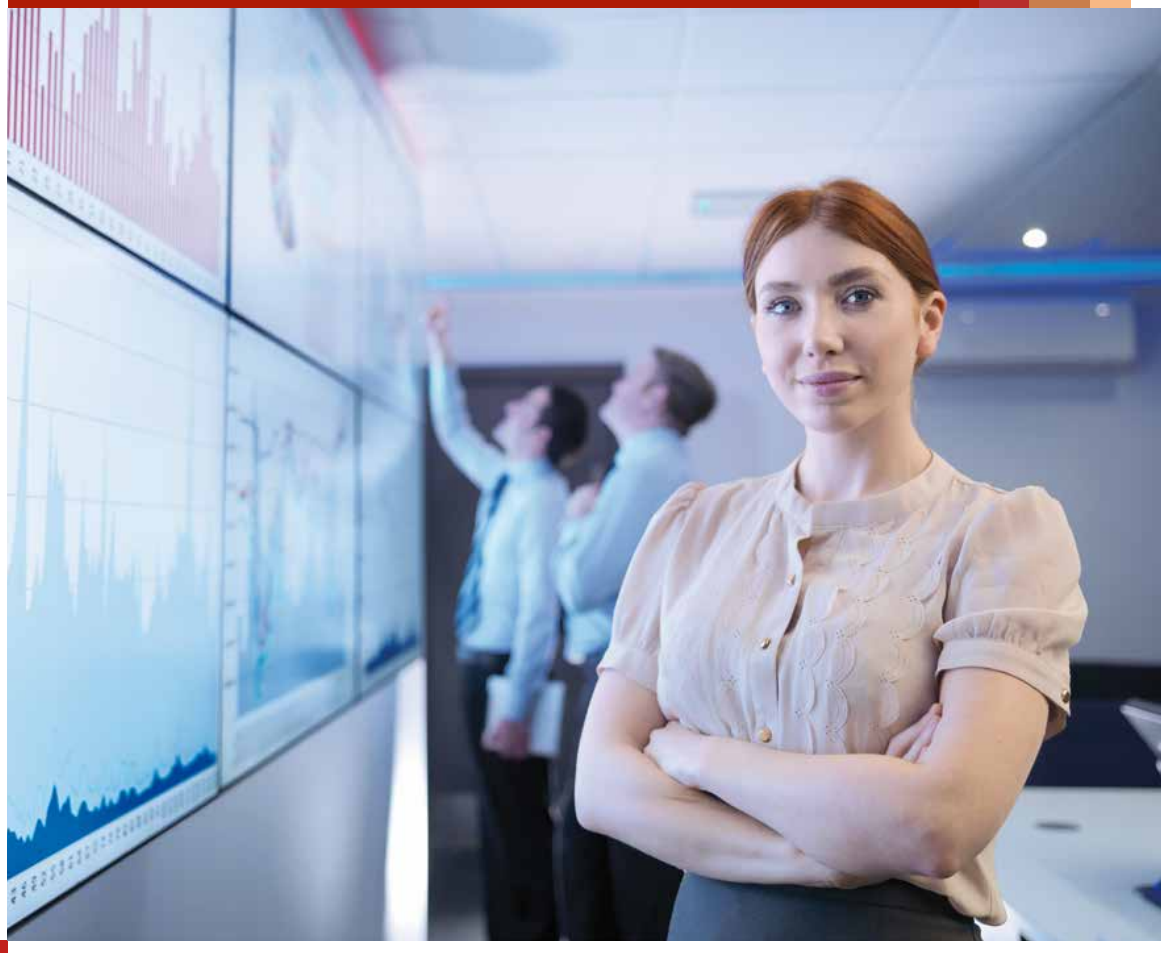
Digital Tax Index 2017: Locational Tax Attractiveness for Digital Business Models

Executive Summary

Digital Tax Index 2017

ZEW
Zentrum für Europäische Wirtschaftsforschung GmbH
Centre for European Economic Research

UNIVERSITÄT MANNHEIM



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Executive Summary

For this study PwC, the University of Mannheim and the Centre for European Economic Research (ZEW) have analysed the tax attractiveness of locations for digital business models across different countries for the first time. Also, the study is the first of its kind to quantitatively summarise the results of the analysis in the *2017 digital tax index.* The index calculates the effective tax burden for basic types of investments in digital business models based on "domestic and international" tax factors in 33 countries.

In terms of direct business taxation, Ireland, Italy and Hungary are the most attractive locations. Germany, on the other hand, is one of the most unattractive locations for digital business models. These results are analysed in detail in the study, compared with tax burdens for traditional business models and gauged in relation to other relevant location factors in the digital economy such as infrastructure, employees and the degree of technology utilisation. Consequently, the results give decision makers in policy and in business a benchmark with which to assess the tax environment during the ongoing digitisation of the economy.

The digitisation of business models is a driver of innovation and growth

The digitisation of the economy is occurring across industries and is continuously creating new business models. Investments in digital goods and technologies are increasing productivity and boosting economic growth. In addition, they should also form the basis for innovations, increasing efficiency and higher sales potential. The increasing use of (customised) software is a significant success factor in creating added value.

In Germany alone, more than €70 billion was invested in information and communications technologies (ICT) in 2015. The internet-based integration of hardware and software forms the basis of new business segments such as the platform industry, artificial intelligence and cloud computing. The aggregation, analysis and targeted use of data are regarded as key prerequisites for innovation. In addition, the horizontal and vertical networking of value-added processes within Industry 4.0 projects, combined with the targeted use of specialists, makes it possible to transform traditional business models to create value chains with digital ecosystems.

Locational factors for digital business models show qualitative differences in international comparison

For the current study, the relevant tax parameters were examined for investments in digital business models for EU member countries as well as Japan, Canada, Norway, Switzerland and the US. The index list is not to be seen as a list of investment suggestions. Moreover, one of the main aims of the study is to share an objective and sensible measure of transparency among all market actors.

In principle, the same tax law applied to traditional business models is also valid for digital ones; however, due to the structure of these models, particular elements of the tax system become more important. The main drivers of the national tax burden at corporate level are the tax rate and the rules for determining the tax base. The qualitative evaluation indicates a large range of profit tax rates from 10% to a good 41%; Germany, with a rate of just under 31%, is regarded as a high-tax country. In terms of the computation of the tax base, favourable regulations emerge for the treatment of assets used in digital business models. For software and hardware, accelerated depreciation or higher depreciation rates are usually applied compared to conventional fixed goods. In addition, the development costs of intangible assets can be regularly deducted immediately, which provides a tax advantage for digital business models in comparison to traditional business models due to the high relevance of employees and current development costs. In Germany, there are also more generous rules for investing in ICT compared to conventional capital goods. In addition, several tax systems support research and development (R&D) by reducing investment costs through basic tax relief or tax credits. Additionally, 13 countries already have in place so-called Intellectual Property (IP) box regimes, according to which income from intangible assets is taxed at a more favourable rate. Currently Germany does not offer any tax incentives for R&D. This study examines whether and how these special rules can be applied to activities and revenues resulting from digital business models.

The tax environment can affect a location's attractiveness for digital business models

The countries taken into consideration vary in terms of their attractiveness as locations for digital business models. A country's tax environment affects its attractiveness inasmuch as an investment with identical parameters may have different outcomes in different locations. Furthermore, investment costs in the form of the cost of capital depend on tax parameters.

The analysis of the tax-related factors includes the calculation of the effective average tax rate (EATR) and the cost of capital (CoC) for basic types of investments in digital business models. The CoC expresses the return that a marginal investment must generate before tax in order to be worthwhile for an investor. A lower CoC signifies a lower minimum pre-tax yield, and thus a more attractive location for enhancing investment volume. The EATR expresses the change in the capital value of a profitable investment caused by the tax burden. A lower EATR indicates that an investment at the relevant location is more worthwhile for investors and the location is thus more attractive for profitable investments.

The tax benchmarks were calculated for three basic forms of investment in digital business models. Legal and organisational structures used for international tax planning have not been taken into account. In the domestic case, it is assumed that a corporation invests in hardware, software and other intangible assets. Taken in isolation, the domestic business model therefore represents, in a simplified form, the digital transformation of a traditional business model. B2C and B2B business models are considered for the cross-border case. For each it is assumed that a company invests in its digital business model at the main location and serves foreign markets via service (B2C) or sales companies (B2B).

2017 digital tax index: Ireland, Italy and Hungary lead; Germany trails behind

Table 1 shows the results of the overall index for 2017. The final rankings are based on the EATR in each country by considering the most favourable tax regulations, that is, including special tax regimes for research, development and innovation. The calculated CoC and the corresponding ranking are also given for each country. These figures reflect the average of the three different business models – a domestic model and cross-border B2C and B2B models – and are compared with the tax burden for traditional business models.

- Ireland, Italy and Hungary are at the top of the 2017 digital tax index. The negative effective burdens reflect the application of R&D incentives and IP Box regimes, which lead to investments in digital business models being more profitable after tax than before tax, or, to put it another way: they are essentially subsidised.
- As a traditionally low-tax country, Ireland is highly attractive and, compared to traditional rankings, edges up three places to the very top of the list. Hungary and especially Italy, which traditionally have rather high tax levels, are able to greatly enhance their attractiveness as locations by using tax incentives to steeply reduce the effective burden for digital business models.
- Germany, the US and Japan are at the bottom of the list with very high effective burdens of more than 22%. The low level of attractiveness of these locations is due to both high tax rates and either minor tax incentives or a complete lack of special tax regimes.

Tab. 1 Main results of the 2017 digital tax index

	EATR				CoC			
Country	Rank	Ø	Δ Rank	Δ in percentage points	Rank	Ø	Δ Rank	Δ in percentage points
Ireland	1	–10.32%	3	–24.44	4	0.24%	6	–5.46
Italy	2	–8.84%	20	–32.43	1	–4.09%	1	–9.28
Hungary	3	–6.85%	11	–26.18	3	–0.15%	16	–6.15
Latvia	4	0.33%	1	–13.94	8	2.25%	4	–3.46
Lithuania	5	0.44%	–2	–13.18	9	2.27%	–3	–3.29
Belgium	6	2.28%	22	–26.07	5	1.29%	11	–4.57
Croatia	7	5.19%	2	–11.28	12	2.49%	–7	–2.88
Romania	8	6.62%	–2	–8.11	16	3.55%	–8	–2.10
Czech Republic	9	7.48%	1	–9.18	14	3.23%	–7	–2.36
Norway	10	8.02%	11	–15.27	7	2.22%	16	–3.99
Switzerland (Zurich)	11	8.39%	1	–10.25	13	3.09%	–2	–2.61
Cyprus	12	8.73%	–10	–4.38	26	4.64%	–23	–0.69
Slovenia	13	9.51%	–6	–5.96	19	4.08%	–10	–1.58
Bulgaria	14	9.52%	–13	0.52	30	5.18%	–26	–0.15
Luxembourg	15	10.76%	9	–14.76	27	4.82%	–6	–1.20
United Kingdom	16	11.11%	2	–10.44	22	4.45%	4	–2.18
Portugal	17	11.63%	8	–14.99	11	2.47%	13	–3.80
France	18	12.39%	15	–25.96	2	–0.72%	28	–8.14
Poland	19	12.63%	–8	–4.86	23	4.53%	–9	–1.27
Spain	20	12.85%	9	–17.43	10	2.39%	22	–5.48
Malta	21	13.12%	9	–19.12	6	1.45%	23	–5.39
Netherlands	22	13.61%	–3	–8.93	18	3.84%	2	–2.17
Denmark	23	14.81%	–6	–5.23	24	4.58%	–7	–1.33
Slovakia	24	15.09%	–8	–4.48	25	4.62%	–12	–1.16
Austria	25	15.16%	–5	–7.93	20	4.14%	2	–2.02
Finland	26	15.86%	–13	–3.04	29	5.18%	–11	–0.80
Canada (Ontario)	27	16.05%	–4	–9.07	21	4.29%	7	–2.35
Estonia	28	16.27%	–20	0.57	32	5.27%	–31	0.10
Greece	29	16.73%	–3	–10.84	17	3.76%	10	–2.88
Sweden	30	16.93%	–15	–2.50	31	5.22%	–16	–0.63
Germany	31	22.81%	–4	–5.41	28	5.13%	–3	–1.32
USA (California)	32	22.82%	0	–13.70	15	3.32%	16	–4.30
Japan	33	25.46%	–2	–8.79	33	5.76%	0	–2.34
Average		10.20%		–11.73		3.18%		–2.95

Germany is ranked 31st based on to its EATR. In comparison to traditional business models Germany even loses 4 places. In other words: The EATR for digital business models is 5.41 percentage points lower than for traditional ones. Regarding capital costs Germany ranks 28th with a CoC of 5.13%. This means Germany ranks three positions worse compared to the CoC of traditional business models.

Investments in digital business models bear a lower tax burden than traditional business models

- The effective tax rate for digital business models lies between –10% and 25%. On average, digital business models are taxed at a rate of 10.20%, which is 11.73 percentage points lower than traditional business models. The reason for this is an assumed higher proportion of costs that do not require capitalisation in the investment structure (in particular software developed in-house and intangible assets) as well as more favourable depreciation rules for digital capital goods and the applicability of special tax incentives for research, development and innovation.
- The front runners in the mid-range are primarily Eastern European countries, due to their low tax rates, and the Scandinavian countries as well as Belgium, Switzerland, Cyprus and Luxembourg. Belgium, Norway and Luxembourg have most greatly enhanced their attractiveness as locations for digital business models through generous R&D incentives and IP Box regimes.
- The CoC for digital business models falls between –4% and almost 6%. On average, this is 2.95 percentage points lower than for traditional business models. The results suggest that in most countries additional investment is worthwhile compared to alternative investments in the capital market (5%).
- The group leaders, measured in terms of the CoC, are Italy, France and Hungary, each with negative CoC. In Hungary, Belgium, Norway, Portugal, Spain, Malta, Greece and the US, the CoC for digital business models is very low, which implies a higher degree of attractiveness for expanding investment. The low CoC results from generous regulations for determining the tax base, such as granted immediate deductions for investments in acquired hardware and software or R&D incentives which are derived from the tax base.
- In Germany, both the EATR and the CoC for digital business models are declining. However, when compared with other countries and viewed in terms of the more attractive conditions available there, Germany only ranks 31st out of a total of 33 countries (EATR) and 28th out of 33 (CoC).

Tax rate and tax incentives for research, development and innovation have a significant impact on the effective tax burden

Table 2 shows the results of the detailed location analysis for the domestic digital business model. The EATR and the CoC are given together with the respective ranking for Germany in comparison to its most important trading partners, the US, the UK and France,[1] as well as in comparison to Ireland and Japan, which are ranked first and last, respectively. The results are shown both with and without the inclusion of tax incentive mechanisms in order to isolate the effects of the individual factors.

- On average, the effective tax burden lies at 19% and the CoC at 5.2% when special provisions are excluded. The results depend heavily on the respective tax rates.
- The tax burdens that are already lower without special provisions are a result of more generous depreciation rules for capital goods in digital business models compared to traditional business models.
- France significantly improves in terms of the CoC (rising from 30th to 8th place) because an immediate deduction is granted for the acquisition costs of software. Germany improves by 4 places thanks to the CoC, while its relative attractiveness in terms of the EATR remains unchanged.
- When tax R&D incentives are taken into account, both the absolute results and the relative rankings change considerably. Ireland and France stand out with a CoC of just under 0%. The generous tax credit scheme for R&D investments in Ireland also drastically reduces the effective average tax burden.
- Countries with no R&D incentives, like Germany, fare worse in the international comparison. While the US can do little to improve its relative attractiveness in terms of the average tax burden, the R&D tax credit enhances attractiveness in terms of the CoC, which implies a higher investment volume.
- Looking solely at the IP Box regimes, the EATR in Ireland and the UK fall by 2 to 4 percentage points, which results from applying the IP Box regime to all types of income (including sales). The CoC remains largely unchanged.
- With the combined application of R&D incentives and IP Box regimes, Ireland and the UK continue to boast a lower tax burden. In the UK, the regulations are complementary, while the effect of R&D funding in Ireland is compensated for by the fact that research expenses can only be deducted at the lower IP Box tax rate.

[1] These three countries were Germany's most important trading partners in 2015 (German Federal Statistics Office [Statistisches Bundesamt] [2016, p. 2]).

Tab. 2 Detailed results for selected countries

		Standard factors				Taking into account R&D incentives			
		EATR		CoC		EATR		CoC	
Country	Index 2016	Rank	Ø	Rank	Ø	Rank	Ø	Rank	Ø
Ireland	1	3	10%	15	5.1%	1	–14%	3	–0.3%
UK	16	18	19%	30	5.9%	15	12%	22	4.3%
Average			19%		5.2%		11%		3.1%
France	18	32	31%	8	4.9%	20	14%	2	–0.9%
Germany	31	27	24%	21	5.2%	32	24%	32	5.2%
USA	32	33	31%	32	6.0%	31	23%	16	3.3%
Japan	33	31	31%	33	7.1%	33	27%	33	5.8%

		Taking into account IP Box regimes (without R&D)				Taking into account IP Box regimes (and R&D)			
		EATR		CoC		EATR		CoC	
Country	Index 2016	Rank	Ø	Rank	Ø	Rank	Ø	Rank	Ø
Irland	1	4	8%	17	5.1%	1	–10%	2	1.1%
UK	16	15	15%	27	5.7%	6	10%	5	4.4%
Average			17%		5.2%		16%		4.7%
France	18	32	31%	6	4.9%	32	31%	10	4.9%
Germany	31	27	24%	20	5.2%	27	24%	23	5.2%
USA	32	33	31%	32	6.0%	33	31%	32	6.0%
Japan	33	31	31%	33	7.1%	31	31%	33	7.1%

Tax attractiveness of investment locations is relevant for cross-border digital business models

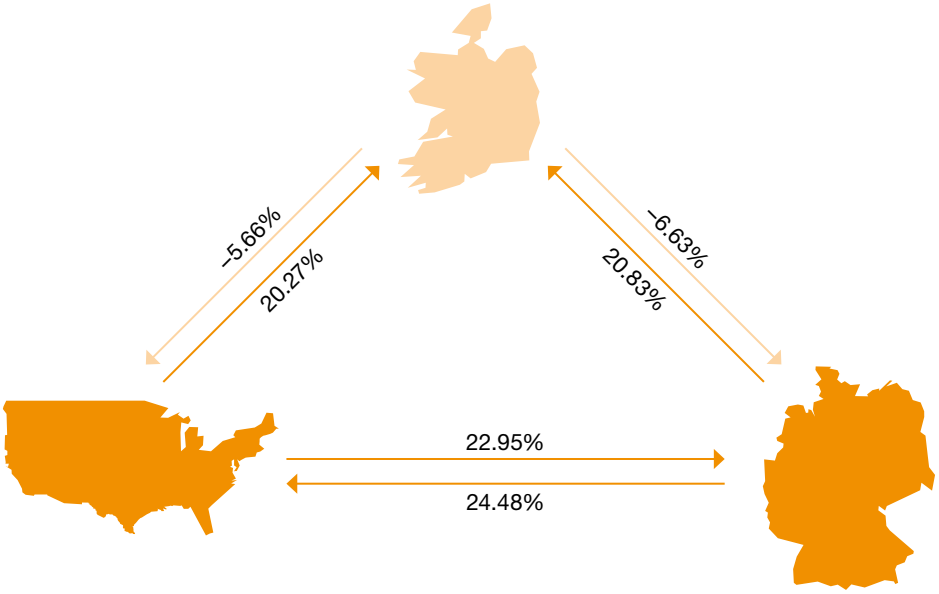
The results of the cross-border B2C and B2B business models differ from those of the domestic case, as a further level of taxation arises in the market state. However, the tax burden still heavily depends on the tax regime in the parent company's state of residence. In the case of a digital B2C business model, the relative attractiveness of the investment locations does not change. The digital B2B business model does see a change in rankings, since there are intra-group royalty payments for licences. The existence of royalty income permits the application of IP Box regimes in countries such as France, Malta, Portugal, Switzerland, Spain, Hungary and Cyprus and thus leads to a lower effective tax burden in these countries.

The figures illustrate the effective tax rates for investments in B2C and B2B business models in Germany, Ireland and the US that are serving the respective foreign markets.

- Investments in a digital B2C business model in Ireland with cross-border sales activities in Germany or the US will continue to see negative effective average tax rates. This underscores the relevance of local conditions at the company's main location.
- For investments in a B2C business model in Germany with activities in Ireland there is a somewhat lower effective tax burden, while activities in the US market lead to a slightly higher effective average tax rate.

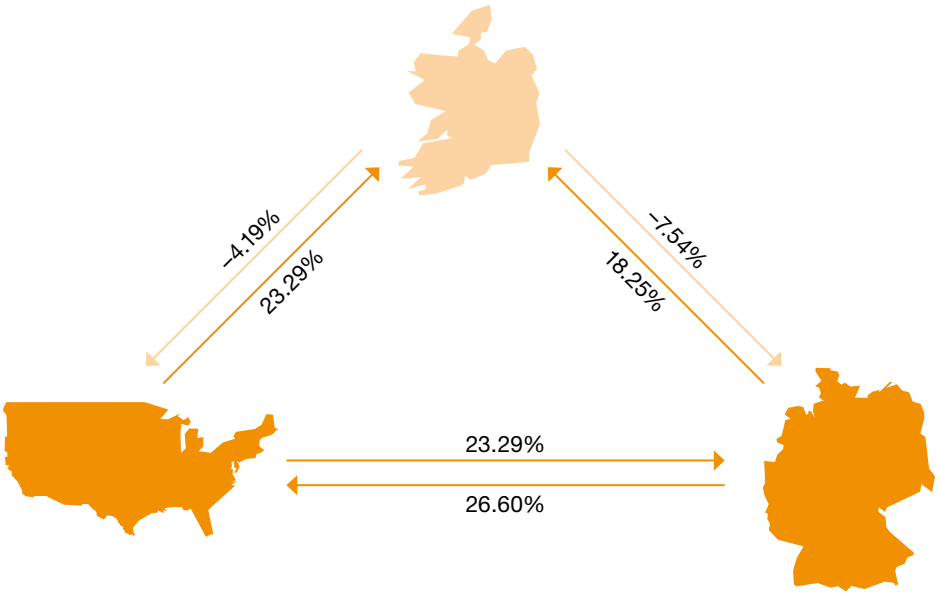
- An investment in a B2B model in Ireland is also an extreme case with negative effective average tax rates. Which result from the beneficial R&D incentives and IP Box rules. The results increase slightly due to the share of taxation of total profits in the respective market states.

Fig. 1 Cross-border B2C



- For investments in B2B business models in Germany, the results vary in parallel to the B2C segment depending on the fiscal attractiveness of the market state.
- For investments in B2B business models in the US there is a constant effective tax burden regardless of the market state, which is due to the credit method applied to inbound dividends in the US.

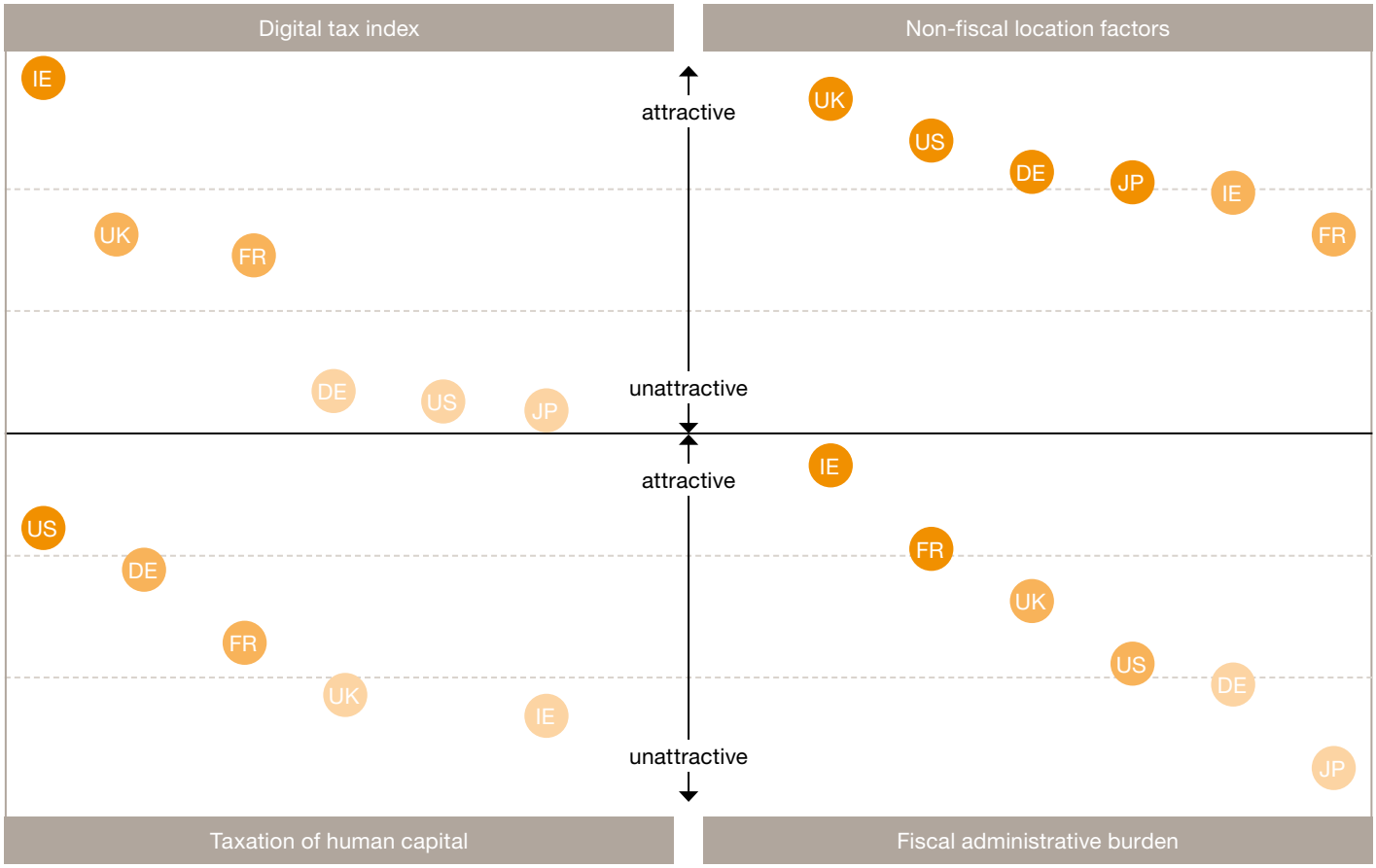
Fig. 2 Cross-border B2B



Taxation as a further location factor for the digitisation of the economy

Digital business models are often located in clusters in so-called "hubs". The studies and indices that were analysed indicate that a variety of location factors are relevant. There is no empirical evidence regarding which location factors influence investments in digital business models and whether taxes are a relevant factor for making decisions about such investments. Against this background, the present study provides a dedicated index that makes it possible to isolate and assess a single location factor, direct company taxation, and compare it with other location factors. For the countries selected here it can be seen that, with small restrictions in France, the prevailing non-tax conditions at each location are generally quite good for digital business models; on the other hand, the fiscal attractiveness of the locations varies widely from country to country. Germany is low on the scale of fiscal attractiveness for investment and is characterised by a comparatively high fiscal administrative burden, although highly skilled workers are taxed moderately compared with other countries. A similar trend can be observed in the US, although the non-fiscal location factors are slightly better and both the tax burden on labour and the administrative burden are lower than in Germany. On the other hand, in Ireland, the most attractive tax location for investment, labour is very highly taxed while the fiscal administrative burden is very low. The greatest variation across the different factors is seen in the UK, where the fiscal attractiveness for investments in digital business models is slightly higher than average and highly qualified employees are taxed at a relatively high rate. In terms of non-fiscal location factors and the fiscal administrative burden, the UK comes out on top among the countries considered here and very highly in the general comparison.

Fig. 3 Comparison of tax digitisation index and other location factors



No data available for taxation of human capital in Japan.

Summary of the study results

- The impact of taxation has thus far not been considered when assessing a location's attractiveness for the digital economy, but taxes do represent a significant cost factor for investments in digital business models.
- Extensive research and quantitative analysis show that fiscal location factors vary greatly from country to country and that the location of investment can lead to large differences in tax burdens for companies with digital business models.
- For international expansion (B2C and B2B), the most relevant factor remains the tax environment at the investment location of the main company. Conditions in the market countries play a subordinate role.
- Ireland, as a generally fiscally attractive business location, but also countries with traditionally moderate or high levels of taxation such as Italy, Hungary, Belgium and Norway, came out on top of the 2017 digital tax index.
- Special tax incentives for research, development and innovation have a strong impact on the effective tax burden for digital companies. The country-specific design of such special regimes and their scope of applicability to the activities of digital business models are therefore highly relevant.
- Generous regulations for the depreciation of digital capital goods in the conventional tax system can affect a location's attractiveness for digital business models, as in the case of Denmark or France, and particularly affect the CoC.
- Germany places 31st among 33 countries in the 2017 digital tax index and thus has an unattractive tax environment for digital business models.

The results base on the international taxation framework at the time of the preparation of the study (fiscal year 2016). Possible changes in local law regarding taxation will likely affect the ranks in the index list.

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