urbanisation – only 68 per cent of the population live in

Table 1
Overview of Estonia¹

Indicator	Estonia	EU28
Form of state	Democratic republic	
State organisation	Unitary	
Party system	Multi-party system	
Electoral system	Proportional representation	
EU member since	1 May 2004	
Inhabitants/km ²	30.3	116.7
Urbanisation (% of population)	68	74
Welfare state regime	Liberal / post-soviet	
Income inequality (distribution quintile)	6.2	5.2
Social expenditure (% of GDP)	14.8	28.6
GDP per capita (PPS, Index: EU=100)	74	100
Growth rate (real GDP in comparison with previous year)	1.4	2.2
Budget deficit/surplus (% of GDP)	0.4	-2.4
Labour market productivity nominal per employee (Index: EU=100)	69.7	100
Harmonised unemployment rate	6.8	8.6
Trade union density (0–100)	5.65	
R&D total spending (% of GDP)	1.44	2.03
Proportion of people 20–24 years of age with at least upper secondary education (%)	83.4	82.7
Tertiary education in MINT subjects (per 1,000 graduates)	13.2	17.1
DESI (0–1; 1=digitalised society)	0.59	0.52
Proportion of regular internet users (16–74 years of age) in %	86	76
Internet penetration (% of households)	88	83
Proportion of households with broadband connection (%)	87	80
Proportion of companies with broadband connection (%)	97	95

¹ Data sources, if not otherwise specified: Eurostat, <http://www.ec.europa.eu/eurostat> (3.10.2016), data from 2016 or next available year; data on type of welfare state: <http://www.learneurope.eu/index.php?cID=300> (3.10.2016); data on level of urbanisation: data.worldbank.org (3.10.2016); data on trade union density: OECD, https://stats.oecd.org/Index.aspx?DataSetCode=UN_DEN (3.10.2016); data on digitalisation: Digital Economy and Society Index (DESI) 2016, <http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard> (28.9.2016).

Figure 1
Development of a digital society in Estonia by comparison with Germany and the EU28



Source: Digital Economy and Society Index 2016.

towns – Estonia has many features of a digitalised society. The proportion of regular internet users and the proportion of private households and companies with broadband connections are well over the EU average.

3. STATE OF DIGITALISATION

Estonia is thus rightly described as a digitalisation pioneer. For example, as early as 2000 the Estonian parliament introduced a fundamental right to internet access for all citizens. Parliament also decided that the IT infrastructure should be renewed every seven years in order to ensure technological progress. This commitment is reflected, for example, in the early and extensive implementation of broadband infrastructure, even though this has stalled somewhat for a few years and applies mainly to urban areas. More than 12 per cent of the Estonian population are still waiting for fast internet connections, well above the EU average (3 per cent) (Digital Economy and Society Index 2016). With regard to mobile broadband connections, however, Estonia is third in the EU, also due to the substantial drops in prizes for mobile telephone and internet use and the wide availability of WLAN networks.

If one looks at, besides purely technical parameters, other indicators, Estonia ranks seventh in the DESI 2016² with regard to the development of the digital economy, right alongside Germany, Austria and the Netherlands.

² DESI is an index composed of five dimensions, which surveys the development of EU member states towards a digital society. Developed by the European Commission (DG CNECT) the index encompasses connectivity, human capital, internet usage, integration of digital technologies in the economy and digital public services (e-government). The Index varies between 1 and 0, with 1 representing the highest value, cf. <http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard> (28.9.2016).

Estonia is above the EU average in all sub-indices and is characterised in particular by high growth rates. While the country is a leader in digital public services and the private use of the internet, it lacks behind with regard to the integration of digital technologies in the economy, lying a lowly twenty-second in the EU (DESI 2016).

Estonia took an early lead in Europe in the area of digital administration. The basis of the early digitalisation of broad swathes of the administration was the decentralised online platform “X-Road” introduced in 2001, which now links around 1,000 institutions offering numerous digital services. A plethora of e-services have been established: for example, almost every Estonian has an e-ID card, which has been available on a mobile basis since 2007 (e-Estonia 2016). In addition, for many years Estonians have been able to complete their tax declarations online, since 2002 to pay by mobile telephone and since 2005 to vote online (initially in municipal elections). In the European elections in 2014 one out of every nine votes were cast electronically and in the parliamentary elections on 1 March 2015 one voter in five voted through the internet.

4. HEALTH CARE POLICY

Estonia has the lowest social spending in the European Union, at 16.4 per cent of GDP (OECD 2016). Accordingly, state expenditure on the welfare state and on redistribution within the system are rather low. Social inequality is thus high (World Bank 2016). Although Estonia bears many similarities to the so-called “liberal” variety in various areas of the welfare state, in the health care system there are also features of a conservative or even social democratic system. On the one hand, decommodification – for example, with regard to daily sickness benefits with a replacement rate of around 70 per

cent of wages – is relatively high; on the other hand, medical care is based rather on equal treatment of people covered by health insurance, even though at a fairly low level.

After independence from the Soviet Union the Estonian health care system was first decentralised and partly privatised (especially the hospitals; cf. Ross 2015). With the National Health Plan of 2008, however, we can observe tendencies towards recentralization. These tendencies are even stronger since competences were concentrated within the Ministry of Social Affairs, which is responsible for this policy area, encompassing not just health care, but also employment, social security, children and the family, and even gender equality. In Estonia all citizens and residents who pay the “social tax” (Sotsiaalmaks) are subject to compulsory health insurance. Health insurance is funded by employers, who pay 13 per cent of monthly gross wages into the Estonian Health Insurance Fund (EHIF – Eeti Haigekassa). (In total, 33 per cent of income are deducted in the form of social contributions: 13 per cent for the EHIF and 20 per cent for pension insurance.)

Although state spending on health care rose continuously from 2000 to 2015, it remained comparatively low at around 4.2 per cent. It is also striking that relatively few people are employed in the health care system (OECD 2016) and, indeed, many nurses and doctors emigrate. Thus medical provision is strained, especially in rural areas, because the number of both hospitals and medical specialists has been falling for years. On the other hand, the number of care places has risen enormously in recent years.

But the health care system also provides considerable evidence of Estonia’s status as digitalisation pioneer. Since 2005 the Estonian E-Health Foundation has successfully provided a forum for coordinating the digitalisation of the health care system. For example, in 2008 Estonia was the first country in the world to implement a nationwide uniform system of electronic patient records to store the medical history of all residents (Electronic Health Record – EHR). Doctors and patients have equal access to these records, although the latter can also restrict access. More than 70 per cent of Estonians make use of the EHR (e-Estonia 2016), although particularly older people – especially in rural areas – have difficulties with it, both in terms of technical access and the necessary digital skills. Thus as early as 2002 the Estonian government launched an initiative intended to facilitate internet use for all social groups. The EHR, after all, also offers citizens the opportunity to make doctor’s appointments and to receive reminders about them, as well as to conduct teleconsultations with the doctors treating them. Another important function is the issuing of prescriptions: 98 per cent of all prescriptions are now done online via the X-Road system.

5. LABOUR MARKET POLICY

The Estonian labour market is split: On the one hand, there is a large number of highly skilled people especially in the urban areas; on the other hand there are large numbers of under-qualified people. Long term unemployment figures show that these are especially elder cohorts, people from rural areas and non-Estonians.

Estonian labour market policy has long pursued a (neo) liberal course. The influence of the social partners is correspondingly low. The employers are represented by four central organisations. The most influential of these, besides the Estonian Chamber of Industry and Trade (EKTK) is the Central Union of Estonian Employers and Industrialists (ETTK), representing around 1,500 companies, employing more than one-third of all private sector employees. Another important interest representative is the SME Association of Estonia (EVEA) (EWS 2013). But only around one in ten employees are trade union members. Among the trade unions, the Estonian Trade Union Confederation (EAKL) and the Estonian Employees’ Unions’ Confederation [sic] (TALO) exercise the most influence. However, institutionalisation of industrial relations in Estonia is relatively weak. For example, at local level and among broad swathes of SMEs there is almost no trade union representation.

Since the outbreak of the European financial and economic crisis Estonian labour market policy has been strongly oriented towards the so-called “flexicurity” model, as it was introduced for example in Denmark or the Netherlands. A key actor in this regard, besides the Ministry of Social Affairs, is the Estonian Unemployment Fund (Eesti Töötukassa), which is responsible for both passive and active unemployment assistance. In 2009 it took on the tasks of the Employment Office and has local representation in each district (European Economic and Social Committee 2013).

Unemployment insurance is funded by employer and employee contributions (0.8 per cent of the gross wage for employers and 1.65 per cent for employees – BMAS 2016). Unemployment benefit is state-funded and, at a mere 4 euros a day, very low. Resources for both active and passive labour market measures are extremely tight, both relatively and in absolute terms, with almost half of the Budget coming from the European Social Fund. Among these measures the Estonian government has in recent years increasingly focused on activation, education and acquisition of qualifications, also with regard to digitalisation.

For example, considerable resources have been put into boosting digital skills. Within the framework of the nationwide gaming project “Bit by Bit”, for example, pupils between the ages of seven and eleven years of age study programming. Besides school education, the same approach is being tried in further training, for example, with qualification schemes such as “Tech Entrepreneurship” and “IT Innovation”. Such schemes as the Lifelong Learning Strategy 2014–2020, adopted by the Estonian parliament in 2014, the Adult Education Act and the Professionals Act of 2015 are aimed at better meeting labour market needs with regard to digitalisation. In this context the Ministry of Social Affairs will cooperate more intensively in future with the Ministry of Education and “Foundation Innove”.

6. INNOVATION POLICY

Responsibilities with regard to Estonian innovation policy are distributed across various ministries, although they lie principally with the Ministry for Education and Research (Haridus- ja Teadusministeeriumi) and the Ministry for the Economy and Telecommunications (Majandus- ja Kommunikatsiooniministeerium). However, spending on innovation policy is below average by international comparison. This is also evident in relation to general expenditure on research and development for the economy as a whole. It is striking that in Estonia this has been falling for years – from 2.31 per cent of GDP in 2011 to 1.44 per cent in 2014 – while in the EU28 as a whole it has risen above 2 per cent during the same period.

Estonian innovation policy prioritises, both, digitalisation and the promotion of entrepreneurship. For example, the Estonian economy is based on a multitude of SMEs and has an above-average founder ratio. The Global Entrepreneurship Monitor (GEM 2016) acknowledges Estonia's dynamic development, high innovativeness and continuously rising propensity to establish start-ups. Estonia also offers the opportunity of a so-called "e-residency", which is available to foreign citizens, both to improve start-up conditions for foreigners wishing to establish companies, and to attract workers. Estonia is also catching up in relation to the provision of funding. In 2010 the Estonian development fund set up an affiliate company, "SmartCap", to provide comprehensive growth funding, aimed at bringing together start-ups with capital and "business angels". In addition, the Estonian state has set up the development fund Arengufond to promote information technology and digitalisation in application sectors. For example, around a quarter of the total industrial research budget flows into the IT sector.

This is bundled into various clusters – the Estonian ICT cluster, the Industry 4.0 cluster and the Connected Health cluster – with good links to the Estonian research system. In proportion to the size of the country, Estonia has an internationally renowned research sector, especially in the area of information technology. Besides the three state-run universities in Tartu and Tallinn there are two competence centres (ELIKO, STACC), a private research institute (Cybernetica) and a state research centre (KFBI).

The government has bundled its measures for improving the ICT infrastructure in its Digital Agenda 2020 as a driver of Estonian competitiveness. In detail, it plans, among other things, to expand the broadband network and to boost transfer speeds, as well as to put digital signatures on a sounder footing. Activities in the area of Estonian innovation policy since 2014 have pursued two medium-term policy strategies (2014–2020): the Estonian Research and Development and Innovation Strategy and the Estonian Entrepreneurship Growth Strategy. One aim is to increase research and development spending by 2020 to 3 per cent of GDP (Lisbon target), with two-thirds being funded by business. Given the constant decline of this indicator over the past five years, however, this target seems ambitious to say the least. However, in boosting its research and development Estonia is relying on the European Structural Funds. For example, the current Operational Programme for Estonia makes available 4.4 billion Euros during the funding period, 3.53 billion of which come

from the European Cohesion Fund, with a particular focus on the innovativeness of the Estonian economy.

7. SUMMARY

Estonia, given its pioneering role (for example, in e-government), its size and its economic structure, is well prepared to benefit from the increasing digitalisation both economically and socially. In recent years, for example, it has been shown that the digitalisation of the health care system (for example, electronic patient records) can do a good job of making up for some of the weaknesses in medical provision (for example, poor hospital network, few doctors). However, this only goes part of the way to tackling the structural polarisation in Estonian society. There are still cleavages separating rich and poor, young and old, rural and urban, but also Estonian and non-Estonian. This has also manifested itself in certain aspects on the road towards the information society: winners here (for example, young, well qualified employees in Tallinn's high tech clusters), losers there (for example, public sector employees or agricultural workers, pensioners and non-Estonians in the north-east of the country). Estonia will still have to invest substantially in the expansion of the welfare system in order to reduce social inequality and to avoid serious social tensions.

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