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The European Blockchain Centers

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Blockchain companies have sprung up all over Europe, at the forefront: Malta and Estonia. Compared to the sizes of their workforce, both countries have an outstanding number of blockchain companies and can easily compete with larger countries like Germany or France. The reason for this is a combination of having agglomerations, a good access to venture capital and an attractive framework for new companies.

The number of blockchain companies has skyrocketed in the last couple of years. But what determines the different number of blockchain companies across the European Union? Based on the company database Crunchbase (Demary/Demary, 2021), we constructed a dataset comprising 1,415 companies in the European Union, which use the terms “blockchain”, “bitcoin”, “ethereum”, “ripple”, “virtual currencies” or “distributed ledger” to describe their business models. We call these firms “blockchain companies”.

Blockchain companies per country

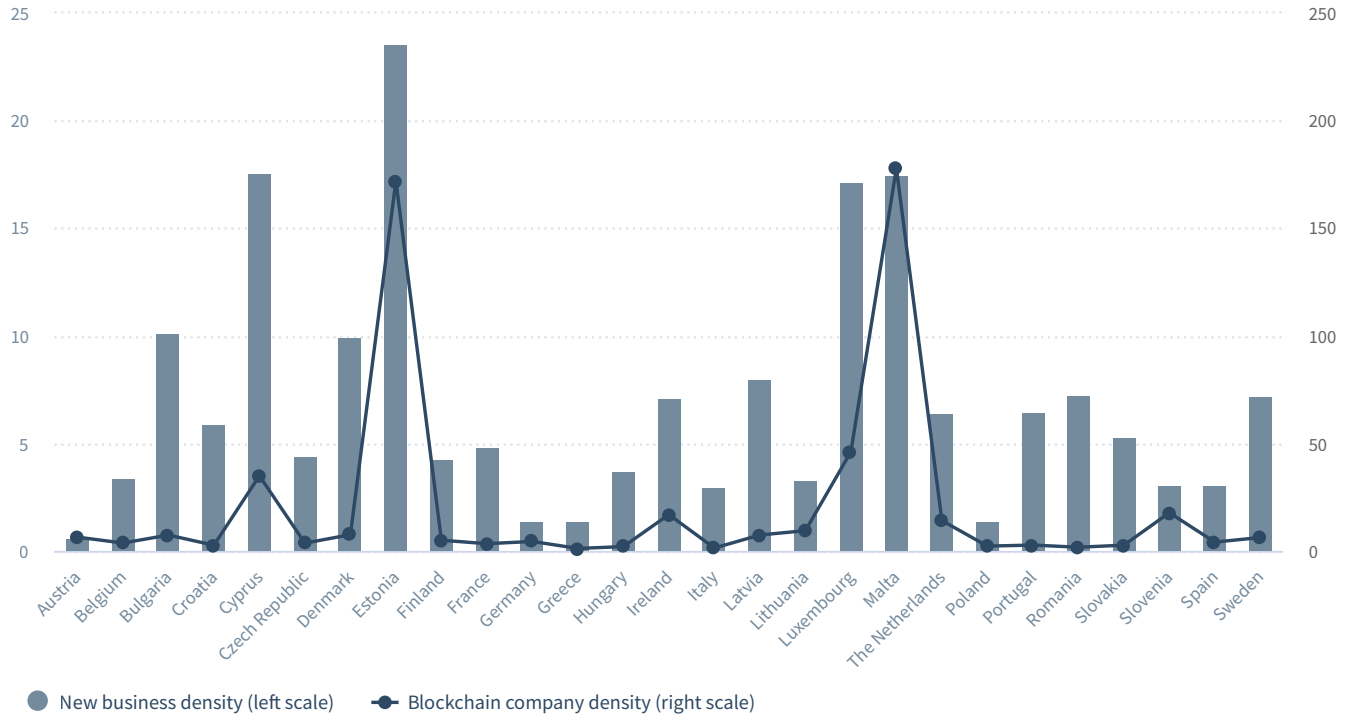
The largest part of the EU’s blockchain companies, namely close to 17 percent, are located in Germany, which is also the bloc’s largest economy. The large countries France and Spain each host 10 percent. However, 11 percent of the blockchain companies in the EU are headquartered in the smaller Netherlands and 10 percent in the much smaller Estonia. The success of smaller countries in the establishment of blockchain companies can be demonstrated by setting the number of companies in each country in relation to the size of its domestic labor force, i.e. the number of inhabitants between 15 and 64 years of age, which we call “blockchain density”. As a result, Germany only has 4.4 blockchain companies per one million labor force, while Malta and Estonia headquarter 177.9 respectively 172.0 blockchain companies per million labor force. There are 46.1 blockchain companies in Luxembourg and 34.9 in Cyprus followed by Ireland and Slovenia with 16.9 and 17.8 blockchain companies per million labor force. This raises questions about the factors which make the smaller EU countries attractive for blockchain companies.

Blockchain companies and start-ups

One such factor could be the general start-up activity as measured by the new business density (World Bank, 2021). Such activity is high in Cyprus, for example, with 17.6 foundations of new businesses per 1,000 labor force. Comparable numbers can be found in Malta with 17.5 foundations and Luxembourg with 17.2. Estonia has the highest number of foundations of new business-

Blockchain companies prefer flourishing start-up environments

New business density: new registrations per 1,000 people ages 15-64
Blockchain company density: blockchain companies per 1,000,000 people ages 15-64



Sources: Crunchbase, World Bank, own calculations

es in the EU, which is related to its business-friendly regulation and the possibility to start a company fully digitally (e-estonia, 2021). Ireland and the Netherlands also have relatively high numbers of foundations of new businesses with 7.1 and 6.4 per 1,000 labor force. The correlation coefficient between start-up activity and the number of blockchain companies is 0.79. This is quite high and can be mainly explained by the fact that most blockchain companies are start-ups: Around 60 percent of these companies in the EU are less than 5 years old; 31 percent are between 6 and 10 years old.

Blockchain companies and venture capital

Another factor influencing the number of blockchain companies could be their access to venture capital. European countries with high venture capital investments are Denmark and Finland, with 0.1 percent of their gross domestic product (GDP) and Ireland and Sweden, each with 0.09 percent of their GDP. In Estonia and the Netherlands, the value of venture capital investments is 0.06 and 0.05 percent of GDP (OECD, 2021). The correlation between the indicator for venture capital availability (World Bank, 2021) and the foundation of new businesses is 0.35; the correlation between venture capital availability and the number of blockchain companies is 0.24, reflecting the high correlation between the foundation of new businesses and blockchain companies. Although the access to venture capital is an important factor, it is only one among others determining the number of blockchain companies.

The role of agglomerations

Businesses tend to agglomerate because in this way, they can benefit from the exchange of information with other businesses more easily. This agglomeration externality has led to the development of financial centers, like London and New York, and high-tech centers like the Silicon Valley. Thus, we look at the concentration of blockchain companies on their home country's cities. In Estonia, for example, 98.6 percent of the blockchain companies are headquartered in the capital Tallinn. Lithuania's capital Vilnius hosts 88.2 percent of the country's blockchain companies. All of Luxembourg's blockchain companies are located in its capital. However, there are

also agglomeration effects in larger countries. For example, 90.6 percent of France's blockchain companies are headquartered in Paris. Although the renting office space might be higher there, the companies have chosen Paris as their headquarter in order to profit from the exchange of information and a better access to customers in the capital.

Besides such countries in which more than 85 percent of the blockchain companies are located in the capital, there are also less concentrated blockchain ecosystems. Examples for these are Vienna, Prague and Berlin that host between 44 and 61 percent of the respective domestic blockchain companies. Warsaw, Lisbon and Madrid have even lower percentages between 30 and 40 percent. Italy differs greatly from this, since only 6 percent of its blockchain companies are headquartered in the capital Rome. Besides some agglomerations in Milan, the companies are distributed is several cities and regions. The agglomeration indicator is mildly correlated with the number of new businesses and the blockchain density (correlation coefficients are 0.19 and 0.14) reflecting the high correlation between new businesses and blockchain density. Moreover, the agglomeration indicator is positively correlated with the availability of venture capital. This correlation is due to the fact that new businesses tend to prefer agglomerations and have a high demand for this type of financing as well as the fact that agglomerations enable the contact between companies and investors. Thus, factors that promote a flourishing ecosystem for start-up companies also tend to be beneficial for blockchain companies.

Financial services with and without cryptocurrencies

Around 43 percent of the blockchain companies in the data set supply products and services that are related to cryptocurrencies, while the majority of companies use blockchains for purposes beyond cryptocurrencies. While many blockchain companies from financial services supply payment services (the correlation coefficient is 0.74), there are several blockchain companies which supply payment services or financial services without using cryptocurrencies. This is reflected in the rather small correlation coefficient between companies which use cryptocurrencies and blockchain companies which supply payment services of only 0.40. On the other hand, the correlation between companies which use cryptocurrencies and blockchain companies which supply financial services is only 0.34.

How will the EU's blockchain centers develop?

Cyprus, Estonia, Luxembourg and Malta have the highest number of foundations of new businesses in relation to their labor force. Because most blockchain companies are start-ups, these countries are also leading in the number of blockchain companies in relation to their workforce. Countries which intend to embrace blockchain as a technology should therefore develop a business-friendly environment for digital start-ups, ease the access to venture capital and establish agglomerations with affordable office space for entrepreneurs.

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