Claudia Christ and Rolf Frankenberger

On the Way to Welfare 4.0 – Digitalisation in France

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FRANCE

1. ABSTRACT

- France lags some way behind with regard to digitalisation both by European comparison and internationally. This applies both to the technological side (for example, connection speeds) and to the social dimension of digitalisation (for example, internet use and digitalisation of the economy).
- France is one of the most innovation-friendly countries, ranking sixth in terms of expenditure on research and development.
- Experts are convinced that France has a very good basis for global competitiveness due to favourable reforms and strong innovativeness. A key challenge, however, is the digital transformation of SMEs, which in some cases are characterised by obsolete hierarchical structures.
- Digitalisation is viewed mainly as an opportunity to prepare the French economy for global competition and to develop into a leading nation with regard to work, health and innovation.

2. BRIEF OVERVIEW OF THE POLITICAL AND ECONOMIC SYSTEM

The Fifth French Republic is a semi-presidential democracy with the executive branch strongly dominating the legislature. The prominent position of the president derives from the "domaine reservé" in foreign and security policy anchored in Articles 14 and 15 of the Constitution. Despite a strengthening of the regions by reforms in 1982 and 2003, in which the local level obtained far-reaching administrative and fiscal rights and decentralisation was enshrined in an amendment to Article 1 of the Constitution, France can still be described as a decentralised unitary state. The frequent accumulation of offices at different political levels in one person underlines this, as does the considerable economic significance of the centre, the Île-de-France. The French multiparty system is characterised by frequent changes. Re-establishments and mergers of parties occur often. Currently, six parties are represented in parliament, although the government is based on the absolute majority of the Parti Socialiste. The parties are rather weakly organised in comparison with those in Germany.

France's economy is the sixth largest in the world and, with Germany, it is the most important industrialised country in Europe. Besides services and tourism, aviation, energy, agriculture, chemicals and electronics are the most important sectors. Although the state maintains a central guiding role in the economy in the wake of numerous reforms, the economy has shifted in a more deregulated direction with the aim of boosting economic growth. One recent instance of this is the Law for growth and economic activity (Loi pour crioissance et l'activité) passed in August 2015. Comprehensive reforms in the direction of more "flexible" labour markets are being discussed, although they have met with opposition, not least from the trade unions (see Table 3).

The French welfare state is highly regulated and numerous social insurance systems offer broad social and medical coverage. Similar to Germany the French welfare state has been exposed to constant pressure for change since the 1980s, the basis for which to some extent lies in the system itself: "The funding of social insurance as cornerstone of the welfare state is based … in large part on employee contributions and thus depends substantially on economic developments and the number of people in employment" (Grillmayer 2012: 222). While insurances and families constitute the backbone of the French conservative welfare state, there are also broad universal benefits and measures, such as the minimum wage (SMIC) and so-called reinsertion benefit (RSA – revenue de solidarité active). However, France is mainly categorised as a conservative welfare state in Esping-Andersen's sense.

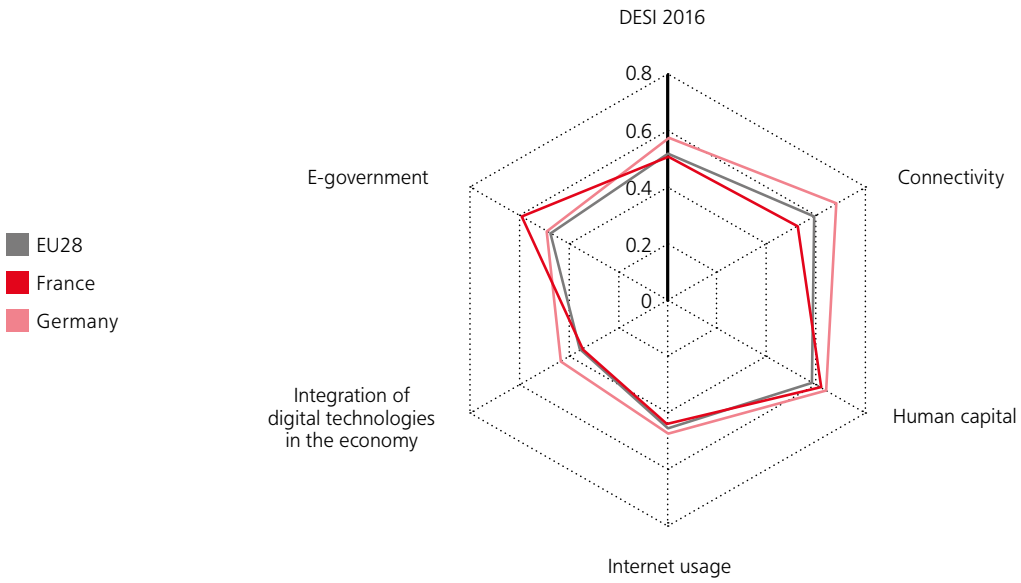
The French welfare state is similar to that of Germany not only in its core institutions such as a social insurance system, but is also affected by similar problems: falling economic growth, the financial crisis and demographic change (Reiter 2014). Experts regard digitalisation as an opportunity for social and economic development, which could also underpin the welfare model.

Table 1
Overview of France[1]

Indicator	France	EU28
Form of state	Semi-presidential democratic republic	
State organisation	Unitary	
Party system	Multi-party system	
Electoral system	Majority voting system	
EU member since	1 January 1958	
Inhabitants/km²	104.5	116.7
Urbanisation (% of population)	80	74
Welfare state regime	Conservative	
Income inequality (distribution quintile)	4.3	5.2
Social expenditure (% of GDP)	33.7	28.6
GDP per capita (PPS, Index: EU=100)	106	100
Growth rate (real GDP in comparison with previous year)	1.3	2.2
Budget deficit/surplus (% of GDP)	–3.5	–2.4
Labour market productivity nominal per employee (Index: EU=100)	114.4	100
Harmonised unemployment rate	10.5	8.6
Trade union density (0–100)	7.72	
R&D total spending (% of GDP)	2.26	2.03
Proportion of people 20–24 years of age with at least upper secondary education (%)	87.2	82.7
Tertiary education in MINT subjects (per 1,000 graduates)	22.9	17.1
DESI (0–1; 1=digitalised society)	0.51	0.52
Proportion of regular internet users (16–74 years of age) in %	81	76
Internet penetration (% of households)	83	83
Proportion of households with broadband connection (%)	76	80
Proportion of companies with broadband connection (%)	96	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 France by comparison with Germany and the EU28



Source: Digital Economy and Society Index 2016.

3. STATE OF DIGITALISATION

Compared with the EU 28 and internationally, France lags somewhat behind with regard to digitalisation, both by European comparison and internationally. This is particularly true for internet usage and broadband connection speeds. Although 100 per cent of households are connected to broadband networks, only 71 per cent actually use them. With an average IPv4 connection speed of 9.9 Mbps France ranks number 45 in the world and in Europe third from last. However, annual growth rates indicates that France is making an effort to improve connectivity. With regard to peak speeds, France ranks only number 62, with 41 Mbps (Akamai 2016).

France does somewhat better in relation to mobile connection speeds, although the average data throughput here is 11.5 Mbps, which is only 41 per cent of that of leader the United Kingdom, at 27.9 Mbps (Germany 15.7). Overall, France has considerable ground to make up by European comparison, both with the expansion of broadband and rapid mobile internet access (Akamai 2016).

Quite apart from the purely technological dimension, France lags substantially behind with regard to the development of a digitalised society. In 2016, France stands in only sixteenth place[2] in the Digital Economy and Society Index (DESI 2016), alongside Poland, the Czech Republic, Hungary and Slovakia. Even though performance in the dimensions of human capital (12) and e-government (13) are slightly above-average, France does badly with regard to connectivity (20), the integration of digital technologies in the economy (18) and internet usage (17) (DESI 2016). Although 81 per cent of the population use the internet only 57 per cent have basic digital skills. The proportion of ICT specialists in the workforce is relatively low at 3.5 per cent.

Even though France has launched a number of strongly technology-driven initiatives – such as the "Tour de France digitale", "France digital",[3] the "Plan Très Haut Débit" and the "Mission France Très Haut Débit" (Ministre de l'Économie et des Finances, Ministre de l'Aménagement du territoire, de la Ruralité et des Collectivités territoriales 2013) there is still no over-arching digital development strategy (DESI 2016) that takes in the social dimensions, too. With the digitalisation strategy presented in May 2016 – La Stratégie Numérique du Gouvernement – the French government implemented the Digital Agenda for Europe, addressing not only economic and technological, but also social digital development. Experts consider the digital participation of citizens on the website contribuez.cnnumerique.fr as an important step towards digital democracy.

4. HEALTH CARE POLICY

The French health care system is based primarily on statutory health insurance, which covers 99 per cent of the population on an obligatory basis (Schmid 2010). Because of the high deductible, over 90 per cent of people have now taken out additional private insurance (Schmid 2010). In 2000 the World

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).

3 Vgl. http://francedigitale.org.

Health Organisation called the French health care system the "best health care system in the world" (WHO 2000). Today the judgement would be more sober: although France is well above the OECD average when it comes to most health indicators – such as life expectancy at birth and child mortality – the system is nevertheless chronically inadequate. In France, too, the population is ageing, despite a higher birth-rate than in, for example, Germany. Furthermore, because of inefficiencies at all levels, costs are rising. According to OECD data in 2012 France spent 11.6 per cent of GDP on its health care system (OECD 2014). This puts France in third place for health spending, after the United States (16.9 per cent) and the Netherlands (11.8 per cent), but ahead of Germany, on 11.3 per cent (OECD 2014). The OECD average is 9.3 per cent.

Health care policy in France is mainly centrally governed and regulated. This applies to treatment, funding and organisation by the state – the government and the Ministère des Affaires sociales et de la Santé – and statutory health insurance (L'Assurance Maladie). Health care reforms need first and foremost to get on top of the institutional complexity of statutory health insurance and the negotiating power of the doctors (Reiter 2014). Health care reform in 2004, for example, brought the various health insurance funds under one roof, the Union nationale des Caisses d'Assurance Maladie (UNCAM). This has assumed key functions with regard to the involvement of L'Assurance Maladie in the policy governance of the health care system, for example, in the areas of contract policy, the definition of services and the establishment of reimbursement rates (cf. Reiter 2014; Schmid 2010).

With regard to digitalisation in health care policy the Action Plan for the Digital Economy is aimed explicitly at the promotion of digital instruments in the health care sector (cf. EC EDPR 2016). In pursuit of this aim the Agence national des systèmes d'information partagés de santé (ASIP Santé for short) was set up as early as 2009, a statutory organisation for the development and monitoring of the deployment of IT systems, instruments and infrastructure in health care (ASIP 2009; 2013). Furthermore, a law on tele-medicine was passed in 2009 that, among other things, introduced tele-expertise, tele-monitoring and tele-consultation. In recent years pilot projects have been launched in some regions. The digitalisation of hospitals was enabled by the Programme Hôpital Numérique in 2012. The Health Ministry published a first e-health strategy in 2013, which among other things introduced personal medical records. In July 2016 the strategy was expanded by La stratégie nationale e-santé 2020 in order to drive forward the modernisation and efficiency of the French health care system (Ministère des Affaires sociales et de la Santé 2016). According to the Digital Agenda Scoreboard (2013 and 2015) France lies in the middle with regard to the exchange of patient data or the use of electronic prescriptions and below the EU average with regard to online doctors' appointments.

Experts argue that France still has ground to make up with regard to the utilisation of big data for the development of individually tailored therapies and medicines, especially in relation to chronic and seriously ill patients. Furthermore, many reforms are relatively recent, so that it is hard to assess them at present. Experts consider the implementation and consolidation of new infrastructures and enhanced use of open data and big data in health care to be the main challenges. They regard digitalisation as an opportunity to make the health care system more efficient.

5. LABOUR MARKET POLICY

France's economic structure is characterised, on one hand, by a large number of successful large companies and on the other hand, by rather weak development of SMEs. According to experts digitalisation provides many opportunities to revive France's economic competitiveness. The economic situation has recovered since the financial and economic crisis. The economy is currently growing at 1.41 per cent and positive growth is also forecast for 2017 (OECD 2016). According to the International Labour Organization the unemployment rate has stood at 10 per cent in recent years (ILO 2016). By and large, positive labour market development is expected for the French economy in 2016. The biggest problem remains youth unemployment, which has been well over 20 per cent in recent years (ILO 2016).

The Ministère du Travail, de l'Emploi, de la Formation professionnelle et du Dialogue social is responsible for employment policy and the Ministère de l'Economie et des Finances for digitalisation. The experts advocate broad social dialogue between the general public and all relevant stakeholders. A good example of this, according to them, is the initiative "La Nouvelle France Industrielle" (2013) and its successor programme "Industrie du Future" (2015), which are based on a broad alliance comprising the government, employers, trade unions and research. The labour market reform introduced early in the year aimed at boosting flexibility and employment was overshadowed by vehement protests, however. The plan is aimed at bringing two things together: more security for employees and flexibility for employers, also with regard to digital change. The reform is supposed to reduce the unemployment rate. This is a tall order, which led to protests, especially on the trade union side.

What about the digital skills of the workforce? According to DESI 2016 almost 60 per cent of the population have at least basic digital skills. However, there is ground to be made up with regard to the proportion of workers with "specialist ICT competences" because only 3.5 per cent of workers come under this heading (EC EDPR 2016). In contrast, France rates highly with regard to the proportion of persons highly qualified in MINT subjects: 23 out of every 1,000 people between 20 and 29 years of age have a MINT degree, putting France second in the EU (EC EDPR 2016). The programme "Industrie du Future" has five aims: development of the range of technology, monitoring of companies with regard to digital transformation, training of specialist workers, boosting international cooperation in the standardisation of digital norms and the promotion of French industries of the future. The experts surveyed regard training and further training of qualified workers as a precondition of the digital transformation of the economy and society. This is exactly where "Industrie du Future" comes in. In the course of a dialogue the government and the trade unions have developed a concept aimed at promoting, on one hand, multidisciplinary research measures, dealing especially with the role of people

in Industry 4.0, and on the other hand, measures to provide for the creation of training places within the digital economy (AHK France 2016).

The experts take a positive view of the reform programme around Industry 4.0 and regard France as well on the way to a digital economy with regard to technological progress. However, the digital transformation as a whole is a more prolonged process. On the trade union side there is a danger of digital exclusion, which should be countered through further educational provisions. Furthermore, digitalisation puts some jobs in danger and social inequality could increase.

6. INNOVATION POLICY

France's innovation performance improved between 2008 and 2012, deteriorated slightly between 2013 and 2014 and rose again in 2015, with a performance level 10 per cent above the EU average. This puts France in the group of strong innovation countries, in sixth place worldwide in terms of R&D spending (EIS 2016). France's scientific strengths lie in health care, while its technological advantages and specialisations are mainly in automobiles, aerospace and other transport technologies (EIS 2016). The experts, too, consider France's high innovativeness, especially in science, to be an established strength.

Innovation policy in France is shaped by a philosophy of state intervention that developed during the 1980s and 1990s (Larédo/Mustar 2001). At present, innovation policy seems to be undergoing substantial change: new actors, regulations, framework legislation and priorities are coming to the fore. In past decades the focus was on "grands programmes" under the aegis of the public authorities, from which large companies benefitted, aimed at achieving a leading position for France in research and innovation. SMEs remained largely on the sidelines. This is evident especially in the constantly declining share of productive industry, which fell from 17.8 to 12.5 per cent between 2000 and 2012. The French government sought to counteract this with a plethora of reforms and initiatives. According to the experts, there were two important impulses at national level that had a substantial effect on R&D in France. First, the promotion of competitiveness through the establishment of regional competence centres in 2004, so-called "pôles de compétitivité". They were supposed to boost competitiveness and synergies between research institutes, companies and educational and training institutions within a given region. Second, the experts regard measures promoting business by means of substantial tax concessions as a key instrument for innovation in France. France leads the way among OECD countries in its efforts to promote research investment through tax measures (AHK 2016). The effects were rapidly visible: the main target group, SMEs, benefitted most from the R&D credit with a share of 80 per cent in 2013 (AHK 2016). Other drivers of innovation include subsidies, low-interest loans and insurance at favourable premiums.

The French innovation and R&D system is coordinated by the Ministère de l'Enseignement supérieur et de la Recherche. However, because of the numerous overlaps with other policy areas other ministries also play a major role, especially, with regard to economic matters, the Ministère de l'Economie et des Finances, under whose leadership the programme "La Nouvelle France Industrielle" was adopted in September 2013, which is intended to drive French industrial and innovation policy. In April 2015 this programme was renamed "Industrie du Future", complete with new imperatives and emphases. Thus France is trying to get on board the Fourth Industrial Revolution, in the wake of Germany with "Industrie 4.0" (2010), the United Kingdom with the policy initiative "High Value Manufacturing Catapult" (2011) and Italy with the programme "Fabbrica del futuro" (2012).

The experts are convinced that France, through its useful reforms and considerable innovative strength, has established a sound basis for global competitiveness. However, they regard the digital transformation of SMEs – some of which are burdened by obsolete hierarchical structures – as a key challenge.

7. SUMMARY

According to the World Economic Forum's Global Competitiveness Report 2015–2016 France has excellent infrastructure, good education and health care systems and a favourable market size. It thus represents fertile soil for an economic culture able to adapt to new technologies and digitalisation and to improve productivity in a focused way. The experts regard digitalisation mainly as an opportunity to prepare the French economy for global competition and to enable it to become a leading nation in various policy areas. The digital transformation towards a digital République can succeed, however, only if digitalisation's economic, technological and social aspects are taken into consideration. Only in this way can Welfare 4.0 emerge from Industry 4.0. In the present study we have looked at the relevant reforms in relation to digitalisation in the policy areas of health care, work and innovation. France's strengths, according to the experts, lie in innovation, which affects many other policy areas, such as work and health care, and will result in innovative solutions and services there, too.

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