prohibit the use of product data for designing competing products or services that affect the welfare of any of the parties involved. Section 6 explores economies of scale and scope in data aggregation and proposes the introduction o

The producer-user relationship envisaged by the DA applies to wide range of industrial and services settings. In a complex industrial production chain for example, there may be many user-producer pairs. A firm runs a production process that uses many machines, produced and sold or leased by other firms. Each of these machines, in turn, may consist of several data-generating components produced by other firms. DA Recital (20) suggests that multiple owners or leasing parties should be given access to the data, but component producers should not, unless they retain an active role as a provider of data. The DA remains on the rights of data producers. This implicit assumption in the DA is that producers are in fact data holders and should give users access to the data. The reverse situation may occur, whereby users become data holders and producers have no access to the data. For example, a manufacturer of industrial robots assembles several data-generating components, produced by other firms, into a robot. The DA does not grant producers access to their component data in that case. These data could be used for the component manufacturer to improve the quality of his components.

With the DA, the European Commission has proposed a horizontal approach to open access to digital data. It would be too cumbersome to study potential market failures in each and every product market and examine whether the Chicago Critique conditions would be applicable. As such, the DA has potentially a very wide reach across the entire digital economy, just like the GDPR (in

data but do not fall under the definition of product data, makes the problem even more complex and inevitably leads to borderline disputes.

These disputes already started before the DA was passed. During preliminary discussions in the Council of the EU, the Czech Presidency of the Council in July 2022 [illegible]

access to data. Art 2(2) could be replaced by a statement that declares all data generated by digital devices and services to be subject to the provisions of the DA.

The DA offers no useful purpose or rational for the distinction between product and service data. The primary purpose of the DA could be to provide a horizontal data access regime that extends data access rights beyond the GDPR for personal data and for business users. The Business-to-Platform Regulation[8] took some first steps in that direction. The DMA expanded these access provisions to non personal data for businesses to core services data in very large gatekeeper platforms. The DA further generalises these user data access rights further to smaller businesses. The DA's data governance regime would then apply to any data collected by a device or a service. Dropping the definition of product data would avoid many competitive distortions, or attempts to create distortions, and borderline disputes, in data markets and data services markets.

2.2 What data does the DA cover?

Recital (14) states that product data "data represent the digitalisation of user actions and events and should accordingly be accessible to the user, while information derived or inferred from this data should not be considered within the scope of this regulation"

This raises a new question about the data covered by the DA: where is the borderline between primary and derived or inferred data? Recital 17 states that this excludes "data resulting from any software process that calculates derivative data … as such software process may be subject to intellectual property rights". This stretches IPR law beyond its current boundaries. It extends copyright protection of software code to the data generated by that software. This would be equivalent to, for example, Microsoft claiming IPR rights on data files generated by users of Microsoft Excel software. Excel spreadsheets would only give users access to the primary data that they put into Excel files but not data calculated by the spreadsheet. The Recital gives legal endorsement to a commercial strategy that has been tried by machine producers, for example in the agricultural sector (Atik and Martens, 2021). Perzanowski and Schultz (2016) discuss

signals (light, sound, mechanical movement, temperature, etc) into digital data. That conversion requires the use of software that derives digital output data from an analogue impulse recorded by hardware sensor. In complex machines, digital output data from many sensors can be processed in local area networks that steer processes in these machines. For example, modern cars have several local networks that handle engine and fuel functions, automatic gearboxes, brakes, etc, in function of the driver's behaviour. Connected and semi-automated agricultural machines include many sensors and processors of sensor data, as well as complex software processes that handle machine functions at a more aggregate level, depending on the user's instructions given to the machine. Moreover, agricultural machines may process combined data inputs from third parties, including land and soil mapping providers, agricultural inputs suppliers and agronomic advisory services, to machine outputs. Farmers will want to access all these types of data. It is not clear to what extent the DA definition of accessible user data would effectively make all this data available to farmers.

The European Parliament rapporteur on the DA has proposed an amendment to Art 3(1) to clarify this (European Parliament, 2022): all data generated by the use of devices that are accessible to the data holder should also be accessible by users. This amendment creates a level playing field between data holders and product users. It discards the distinction between primary and processed data and replaces it by all data accessible to the data holder. This approach has already been adopted by the EU data regulations. For example, the distinction has been dropped by some data sharing obligations for gatekeepers in the DMA and primary data portability provisions in the EHDS.

However, the proposed European Parliament amendment has its own problems. Modern digitally equipped machines, including cars, Howa ocess, (r)3 (s)-2 (,)]TJ EMC es/Spa53 0 Td [(da)-itoposs,

3 Data access and pricing rules

The DA

willoutsource the production of a data-driven service to a third party. The price paid for the data by that third party will be at least partly reflected in the cost of the service the user needs to buy. Despite the DA's good intentions expressed in Art 4(1), user access to the data is not free in this pricing mechanism. Attenuated monopolistic pricing still enables data holders to appropriate and monetise at least part of the user and third party's surplus from data use. Moreover, this may trigger a double marginalisation problem (Staahl, 2019) when both the data holder and the third party service provider are in a position to set profit-maximising prices. That would drive up prices for data-driven services beyond efficiency levels.

We can observe the implications of such a data pricing regime in the automotive sector. The EU Td (-)Tj 0.004-r0 (

directly available through On Board Diagnostics socket inside the car, as they have done for several decades. Installing that socket is a fixed cost that can be recuperated through the sales price of the car. With the arrival of digitally connected cars however, manufacturers started to collect car data on remote servermot car, ashe

manufacturers into a single home network. Produces of smart home devices will have to develop their own home systems. A common and open data interoperability standard could overcome these hurdles. There is no incentive for the largest players in this market to design an open standard when users are not allowed to port their data to platforms that use that standard.

Complications occur because of ambiguity in the language of DA Art 5(2). It is not clear if that prohibition would apply to only smart home devices not produced by gatekeepers, or also to devices produced by these firms. In the former case, it may have an adverse effect on competition because it would push consumers to buy only Google and Amazon smart home devices and thereby strengthen the market position of the big players. In the latter case, it would effectively disrupt vertical integration of home applications inside these firms.

There is an additional ambiguity in the interpretation of this prohibition with regard to the recipients of data transfers. The DMA definition of core platform services includes OS such as Android and Apple iOS. However, apps or app developers within these OS are not gatekeepers according to the DMA. As such, they do not fall under the DA prohibition on transfering data to gatekeepers. However, when the app has access to the data, the OS will usually have access, at least to part of the data. Most if not all apps contain code that enables the OS operator to monitor activity and data flows within the app. This raises the question whether the gatekeeper's OS should be considered the recipient of the data transfers, or sho

conditions imposed on gatekeepers in the DMA are more favourable in the DA. Contrary to marginal cost pricing in the DA, DMA gatekeepers should provide data free of charge and via API tools that ensure real-time effective interoperability at the operating system, hardware and software level.

Last but not least, the prohibition on data transfers to DMA gatekeeper platforms makes it very difficult to generate network externalities with product data. Undistorted welfare gains for users as well as producers from network effects. Product manufacturers can try to create their ow-6 (n)16(i)5 (t)-6 (n (t)1 (

and service quality discrimination, and more generally the use of data for service innovation in accordance with the preferences of users and the commercial strategies of service producers, undermine or strengthen the economic position of users and providers? These provisions effectively reduce competition in data-driven services and product markets. They suggest that the status quo ante in the private welfare of product manufacturers, data holders, users and third parties is preferable to innovation. Non-use of information seems to be preferable to efficiency and welfare-enhancing economic use.

The DA offers no meaningful economic arguments to support competitive provisions. The provisions may have been included to enhance trust in the DA because access to data cannot be used against the interests of any of the parties involved. As other authors have noted (Metzger and Schweitzer, 2022; Picht, 2022; Schweitzer, 2022), it reflects a negative prejudice against competition and a misguided approach to regulatory policy as a tool to preserve the private interests of stakeholders, rather than to boost the social welfare of society.

A possible rationale for these provisions may have been the protection of intellectual property rights and trade secrets of product manufacturers and data holders. Traditional IPR strengthens the static monopoly right but also boost dynamic innovation incentives by allowing the development of substitutes that do not interfere with the scope of the patented or copyrighted product features. However, manufacturers and data holders can apply traditional IPR instruments, such as patents and copyright, to protect their hardware, embedded software and designs against direct competition. The scope of these IPR rights is defined in law and does not prevent competition from innovative products that are partial substitutes for the original product, but differ in some important technical characteristics that are not covered by IPR rights. The DA introduces additional IP protection by prohibiting the use of data by third parties for developing competing products with the manufacturer, or preventing the manufacturer from developing competing services with the third-party data recipient. There is no need for these data related prohibitions as an additional layer of protection on top of IP law.

The main objective of the DA is to address monopolistic market failures in vertical integration between upstream product markets and downstream data-driven services. It overlooks however that data add another aspect to the traditional vertical integration arguments: economies of scope in the re-use of data. Since data is non-rival, re-use in competing and non-competing services can be welfare enhancing. The DA provisions address this concern by opening user access to data. That breaks any attempt at vertical restraints or vertical integration between upstream and downstream markets. However, the prohibition on competing with the original product or related service producers restricts

Data is subject to economies of scale and

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