

Digital Economy and Society Index¹ 2016²

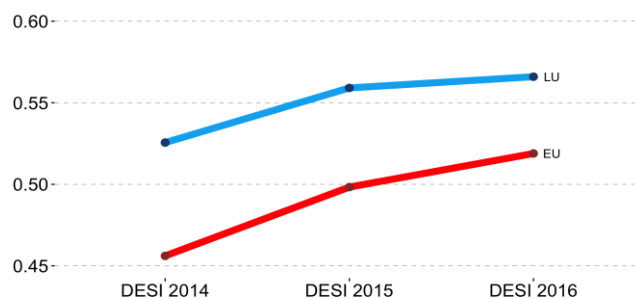
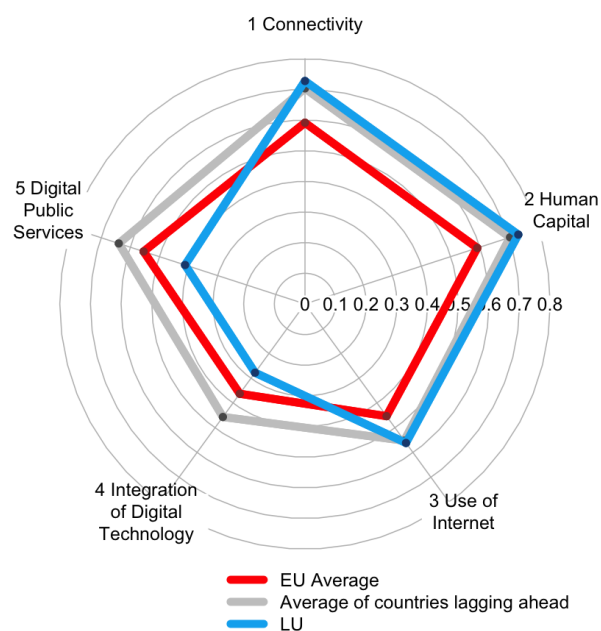
Country Profile

Luxembourg

Luxembourg has an overall score³ of **0.57** and ranks **10th** out of the 28 EU Member States. Luxembourg is 4th among EU countries on Connectivity (although there was some regression in the assignment of spectrum ratio, where Luxembourg is an underperformer), and 4th on Human Capital (97% of citizens are internet users and 86% have basic digital skills; however, 59.1% of businesses looking for ICT specialists reported problems in finding them). The use of the Internet by citizens continued to grow, while business' integration of digital technologies weakened compared to a year ago. In Digital Public Services, Luxembourg has shown a mixed picture both in eGovernment use as well as in the supply of eGovernment services.

Luxembourg's scores place it among **lagging-ahead⁴** countries (In the DESI 2016, LU is part of the lagging ahead cluster of countries: countries who score above the EU average but whose score grew slower than that of the EU as a whole, in comparison to the DESI 2015).

DESI	Luxembourg		Cluster score	EU score
	rank	score		
DESI 2016	10	0.57	0.62	0.52
DESI 2015	9	0.56 ⁵	0.6	0.5



¹ The Digital Economy and Society Index (DESI) is a composite index developed by the European Commission (DG CNECT) to assess the development of EU countries towards a digital economy and society. It aggregates a set of relevant indicators structured around 5 dimensions: Connectivity, Human Capital, Use of Internet, Integration of Digital Technology and Digital Public Services. For more information about the DESI please refer to <http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard>

² The DESI 2016 is constructed from indicators referring mostly to the calendar year 2015 (except when data is not available for that calendar year, in which case the latest prior data was used).

³ DESI scores range from 0 to 1, the higher the score the better the country performance.

⁴ In the DESI 2016, the lagging-ahead cluster of countries comprises Belgium, Denmark, Finland, Ireland, Lithuania, Luxembourg, Sweden and the United Kingdom

⁵ The DESI 2015 was re-calculated for all countries to reflect updates and corrections to the underlying indicator data (which took place between May 2015 and January 2016). As such, country scores and rankings may have changed from the previous publication. For further information please consult the DESI methodological note.

1 Connectivity

1 Connectivity	Luxembourg		Cluster	EU
	rank	score	score	score
DESI 2016	4	0.73	0.7	0.59
DESI 2015	6	0.7	0.7	0.57

Connectivity along with Human Capital and Use of Internet are the DESI 2016 dimensions where Luxembourg performs best. With an overall Connectivity score of 0.73 the country ranks 4th among EU countries. However, there has been some regression in the assignment of spectrum ratio, a category where Luxembourg was already an underperformer.

	Luxembourg				EU
	DESI 2016		DESI 2015		DESI 2016
	Value	rank	value	rank	value
1a1 Fixed BB Coverage % households	100% (June 2015) →	4	100% (December 2014)	4	97% (June 2015)
1a2 Fixed BB Take-up % households	94% (2015) ↑	1	91% (2014)	1	72% (2015)
1b1 Mobile BB Take-up Subscribers per 100 people	73 (June 2015) ↑	12	58 (December 2014)	20	75 (June 2015)
1b2 Spectrum % of the target for spectrum to be harmonised at EU level	53% (December 2015) ↓	24	56% (December 2014)	24	69% (December 2015)
1c1 NGA Coverage % households, out of all households	94% (June 2015) →	5	94% (December 2014)	5	71% (June 2015)
1c2 Subscriptions to Fast BB % of subscriptions >= 30Mbps, out of fixed BB subscriptions	40% (June 2015) ↑	13	36% (December 2014)	12	30% (June 2015)
1d1 Fixed BB Price % individual gross income spent for the cheapest standalone Fixed Broadband subscription (lower values are better)	n.a.	-	n.a.	-	1.3% (Access cost: 2015; Income: 2014)

Luxembourg has completed broadband coverage (100%) and a fast broadband connection (at least 30 Mbps) is available to 94% of households. Take up is strong, also for the faster connections.

In Luxembourg, the percentage of assigned spectrum out of the target to be harmonized decided at EU level has decreased from 56% (2014) to 53% (2015). This decrease in the assignment ratio (nominator/denominator) can be explained by a recent increase in the harmonization of spectrum at EU level (denominator), not followed by an immediate subsequent increase in assigned spectrum at country level (nominator). Luxembourg has not gone through the process (usually consultation, final terms, auction, and actual assignment) and the spectrum is therefore not assigned yet.

2 Human Capital

2 Human Capital	Luxembourg		Cluster	EU
	rank	Score	score	score
DESI 2016	4	0.73	0.7	0.59
DESI 2015	6	0.71	0.67	0.58

With a Human Capital score of 0.73, Luxembourg takes 4th place in the EU, with a better performance than in the previous year (0.71). The same holds true for all sub-dimensions including the share of internet users in the population and the share of those having basic digital skills which are the highest in the whole EU.

	Luxembourg				EU
	DESI 2016		DESI 2015		DESI 2016
	Value	Rank	Value	rank	Value
2a1 Internet Users % individuals (aged 16-74)	97% (2015) ↑	1	93% (2014)	1	76% (2015)
2a2 Basic Digital Skills % individuals (aged 16-74)	86% (2015)	1	n.a.	-	55% (2015)
2b1 ICT Specialists % employed individuals	5.1% (2014) ↑	3	4.9% (2013)	4	3.7% (2014)
2b2 STEM Graduates Graduates in STEM per 1000 individuals (aged 20 to 29)	3.6 (2013) ↑	28	2.8 (2012)	28	18

The transmission of technology into new ideas and products hinges on the availability of a vast pool of aptly skilled workers. While the proportion of ICT specialists in total employment, at 5.1%, is relatively high, Luxembourg is lacking skilled ICT professionals. In 2015, 59.1% of enterprises which recruited or tried to recruit staff for jobs requiring ICT specialist skills reported problems in filling these positions, up from 58.5% in 2014⁶. This is the second-highest figure in the EU, almost on equal footing with the Czech Republic (59.2% in 2015). Demand for skilled ICT professionals within the economy is rising rapidly, while the supply is not keeping pace.

This problem is also related to Luxembourg's low number of STEM (Science, Technology, Engineering and Mathematics) graduates. Luxembourg is the worst performer in STEM graduates with a mere 3.6 graduates in STEM per 1000 individuals. More young people need to be attracted to ICT studies and jobs, which provide good career opportunities, are well paid and which are key skills for deriving the benefits of ICT for the economy and society.

In May 2015, the Luxembourg's Minister in charge of Education adopted the 'digital4Education' strategy⁷, which enables the Luxembourgish school to contribute to the efforts of 'Digital Lëtzebuerg', involving teachers and young people in projects that educate and train in the advantages and challenges of the digital society in everyday life and in the workplace.

⁶ Source: Digital Agenda Scoreboard 2014

⁷ www.digital4education.lu

3 Use of Internet

3 Use of Internet	Luxembourg		Cluster	EU
	rank	score	score	score
DESI 2016	4	0.56	0.55	0.45
DESI 2015	5	0.54	0.54	0.43

In terms of the propensity of individuals to use Internet services, Luxembourg scores 0.56 (up from 0.54 last year) and ranks 4th among EU countries. The use of internet continued to grow in most of the monitored categories with an exception of banking, which has stagnated.

	Luxembourg				EU
	DESI 2016		DESI 2015		DESI 2016
	Value	rank	Value	rank	Value
3a1 News % individuals who used Internet in the last 3 months (aged 16-74)	85% (2015) →	9	85% (2014)	7	68% (2015)
3a2 Music, Videos and Games % individuals who used Internet in the last 3 months (aged 16-74)	59% (2014)	4	59% (2014)	4	49% (2014)
3a3 Video on Demand % households that have a TV	28% (2014)	13	28% (2014)	13	41% (2014)
3b1 Video Calls % individuals who used Internet in the last 3 months (aged 16-74)	47% (2015) ↑	7	42% (2014)	14	37% (2015)
3b2 Social Networks % individuals who used Internet in the last 3 months (aged 16-74)	70% (2015) ↑	9	64% (2014)	14	63% (2015)
3c1 Banking % individuals who used Internet in the last 3 months (aged 16-74)	67% (2015) ↓	10	70% (2014)	9	57% (2015)
3c2 Shopping % individuals who used Internet in the last year (aged 16-74)	80% (2015) ↑	4	78% (2014)	5	65% (2015)

Internet users in Luxembourg are skilled and do not hesitate to engage in a broad range of online activities. They read news online (85%), listen to music, watch films and play games online (59%), use the Internet to communicate via video calls (47%) or through social networks (70%), and obtain video content using their broadband connections (28% of households with a TV use Video on Demand). For most of these activities, engagement among users in Luxembourg is in line with or higher than the EU average.

4 Integration of Digital Technology

4 Integration of Digital Technology	Luxembourg		Cluster	EU
	rank	score	score	score
DESI 2016	21	0.28	0.46	0.36
DESI 2015	16	0.33	0.42	0.33

In the dimension "Integration of Digital Technology" by businesses, Luxembourg scores only 0.28, its worst score among the five DESI 2016 dimensions, and ranks 21st among EU countries.

	Luxembourg				EU
	DESI 2016		DESI 2015		DESI 2016
	Value	rank	Value	rank	Value
4a1 Electronic Information Sharing % enterprises (no financial sector, 10+ employees)	39% → (2015)	11	39% (2014)	9	36% (2015)
4a2 RFID % enterprises (no financial sector, 10+ employees)	4.9% (2014)	10	4.9% (2014)	10	3.8% (2014)
4a3 Social Media % enterprises (no financial sector, 10+ employees)	15% → (2015)	15	15% (2014)	14	18% (2015)
4a4 eInvoices % enterprises (no financial sector, 10+ employees)	n.a.	-	6.6% (2014)	21	n.a.
4a5 Cloud % enterprises (no financial sector, 10+ employees)	n.a.	-	6.9% (2014)	19	n.a.
4b1 SMEs Selling Online % SMEs (no financial sector, 10+ employees)	6.4% ↓ (2015)	26	7% (2014)	25	16% (2015)
4b2 eCommerce Turnover % turnover of SMEs (no financial sector, 10-249 employees)	2.6% ↓ (2015)	27	2.9% (2014)	27	9.4% (2015)
4b3 Selling Online Cross-border % SMEs (no financial sector, 10+ employees)	6.3% ↓ (2015)	18	15% (2013)	2	7.5% (2015)

A true digital economy is one where businesses take full advantage of the possibilities and benefits offered by digital technologies, to improve their efficiency and productivity, and reach out to customers to sell goods and services. In this respect, the adoption of e-Business practices by companies in Luxembourg shows a contrasted picture.

Luxembourg's businesses exploit well Electronic Information Sharing and RFID technology. However, both the percentage of SMEs selling online and the share of eCommerce in SME's turnover are low. Moreover, the share of SMEs selling online cross-border dropped dramatically last year. This could be attributed to the change in the calculation of VAT for digital goods from the rate of the country of origin (favourable in Luxembourg) to the rate of the country of destination (as from 1st January 2015).

5 Digital Public Services

5 Digital Public Services	Luxembourg		Cluster	EU
	rank	score	score	score
DESI 2016	22	0.41	0.64	0.55
DESI 2015	22	0.41	0.62	0.54

In the dimension of Digital Public Services, Luxembourg scores 0.41 and thus ranks only 22rd among EU countries. The country did not show any general betterment in its situation between 2014 and 2015. Therefore, improvements in the area of eGovernment remain to be a key challenge for Luxembourg.

	Luxembourg				EU
	DESI 2016		DESI 2015		DESI 2016
	Value	rank	Value	rank	Value
5a1 eGovernment Users % individuals returning filled forms, out of Internet users in the last year (aged 16-74)	36% (2015) ↓	15	37% (2014)	14	32% (2015)
5a2 Pre-filled Forms Score (0 to 100)	20 (2015) ↑	23	12 (2014)	24	49 (2015)
5a3 Online Service Completion Score (0 to 100)	78 (2015) ↑	19	72 (2014)	20	81 (2015)
5a4 Open Data Score (0 to 700)	135 (2015) ↓	27	235 (2014)	26	351 (2015)

Modern public services offered online in an efficient manner are a vehicle for reducing public spending as well as for driving efficiency gains for enterprises, citizens, and the public administration. Luxembourg has considerable potential to improve its offer of online public services, as internet users do engage and exchange documents online with the public administration.

Luxembourg could do more, notably to improve the availability of open data. By making data available, government agencies can enable the private sector to leverage those data and create economic value.