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## Data as the new driver for growth?

### European and Chinese perspectives on the new factor of production

Amidst an emerging international systemic competition between China and the Western world, China's sustained high economic growth rates, technological innovations and successful control of the corona pandemic have raised doubts over the West's systemic capabilities. In this context, data resources and regimes play an increasing role.

This research note looks at data as present and future driver of innovation and economic growth in more detail. It compares the Chinese and the European perspective on data as well as their respective (planned) policy measures in order to draw tentative conclusions about their different approaches' implications.

#### **Key insights:**

**(1)** Both, the EU and China, have chosen data as the major lever for ensuring future economic growth and geopolitical power.

**(2)** Their approaches differ considerably: The EU adopts a values-based approach with a focus on data protection, while the Chinese government looks at data in a more technocratic way with a focus on its market value.

**(3)** Currently, China has a leading edge in conceptualising and exploiting data for economic growth, since it has advanced the implementation of data-related measures further than the EU and possesses a competitive advantage due to the greater amounts of data available in their economy.

**(4)** These differences lead to both, opportunities and risks. On the one hand, businesses can leverage the regional differences in regulation on data for profit if they adapt their business models accordingly. On the other hand, globalisation could be hampered by the different values attached to data and related regulations. However, at this early stage, it is still possible for both parties to find common ground and jointly develop a global data governance framework.



## Introduction

In 1994 an article by Paul Krugman in *Foreign Affairs* gained a lot of attention: Surrounding a possible Soviet challenge to US leadership in innovation, Krugman downplayed those excited commentaries predicting the rise of newly emerging economies in Asia as premature (Krugman, 1994). The main argument that Krugman brought forward was based on the economic concept of growth accounting<sup>1</sup>: The rise of the new emerging economies, or ‘Asian Tigers’, could mainly be attributed to increases in the input of labour and capital. Due to diminishing returns on these production factors, as well as stuttering total factor productivity in these countries, the emerging Asian economies were unlikely to challenge the leading role of the US in innovation, technology and ultimately economic power.

A quarter of a century later, the US propagates the narrative of a ‘New Cold War’; this time not focusing on Russia, but on China and its increasing economic prowess. A new systemic competition is emerging, tensions are increasing. However, unlike during the Cold War, the current situation is not (yet) characterized by two homogenous blocks, and calls for a stronger and more independent Europe are increasing. Also different from the past, the Western fear of being outperformed by China is linked to narratives of Chinese digital authoritarianism; an alarm that sometimes verges on Sino-technophobia (e.g. Brown, 2018; The New York Times, 2018). More recently, doubts over the West’s systemic capabilities have been stoked by China’s successful control of the Corona pandemic by deploying digital surveillance, among others.

Against this background the question arises whether Krugman’s arguments regarding the challenges to Western supremacy during the 1960s and 1990s are still valid today. The answer may be negative: Unlike the Soviet Union, China has been able to maintain comparably high economic growth rates due to its shift from a labour-intensive, through a capital-intensive all the way to a technology-intensive economy. Especially in the area of digitalisation, China has so far outperformed the European Union (EU).

Before reaching any hasty or generalized conclusions on China leaving the EU behind,

however, one should look at present and future drivers of economic growth in more detail. This article focuses on data, which both, the EU and China, seem to have chosen as the major lever for ensuring future economic growth and their maintenance/extension of geopolitical power. As early as 2013, EU Commissioner Neelie Kroes called data ‘the new oil’<sup>2</sup> (e.g. Kroes, 2013) and the EU recently published its *European Strategy for Data* (EC, 2020a). On the other hand, the Chinese government officially elevated data to the rank of a factor of production in early 2020 (CCCPC and State Council, 2020). Taking these developments into account, this article lays out both the Chinese and the EU’s perspectives and (planned) measures regarding data as a driver of economic development and draws tentative conclusions about the implications of these approaches for businesses, the economy and international relations.

## The European perspective on data

The EU started to address the topic of data more intensely in the 2010s. Initially, the bloc focused on public sector data, e.g. via establishing the EU Open Data Portal where EU agencies and institutions can make data publicly accessible whenever feasible. In 2014, the European Commission (EC) released a Communication with the title *Towards a thriving data-driven economy*, which served as a basis for the 2017 Communication *Building a European data economy*. In 2018, the EC took two further steps with the release of the *General Data Protection Regulation* (GDPR), which made data protection a key component of any further data-related action, and a proclamation that aimed to build common European data spaces (EC, 2020b). Since 2020, developments regarding data have gained speed, partly due to the COVID-19 pandemic, partly due to the new EC taking office in December 2019. In February 2020, the data strategy mentioned above, as well as a *White Paper on Artificial Intelligence* were published, and in November, the EC proposed a regulation on data governance. The Commission also announced a *Data Act* to be passed in 2021, which will regulate and foster data sharing among

<sup>1</sup> Growth accounting is a theory that asserts that technological progress and the ensuing efficiency gains (represented by the term ‘total-factor productivity’) play a key role for sustainable economic growth, whereas traditionally land, labour and capital (and sometimes entrepreneurship) were seen as the production factors that define growth.

<sup>2</sup> This metaphor was used to describe the importance of data to the economy, but not to characterize this resource. Clearly, there is a difference between the non-renewable resource of oil and the unlimited, reusable resource that is data.

businesses, as well as between businesses and governments (EC, 2020a).

These documents illustrate the development of data as a concept and its attributed value for the economy. The 2014-document includes the key phrases ‘data-driven economy’ and ‘data value chain’. The data-driven economy is supposed to exploit data along the whole value chain as a non-rivalrous resource in order to contribute to the “well-being of citizens as well as to socio-economic progress through new business opportunities and through more innovative public services” (EC, 2014: 12). Thereby transaction costs are supposed to be reduced, innovations fostered and productivity levels improved. In the end, all these factors should contribute to increased competitiveness and economic growth. Since 2017, the importance of data has been stressed further. Instead of ‘data-driven economy’, the EC now uses the shorter term ‘data economy’, i.e., an economy that is characterized by “different types of market players – such as manufacturers, researchers and infrastructure providers – collaborating to ensure that data is accessible and usable. This enables the market players to extract value from this data, by creating a variety of applications with a great potential to improve daily life” (EC, 2017: 2).

This new term not only articulates the role of data in the economy more concretely, but also regards the data economy as a separate realm from the rest of the economy that produces a specific value. Furthermore, the EC today adopts more urgent language both in the way it describes the need to catch up with other global players and in the characterisation of data. The latter is portrayed as “the lifeblood of economic development”, an “essential resource” with enormous economic and social potential (EC, 2020a: 2). Furthermore, in line with the *GDPR*, the EC’s recent documents emphasize the importance of data protection in conjunction with the goal of a single market for data. Evidently, the Commission attempts to bridge the gap between data exploitation and the right to data protection by referring to a “society empowered by data” (EC, 2020a: 1), a value-based and inclusive data economy with a “trustworthy

exchange of data” (EC, 2020c: 19), including data altruism<sup>3</sup>. One of the ways to achieve this is via neutral data intermediaries, which manage data flows between different actors, but are not driven by profit-maximisation (EC, 2020c).

Overall, the European perspective conceptualizes data as a key resource for further economic growth, but never calls it a factor of production in official document<sup>4</sup>. In addition, the European Law Institute points to the unsettled legal status of data in the EU, since data is neither a right nor a service nor a good (European Law Institute, 2018). It is also unclear to what extent data needs to be included as an asset in business accounting. At the same time, the EC leaves no doubt that it sees its competitive advantage, or niche, in the realm of data as a combination of economic and societal profit, for which it aims to establish a matching regulatory environment.

In this vein, the EC has proposed various data-related measures. Most fundamentally, the EU defines nine strategic domains for which dedicated data spaces are to be set up with financial support from the EU (see Table 1). These data spaces intend to foster the exchange of data and therefore innovation (EC, 2020a). All these efforts need to be in line with the EU’s values, as well as two non-negotiable principles regarding data: first, the stable, predictable free flow of data at the global level<sup>5</sup> and second, the protection of data and privacy where relevant, not just for individuals, but also sensitive non-personal data (e.g. commercially sensitive data) (EC, 2020d, 2020c). Hence, the EU chooses an open, yet assertive values-based global approach to data.

### The Chinese perspective on data

Similar to the EU, the Chinese government has recognized the importance of data for the economy and society for some time. The Chinese government also regards data as a key driver for innovation, which leads to quality and productivity improvements and ultimately economic growth (NDRC, 2017; Xinhua, 2020). Therefore, China promotes the building of data platforms and data

<sup>3</sup> The donation of anonymous data by actors (such as businesses) for the benefit of society.

<sup>4</sup> One book about the European data-driven economy in collaboration with the EC (Cavanillas, Curry and Wahlster, 2016) actually uses the

concept ‘production factor’ to describe data, but this is not an official communication by the EU.

<sup>5</sup> Honouring commitments to open trade, bilateral agreements and obligations from the World Trade Organisation.

sharing in a similar vein to the EU (CCCPC and State Council, 2020).

But unlike in the EU, the acknowledgment of data's importance has already been translated into concrete initiatives in the past couple of years. For example the Social Credit System, initiated in 2014, builds on an effort to consolidate and harmonize nation-wide government databases, while the *Internet Plus Strategy* (since 2015) aims at incorporating information technology in a variety of fields (e.g. agriculture, government monitoring) (State Council, 2014; State Council, 2015). In addition, China passed its first *Cybersecurity Law* in 2016, which focuses on improving security in the cyberspace and increasing data localisation and protection in the interest of national security (Government of the People's Republic of China, 2016). One of the fundamental differences of this document in relation to data protection compared to the EU's GDPR is that data protection against the state is not guaranteed, since the state is allowed to intrude in cases of national security and public interest (Wang Han and Munir, 2018).

Also different from the EU, academic and political circles in China started to discuss data as a new production factor in 2019. Chen Yubo, a professor from Tsinghua University's School of Economics and Management, for instance, refers to data as a factor of production several times and the Central Committee of the Chinese Communist Party (CCCPC) listed data amongst other production factors in a document in October 2019 (CCCPC, 2019; Sina Finance and Economics, 2019; Xinhuanet.com, 2019). Finally, in March 2020, the CCCPC and the State Council jointly published a Guiding Opinion related to production factors, in which they officially included data and laid out its importance for the economy and society (CCCPC and State Council, 2020). The Chinese government justifies the elevation of data to the rank of a production factor with a historical narrative. According to this interpretation, land and labour were key factors of production in the agricultural era, whereas factors like capital and entrepreneurship became more important in the industrial era. Today, in the context of the digital economy, data enjoys the same status as these traditional factors did previously (Xinhua, 2020). By attaching the

tag 'factor of production' to data, the government highlights its strategic economic importance and justifies related measures.

In detail, the Chinese government's conceptualisation of data deviates from the EU in several aspects. First, even though the topic of data protection is mentioned in the Chinese documents, it does not nearly get as much attention as in the EU's communications. Second, one of the use cases for data in China is social management. Such efforts include government monitoring and control of economic and other actors (e.g. via the Social Credit System or in times emergency management, such as pandemics) (CCCPC and State Council, 2020). Even though the EU also mentions data sharing on an institutional level, it does not refer to similar practices. Third, the Chinese government has already further specified the concept of data in comparison to the EU. The rough equivalent of what the EU understands as its data economy is the Chinese 'market of the factor data' (数据要素市场)<sup>6</sup> (CCCPC and State Council, 2020). According to the official document on the factors of production from 2020, the government is supposed to reduce its interference in the direct allocation of production factors, such as data (进一步减少政府对要素的直接配置) (CCCPC and State Council, 2020). The government rather sees its role in steering the process, e.g. via the standardisation of data collection, exchange and monitoring. While the EU has not specified how data should be incorporated into business accounting, in China the notion of data as an asset to be considered in business accounting is already emerging (e.g. 我国尚缺乏实现数据资产化 (Yu, Wang and Guo, 2020); 加快推进数据资产化 (Learning Times, 2020). A recent report from the government-led research institute China Academy of Information and Communications Technology also highlights this fact by proposing changes in accounting laws to catalogue data assets and determine their value (CAICT, 2020).

In addition to the above-mentioned data-related initiatives, the Chinese government has announced measures in 15 further areas in July 2020 (see Table 1) (NDRC et al., 2020).

<sup>6</sup> This term is not specified in the official documents, but used in parallel to the markets for other production factors,

such as the market of the factor land (土地要素市场) (CCCPC and State Council, 2020).

The Chinese measures seem more concrete as compared to the nine strategic areas the EU highlights. In addition, the Chinese government mentions four technocratic principles for their implementation: innovating governance, accelerating transformation and deepening integration, stimulating market vitality, and improving efficiency in the economic cycle (NDRC et. al, 2020). In addition, China launched its *Global Initiative on Data Security* (全球数据安全倡议) to promote international collaboration related to digitalisation and data in September 2020. While no further details on this initiative have been made public, the Chinese government opposes protectionism in the digital domain for the purpose of avoiding to hamper economic development and globalisation (Embassy of the People’s Republic of China, 2020). So far, the government has not specified its understanding of protectionism in this case, and the extent of collaboration possible on a level playing field in the data domain remains unclear.

ambiguity for businesses in their operations. Clearly, China has a competitive advantage related to data due to the sheer size of its population and market, as well as a stronger drive on the part of the government to collect and use data in governance, since economies of scale are especially relevant for data.

### Implications

The above comparison corroborates the great emphasis both the EU and China place on data. However, despite some similarities, the differences in how the topic is conceptualised and operationalized in the two contexts bear consequences for businesses, national economies and global governance.

For businesses, the diversity in approaches provides both opportunities and risks. On the one hand, different regulatory proposals (e.g. regarding data protection) may result in higher costs for multinational enterprises that operate in both



	
Strategic domains for data spaces	Areas for data-related initiatives
<ol style="list-style-type: none"> <li>1. Health</li> <li>2. Environment</li> <li>3. Energy</li> <li>4. Agriculture</li> <li>5. Mobility</li> <li>6. Finance</li> <li>7. Manufacturing</li> <li>8. Public administration</li> <li>9. Skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Integrated online education</li> <li>2. Telemedicine via the Internet</li> <li>3. Convenient home-office environment</li> <li>4. Digital governance</li> <li>5. Industrial platforms</li> <li>6. Digital transformation of traditional firms</li> <li>7. Virtual industrial parks and clusters</li> <li>8. Unmanned economy (无人经济)</li> <li>9. Support for self-employment</li> <li>10. Micro-economy development and sideline innovation (副业创新)</li> <li>11. Labour rights and interests protection</li> <li>12. Sharing economy</li> <li>13. Shared production</li> <li>14. Models for production material sharing</li> <li>15. Circulation of data</li> </ol>

Table 1: The EU and China specifications on data-related initiatives in comparison (EC, 2020a; NDRC et al., 2020)

All in all, this shows that the Chinese government looks at data in much more technocratic terms, while the EU promotes a values-based approach. At the same time, China has already further progressed in defining and exploiting the role of data in the economy, which can potentially reduce

regions, since they need to adopt different tailored approaches to ensure compliance in each region. This can become a barrier, especially for smaller companies, to operate in the respective unknown market. On the other hand, it can also turn into an opportunity to exploit the existing local conditions

to their maximum and to generate additional profit. For example, firms could make use of the laxer data protection requirements in China to generate innovative products and services in the first step and only later adapt the products to the regulatory requirements in other markets<sup>7</sup>. At the same time, they could optimize their global presence to benefit from data protection in the EU.

For both the Chinese and the European economy, it seems clear that data will become a major driver of growth. Despite differences in conceptualisation, both sides regard it as a key factor for economic competitiveness and innovation. Further research will have to explore in greater depths whether and how the diverging approaches to exploit data in the two regions differ in terms of their impact on economic growth. In any case, as data is both a resource and a stimulant to productivity, it should not simply be subsumed under total-factor productivity. A more nuanced approach to factor data into the Cobb–Douglas production function and related growth accounting needs to be developed.

At the global level, if both regions continue to focus on what sets them apart (e.g. data privacy, value-driven actions), there is a risk of different impenetrable blocks forming that would hinder data exchange and cooperation due to the different values attached to data and regulations. Such a trend could hamper globalisation and, in the worst case, force other countries to decide which bloc to join. However, as mentioned above, the EU emphasizes that it does not attempt to cut global data flows and China has just launched its global initiative for collaboration regarding data protection. It is therefore still possible that the EU and China find common ground in this regard. In case they do, their data-related global initiatives could make an important contribution to global data governance frameworks conducive to rules-based globalisation and further economic growth.

Currently it seems that China has a leading edge, both in terms of existing data-related measures and future potential, due to greater amounts of data which is only laxly regulated. Therefore, the possibility of China overtaking the EU based on its

data-related capabilities exists. Nevertheless, the Chinese potential should not be overestimated, since other factors such as trustworthiness, values and reputation also play a role in economic transactions, and the EU seems to score better in this regard.

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<sup>7</sup> Previously seen in regards to offshoring to circumvent social and environmental standards in Europe.

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