

Daniel Buhr and Rolf Frankenberger

On the Way to Welfare 4.0 – Digitalisation in Sweden

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SWEDEN

1. ABSTRACT

- The Swedish welfare state is characterised by low social inequality and high social security. It also has a high degree of corporatist penetration and a strong non-governmental sector. The close links between the state, society and business may be one reason for Sweden's positive economic development.
- After the economy slumped in the wake of the financial and economic crisis in 2008–2009 and stagnation in 2012, the Swedish economy has grown steadily and substantially more strongly than the European average. The reasons for this include the strong investment in research and development and the systematic digitalisation of society and the economy.
- Sweden has for years been among the leading countries in the international rankings on digitalisation. Sweden's – by global comparison – very good performance with regard to technology is mirrored in social and economic outcomes.
- With regard to both the expansion and the level of digitalisation Sweden's strongly hospital-centred health care system is a global leader. This has been achieved through a national health care reform that includes investment in digital infrastructure and rationalisation of organisation in the regions.
- The Swedish innovation system is one of the most successful in the world and the proportion of spending on research and development in GDP has risen constantly since 1997. One weakness of the innovation system, however, is the expandable transfer of basic research to marketable innovations.

2. BRIEF OVERVIEW OF THE POLITICAL AND ECONOMIC SYSTEM

Sweden can be characterised as a decentralised unitary state because while, on the one hand, it has a parliamentary system of government with a unitary state structure, on the other hand, it has a high degree of autonomy and self-determination at subnational level enshrined in the constitution. Besides the strong national state there is a strong municipal level with considerable freedom with regard to local self-administration. Its strong role can be attributed rather to informal institutions and a correspondingly long tradition of political action, however; in the constitution itself there are no sections explicitly concerned with the tasks of municipalities (Förster et al. 2014). In terms of the practical division of labour the national ministries in individual policy areas come up with action programmes, which then find their way into laws or recommendations, which must be implemented by all subordinate levels in the three-level planning structure. Especially in the 1990s the municipalities were given more and more responsibilities – for example, schools – and their significance rose accordingly. In total around 83 per cent of all public sector employees are at municipal level, compared with only 35 per cent in Germany, for example (Wollman 2014). Sweden can be considered the prototype of the Scandinavian five-party system, with a Social Democratic Party (SAP) that has been dominant for many decades and laid the foundations for the Swedish welfare state ("Volkshem"). Only in the 1980s was this system interrupted – for example, by parties such as the Greens and later the Pirates – and the dominance of the SAP has continued to decline.

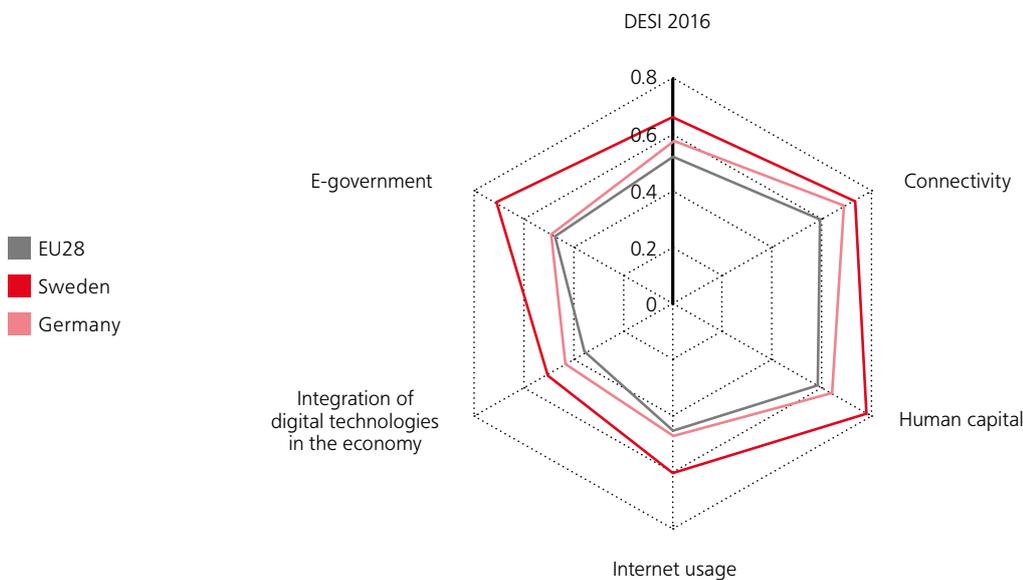
Following Esping-Andersen (1990) the Swedish welfare state is frequently characterised in the literature as the "ideal type of the social democratic welfare state" (Förster et al. 2014). Its features include a comparatively low social inequality (income quintile ratio: 3.8) in the context of strong redistribution and a high rate of social spending (30 per cent of GDP). This also finds expression in Sweden's high corporatist penetration. Civil associations and interest representation are also well developed, for which Götz (2001: 382) has coined the term "Organisationssverige" (Associational Sweden).

Table 1
Overview of Sweden

Indicator	Sweden	EU28
Form of state	Constitutional monarchy	
State organisation	Unitary	
Party system	Multi-party system	
Electoral system	Proportional representation	
EU member since	1 January 1995	
Inhabitants/km ²	23.8	116.7
Urbanisation (% of population)	86	74
Welfare state regime	Social democratic	
Income inequality (distribution quintile)	3.8	5.2
Social expenditure (% of GDP)	30	28.6
GDP per capita (PPS, Index: EU=100)	123	100
Growth rate (real GDP in comparison with previous year)	4.1	2.2
Budget deficit/surplus (% of GDP)	0	-2.4
Labour market productivity nominal per employee (Index: EU=100)	113.2	100
Harmonised unemployment rate	7.2	8.6
Trade union density (0–100)	67.26	
R&D total spending (% of GDP)	3.16	2.03
Proportion of people 20–24 years of age with at least upper secondary education (%)	87.3	82.7
Tertiary education in MINT subjects (per 1,000 graduates)	15.9	17.1
DESI (0–1; 1=digitalised society)	0.67	0.52
Proportion of regular internet users (16–74 years of age) in %	89	76
Internet penetration (% of households)	91	83
Proportion of households with broadband connection (%)	83	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 Sweden by comparison with Germany and the EU28



Source: Digital Economy and Society Index 2016.

Interest-representing organisations are involved in both committee work and parliamentary bodies, to which they are either delegated or invited. The relations between the Social Democratic Party (SAP) and the trade union federation are also very close. Although trade union membership is not compulsory, it is strongly recommended (Bengtsson 2008: 4–5). This is all the more significant because trade union density in Sweden is very high by European comparison.

The close links between the state, society and the economy are one reason for Sweden's positive economic development. After the economic slump in the wake of the financial and economic crisis 2008/2009 and stagnation in 2012, the Swedish economy has grown continuously and significantly higher than the European average. Two other reasons are the strong investment in research and development, in respect of which Sweden is a world leader, at 3.16 per cent of GDP, as well as the systematic digitalisation of society and the economy.

3. STATE OF DIGITALISATION

Sweden has occupied a leading position in the international digitalisation rankings for years, whether it be in the Networked Readiness Index of the World Economic Forum or the IT Ranking IDI 2015 of the International Telecommunications Union (ITU). Sweden's very good performance in the technical domain – by both European and global comparison – is reflected in social and economic terms. For example, In the EU's digitalisation index, the Digital Economy and Society Index (DESI²), Sweden occupies third place with 0.672 (out of 1), behind Denmark and the Netherlands (EU28 average 0.51). In particular in the realms of human capital, internet usage and e-government Sweden leads the field, while in relation to high-level industrial usage there is still room for

improvement. However, in Sweden in contrast to some other countries development has slowed, putting it among the countries that are "lagging ahead". Given the high level of development, however, this is not surprising and affects other high performers, such as Finland (EDPR 2016).

As suggested by the European Commission, Sweden is pursuing a "Digital Agenda". Building on earlier strategic papers – for example, national broadband strategy, e-government strategy, ICT for a "greener" administration, e-health strategy – the government published a Digital Agenda as early as 2011, entitled "ICT for Everyone – A Digital Agenda for Sweden". It postulates that every area of both social and economic life should be able to benefit from the possibilities opened up by modern ICT. This Digital Agenda is complemented by a strategy for regional growth and a national innovation strategy. The principal aim of the Digital Agenda is to provide 90 per cent of private households with broadband transfer speeds of at least 100 Mbps by 2020. Even in 2013 more than 98 per cent of all workplaces and private households had access to 4G mobile networks (GTAI 2016).

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).

4. HEALTH CARE POLICY

The Swedish welfare state operates on the basis of universal care, providing far-reaching social services and benefits largely financed by the state and thus borne by society as a whole. This pertains to, among other things, care for children, old people, people in need of care, families and the unemployed, but also to sickness and care insurance, although there have been major reforms over the years. In the course of these reforms responsibilities have increasingly been passed to the municipal level. Districts or regions are now responsible only for medical provision, mainly at the 800 or so primary care centres run by the regional authorities (Gerlinger/Reiter 2014), which employ GPs, nurses, midwives and obstetricians, physiotherapists, paediatricians and gynaecologists. There are also a large number of so-called district nurses. These nurses make house calls, particularly to older people, can prescribe medicines in certain cases and if necessary refer patients to GPs or hospitals. There is scarcely another OECD country in which patients have so little direct contact with doctors as in Sweden. Primary health care provision is supplemented by around 300 private practices that receive public funding within the framework of contracts with the regional authorities, as well as a small number of small private hospitals, found mainly in the urban centres (Gerlinger/Reiter 2014).

Smaller district hospitals, run by the regional authorities, provide basic in-patient care. In addition, the regional authorities run large central hospitals with additional specialist departments and various specialists. Very complex cases or rare illnesses are treated in regional hospitals. In comparison with Germany doctor density in Sweden is lower, although the number of nursing staff in relation to size of population is a bit higher.

By international comparison, the Swedish health care system is relatively well developed, if very hospital-centred. That also applies to health care digitalisation, with regard to which Sweden is a leading country. In order to promote the digitalisation of the health care system, the regions and provinces, the municipalities' association, the employers' organisation in the private health care sector and the association of Swedish pharmacists set up Carelink, a national cooperation project, in 2000. But Sweden's leading role can also be seen, for example, in its early introduction of national electronic patient records, implemented between 2008 and 2012. The statutory basis for this was the New Swedish Health Care Act of 2005. Progress towards a nationwide health care network – within the framework of a national health care reform – first involved corresponding investment in digital infrastructure and organisational unification in the regions. These were then interlinked on the basis of a uniform nationwide standard. Today in Sweden all health care institutions are linked together: specialists and clinics, care organisations and pharmacies. This virtually merges data from source systems by means of an overarching patient management system. Thus the Nationell Patientöversikt (NPÖ) makes the desired data available at a click to all authorised persons, online and password-protected (for example, treatment history). To that end data related to treatment are stored temporarily in the electronic

patient records. The owner of the data remains the health care institution that originally gathered it.

Many processes are now almost entirely digitalised. For example, 98 per cent of all prescriptions are already passed on to pharmacies online or are accessible to them via a central databank (eHälsomyndigheten 2016). It is also possible to find out this way whether medicines have been reordered too early or prescribed twice. Only in the next stage can patients interact directly with the NPÖ. However, almost all Swedish citizens gave their consent to participation in the programme (Klein 2016). The NPÖ forms the basis for the further expansion of digitalisation, which is also being supported and coordinated by a designated authority, the Swedish eHealth Agency (eHälsomyndigheten). Especially in sparsely populated central and northern Sweden great hope has been invested in telemedicine; remote diagnostics by specialists and self-monitoring in the case of chronic illnesses are now widespread.

5. LABOUR MARKET POLICY

The Swedish labour market is characterised by high employment participation – in particular among women, a high level of training and a relatively high propensity to invest in training and research. The National Labour Market Board (Arbetsmarknadsstyrelsen), together with its substructure – the County Labour Offices (Länsarbetsnämnd) and local labour offices – are responsible for traditional labour market policy (unemployment benefit, further training and job placement). As in most Nordic countries, unemployment insurance in Sweden is subject to the so-called Ghent system: voluntary and trade union-based unemployment insurance, in which the trade unions take care of organising insurance funds and receive state subsidies for the purpose (Förster et al. 2014). Membership contributions cover primarily administrative costs, whereas actual disbursement of unemployment benefit comes almost exclusively from state funding. Although by international comparison inequality and poverty levels are relatively low, they are becoming increasingly negative (Olsson et al. 2012: 19), which among other things is due to the growing dualisation of employment. Well qualified workers continue to be well treated in the Swedish labour market, while in recent years the number of short-time and part-time employees, as well as low qualified people, has been increasing and with it the number of badly paid jobs. This development is increasingly eroding the model of the Swedish Volksheim.

It is still uncertain what precise role digitalisation will play in future. Thus in spring 2015, the Swedish government established an independent commission to analyse the future of work and its consequences for the Swedish economy. In the current debate on the future of work the dominant notion is that the high ICT investments of recent years will usher in radical labour-saving technologies (Andersson 2016). It is expected that the digitalisation of the workplace, accompanied by a high substitution elasticity between ICT capital and labour utilisation, will make many non-manual workplaces superfluous, which would exacerbate the dualisation or polarisation of the Swedish labour market. The fact is, however,

that Sweden's ICT sector, with around 140,000 mainly well paid employees, makes up just under 12 per cent of all jobs in industry. By international comparison this proportion is almost twice the EU average.

In the coming years, it will be one of the key tasks of the Swedish government to drive digitalisation forward as systematically as it has to date, but also to maintain the inclusive character of the Swedish welfare state. In that context, the trade unions in particular are keen on developing a more flexible education and training policy and boosting a universal social insurance system (Andersson 2016). The Swedish government is also banking on international cooperation. For example, in September 2016, together with the OECD and the ILO, Social Democratic Prime Minister Stefan Löfven – as one of its initiators and drivers – presented a “Global Deal” for decent work and inclusive growth.

6. INNOVATION POLICY

The Swedish innovation system is one of the most successful in the world. The amount set aside in the government budget for innovation – the total sum of money to promote research, industry and regional growth – has grown continuously since the late 1990s. Innovation expenditure was increased between 1997 and 2014 from 2.5 to 4.3 per cent of the budget (from 0.8 to 0.9 per cent of GDP). However, Sweden's returns on innovation are relatively low, which can be discerned in the fairly moderate productivity figures. A high proportion of Swedish spending on R&D is in ICT. This is one of the reasons the Nordic country is a European leader in the development and early marketing of new ICT products and services. However, it recognised the potential of so-called Industry 4.0 relatively late in the day. In the meantime, however, a plethora of initiatives have been launched, including the innovation programme Production 2030. Within the framework of this programme, coordinated by the employer association Teknikföretagen and funded by the state research authority Vinnova, a range of research and innovation projects are supported, for example, with a focus on automation in quality control and cloud-based service solutions for preventive maintenance of networked production systems. However, the initiatives exhibit a strong focus on technological development. One of the weaknesses of the Swedish innovation system is the rather moderate transfer of basic research into marketed innovations. One frequent explanation of this is the fairly heterogeneous management of the innovation system, which is reflected in innovation policy (OECD 2016). Responsibilities are traditionally widely dispersed: the Swedish Ministry for Education and Research is responsible for education, research and development. Responsibility for innovation and industry-oriented research and development remains primarily with the Ministry for Enterprise, Energy and Communication. In addition, the Ministry of Defence and the Ministry of the Environment also have competences and financial resources in the area of research and development, with the high autonomy characteristic of Swedish policy-making. Furthermore, there are a series of consultancy bodies and agencies performing primarily research-policy tasks, such as the Science Council (VR) and the Research Council

for the World of Work and Social Sciences (FAS), the Research Council for the Environment, Agriculture and Social Development (FORMAS) and the Swedish Agency for Innovation Systems, VINNOVA.

This hinders effective coordination of innovation policy. The Swedish government reacted to this state of affairs with the introduction of the National Innovation Council (Nationella Innovationsrådet) in October 2014. Under the leadership of the Prime Minister the Council comprises representatives from government, employer associations, trade unions and the research community and has been furnished with its own resources. The Innovation Council can be seen as an attempt to better coordinate innovation policy in the future. The Council has set itself the ambitious goal of developing a new innovation strategy and breathing new life into innovation policy. That is also reflected in the appointment of a designated minister responsible for innovation (Ministry for Enterprise and Innovation). The primary aim is job creation and the lowest unemployment rate in the EU by 2020. Two more short-term goals are to improve risk capital financing and to introduce innovative public procurement, with its own minister and authority (Andersson 2016; Edquist 2016). The Swedish government hopes that in this way the considerable government and municipal budgetary resources for public procurement – between 65 and 85 billion euros – can be used to drive innovation.

7. SUMMARY

Digitalisation remains an important issue on the Swedish government's policy agenda, especially the question of how productivity growth can be fostered in both the public and the private sectors. Education, training and labour market measures are to be used to help familiarise employees with new ways of working to ensure that the costs and utilisation of digitalisation are borne and taken advantage of by all parts of society and not only by some branches or social groups (Andersson 2016). The inclusion of the health care system appears extremely promising, in particular Swedish policy has considerable direct management potential as welfare provider. These options are, on the one hand, enhanced by the extensive autonomy at the municipal level – also as an innovation laboratory for the deployment of new digital solutions – but, on the other hand, hindered with regard to policy coordination. With the establishment of the National Innovation Council headed by the prime minister, Sweden has introduced a very promising instrument for managing development. Now it will turn out whether it is possible to modernise the welfare state while maintaining or reviving its traditional strengths (Volksheim).

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