December 2020

Advanced Technologies for Industry – B2B Platforms

Policy recommendations to further develop

B2B Industrial Digital Platforms in Europe

This report was prepared by Massimiliano Claps, Alessandra Massaro and Giorgio Micheletti (IDC).

Table of contents

Introduction

Objectives

This report has been prepared within the framework of the Advanced Technologies for Industry (ATI) project, initiated by the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs and the Executive Agency for Small and Medium-sized Enterprises.

Building on the findings of *Monitoring B2B Industrial Digital Platforms in Europe*, the report provides recommendations for EU-wide actions to encourage European industry and SMEs to explore the development of European industrial B2B platforms and accelerate the uptake of data-driven business models. To do so, this document analyses the impacts of platforms on economies and societies and identifies the main challenges that need to be addressed by policymakers and other interested stakeholders.

Methodology Approach

This report draws from extensive secondary research conducted on external sources as well as on existing research previously carried out by the Consortium partners. In particular, various IDC sources from work performed by IDC Manufacturing Insights, IDC Governement Insights and IDC European software and infrastructure research teams have been used as the basis for the content developed in the following pages.

Structure of this Report

The report is structured along the following sections:

- Section 1 introduces a top-level analysis of B2B platforms impact on the European economy, highlighting positive effects and open challenges.
- Section 2 provides the European Union and Member States institutions with recommendations to define and enforce policies that amplify the economic and societal benefits of B2B platforms.
- Annex 1 provides an explicative addendum on the definitions of B2B platforms.
- Annex 2 provides a comprehensive sample of B2B platforms by industry.

Section 1

1 The impacts of B2B platforms on the European Economy

1.1 The value of platforms for the European Economy

Digital[1] is a key pillar of the EU agenda for the near and long term future, as clearly indicated by the European Industrial Strategy, the European Data Strategy[2], the Strategy on Shaping Europe's Digital Future[3], the Digital Services Act[4] and other strategic policies.

In the digital economy, digital platforms play an important role. According to the World Economic Forum's Digital Transformation Initiative (DTI), digital platforms could unlock over 8 trillion euros of value for business and wider society over a 10-year period[5]. Digital platforms have become one of the principal ways of organising a wide range of human activities, including economic, social, and political interactions[6]. More specifically, from a B2B[7] point of view, platforms can be defined as *virtual environments facilitating the exchange and connection of data between different organisations through a shared reference architecture and common governance rules* (IDC)[8]

New platform-enabled business opportunities can be targeted through the creation of virtual buyer-and-seller communities, thus brokering interactions of makers and users with diverse but complementary interests. Platforms offer new ways of maximising efficiency and improving profitability[9] and are therefore gaining in importance for their economic brokerage and intermediation services – at both the business-to-consumer (B2C) and business-to-business (B2B) levels. Increasingly, the two worlds of B2B and B2C are blending into B2B2C models, like Amazon in the retail world, or Booking.com in the travel industry, or Moovit in the mobility as a service market[10].

As a result of digital acting as an accelerator of the platform concept, B2B platforms are flourishing across all European industries (see Figure 1) to[11].

- Drive new data-driven business models.
- Share industry-specific industrial software applications on a common platform.
- Enable product and service innovations through commercial synergies in joint initiatives.
- Optimise B2B sell-side and buy-side processes.

---

[1] https://ec.europa.eu/info/sites/info/files/communication-eu-industrial-strategy-march-2020_en.pdf
[2] https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy
[3] https://ec.europa.eu/digital-single-market/en/content/european-digital-strategy
[4] https://ec.europa.eu/digital-single-market/en/digital-services-act-package
[5] World Economic Forum Digital Transformation Initiative: Unlocking B2B Platform Value, March 2017
[6] Gerald C. Kane, Douglas Palmer, Anh Nguyen-Phillips, and David Kiron. "Is Your Business Ready for A Digital Future?" *MIT-Sloan Management Review* (56:4), Summer 2015. - Asadullah, Ahmad; Faik, Isam; and Kankanhalli, Atreyi, "Digital Platforms: A Review and Future Directions" (2018). *PACIS 2018 Proceedings*. 248.
[7] You may find more information about the definition of B2B platforms definitions in the Annex 1 of this report.
[8] G. Cattaneo, G. Micheletti and L. Veronesi (IDC) 28TH July 2016. "European Data Market SMART 2013/0063. D3.10 Industrial Data Platforms – *Key Enablers of Industry Digitization*." The document is one of a series of in-depth analysis focusing on the development of the data-driven economy in Europe based on specific case studies by sector and/or by technology. It constitutes the deliverable D3.10 of the study "European Data market", SMART 2-013/0036 entrusted to IDC and Open Evidence by the European Commission, DG Connect, Unit G3 – Data Value Chain.
[9] Duch-Brown, N. (2017). Platforms to business relations in online platform ecosystems. Brussels: European Commission. doi:JRC109186

[10] You may find more information about the definition of B2B platforms definitions in the Annex 1 of this report.
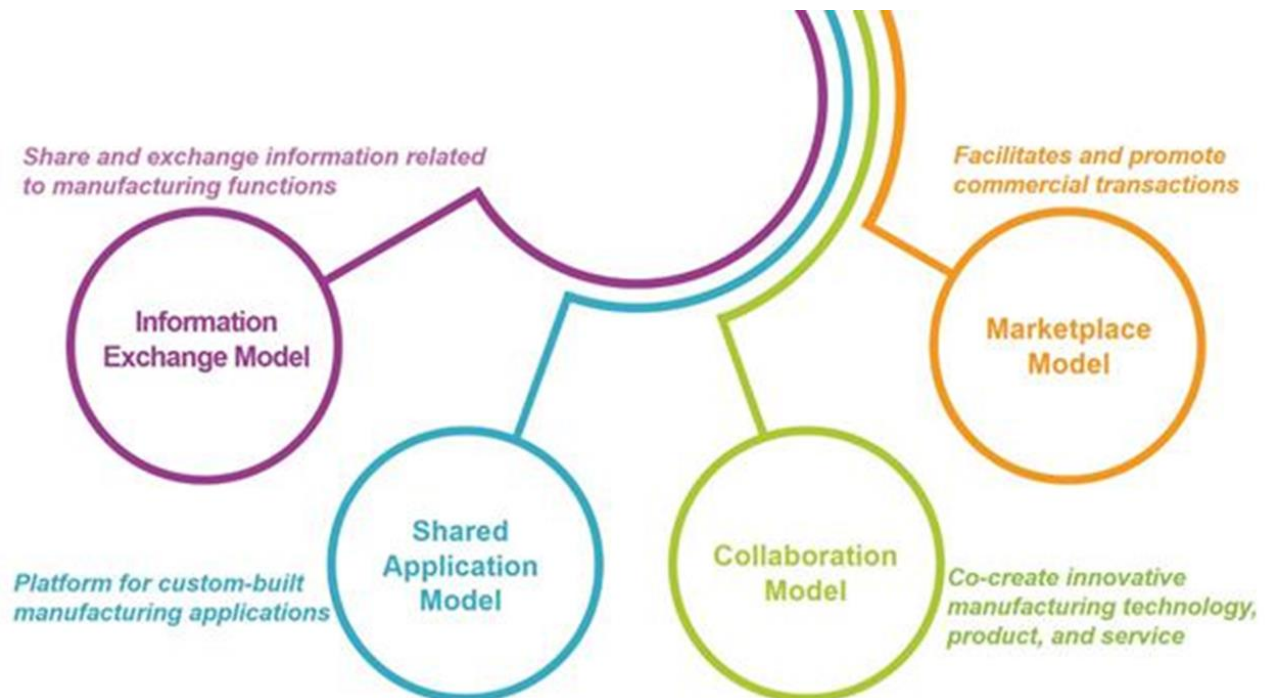[11] https://www.idc.com/getdoc.jsp?containerId=EUR146713020

Figure 1: Four approaches for engaging in ecosystem collaboration

Source: "The Open Manufacturing Platform: A Collaborative Initiative to Accelerate Innovations in Industrial Production" – IDC, July 2020

While shifting industry balances and accelerating transformation, B2B platforms have positively impacted economies and societies. They helped consumers, enterprises, governments and non-profit institutions to interact with more individuals, trading partners and constituencies. This resulted into growing productivity of industrial and service processes, giving SMEs access to international markets (for instance McKinsey estimated that, in 2014, enterprises that sold through eBay – a B2C platform that has expanded into B2B[12] - were more likely to export, than those not selling online[13]; the multiplier effect was 6x in Germany and 24x in the US), and lowering transaction costs and risks. All this, because reliable information on buyers, sellers, products and services, pricing and brand reputation has been made easier to find thanks to common, shared platforms. Platforms also increased innovation and agility through an extended network of trusted partners that share a common vision[14]. For example, in industrial supply chains, digital platforms enable manufacturers to design and assemble more modular products through a co-innovation process, with their suppliers and customers. Such modularity empowers suppliers to combine short time-to-market with customisation of design and configurations that align with customer needs, even for very complex products, like airplanes[15].

Today, B2B platforms' relevance for the businesses is rapidly growing. Value added is created by the application of Big data and analytics technologies, increasingly powerful cognitive computing capabilities and ubiquitous access. For example, according to an OECD study[16] on the impact of platforms service firms, in industries like hotels, restaurant, taxis and retail, platform development supports "the productivity of the average incumbent service firm and also stimulate labour reallocation towards the most productive of them."

It is however important to notice that not all platforms have equally positive effects. Differences exist by country, industry and type of business model innovation that the platform creates. For instance, the OECD study on the impact of platforms service firms found that "The effects depend crucially on the

---

[12]https://www.businessinsider.com/ebay-boosts-its-b2b-business-2016-7?IR=T;
https://www.ebay.com/b/BusinessIndustrial/12576/bn_1853744
[13] McKinsey Global Institute – Digital Globalization: The New Era of Global Flows, March 2016
[14] Harvard Business Review – The B2B Elements of Value, March-April 2018
[15] TNO – Industrial B2B platforms: the race Europe cannot afford to lose, October 2019
[16]https://www.oecd-ilibrary.org/economics/like-it-or-not-the-impact-of-online-platforms-on-the-productivity-of-incumbent-service_080a17ce-en

December 2020

type of platform considered. "Aggregator" platforms that connect existing service providers to consumers (e.g. Booking.com, TheFork) have tended to push up productivity, profits and employment of existing/incumbent service firms. In contrast, more disruptive platforms that enable new types of providers to compete with existing ones (e.g. Uber, Airbnb) are not found to have had a significant effect on the productivity of existing providers, but tended to reduce their mark-ups, employment and wages." If Europe wants to leverage its industrial knowledge base to realise the benefits of platforms in the B2B world it needs to consider these differences in terms of potential impact on productivity and innovation.

In the B2C space, Europe wages a small piece of the global market power where the largest platforms like Spotify and Zalando are dwarfed by the US and Asian giants in market capitalisation by several hundred billion euros. However, European platforms tend to be different from US-based or Asian platforms from many points of view[17]:

- European Industrial B2B platforms are often developed in cooperation, via projects initiated by European Commission funded Research and Innovation projects or national research institutions, such as IDS[18] and FIWARE[19]. While Industrial B2B platforms in the US are often initiated via startups and corporate spinoffs.
- In Europe there is an increasing focus on 'data sovereignty': enabling organisations to retain full control over the access and usage of their own data. This results in several initiatives to develop decentralised, federated platform architectures, such as GAIA-X[20]. In the US there is more emphasis on centralised architectures based on so-called hyperscalers, such as Amazon Web Services (AWS) and Microsoft Azure, that provide the elastic and scalable cloud services on which B2C and B2B platforms are built.
- Especially in the US and Asia there is a tendency towards platforms focusing on 'Manufacturing as a service': integrating manufacturing capabilities through a digital platform, often without owning the actual manufacturing assets ('Alibaba''Fictiv', 'Machiningcloud', 'Techniplas' for manufacturing[21]).

These differentiators should form the basis for European enterprises to build and maintain a competitive advantage in the B2B platform space, before global companies like Alibaba or Amazon Business leverage their B2C market presence to expand successfully in the B2B space[22].

Development of the platform market is also uneven within Europe. For instance, the OECD study on the impact of platforms service firms found that:

- The United Kingdom has high platform development and flexible product and labour markets, but the high persistence at the top of the largest platforms that may reduce the associated productivity gains.
- Spain's strictness of product and labour market regulations may hinder productivity gains.
- Germany lags behind in platform development in the services sectors, while it leads the way in manufacturing industries with initiatives like International Data Space, BMW's Open Manufacturing Platform, Siemens Addictive Manufacturing Network and Kloeckner's XOM Materials marketplace.

1.2 The digital acceleration of B2B platform in the COVID era

The COVID global pandemic has challenged the European economy. According to a recent IDC survey[23], European manufacturers and their value chain partners, such as retailers and logistics companies, foresee long-term, permanent impacts. Among other things, they expect their operating models to become more digitally enabled and their supply chain to become more diversified. European manufacturers and their value chain partners, such as logistics service providers, are looking to source materials and components via cloud-based B2B marketplaces to reduce the risks of supply chain

---

[17] TNO – Industrial B2B platforms: The race Europe cannot afford to lose, October 2019

[18] https://www.internationaldataspaces.org/

[19] https://www.fiware.org/

[20] https://www.bmwi.de/Redaktion/EN/Publikationen/Digitale-Welt/das-projekt-gaia-x-executive-summary.pdf?__blob=publicationFile&v=6

[21] https://www.fictiv.com/; https://www.machiningcloud.com/; https://www.techniplas.com/

[22] https://www.digitalcommerce360.com/2020/01/31/amazon-business-grows-faster-than-amazon-itself/

[23] https://www.idc.com/getdoc.jsp?containerId=US46181820

December 2020

disruption due to non-elastic relations between customers and suppliers. The ability to switch smoothly to another supplier during circumstances such as natural disasters, political upheavals, or a global pandemic is a competitive advantage as an orchestrated network of suppliers/partners makes the supply chain less vulnerable to global disruptions by providing elasticity in R&D and production capacities. Moreover, including a collaborative third-party cloud-based platform in your sourcing strategy will provide you with flexible production and supply capacities.

Figure 2: European Enterprises, Expected Long-Term Impacts of COVID

Which of these areas will likely be permanently changed as a result of COVID-19 pandemic?
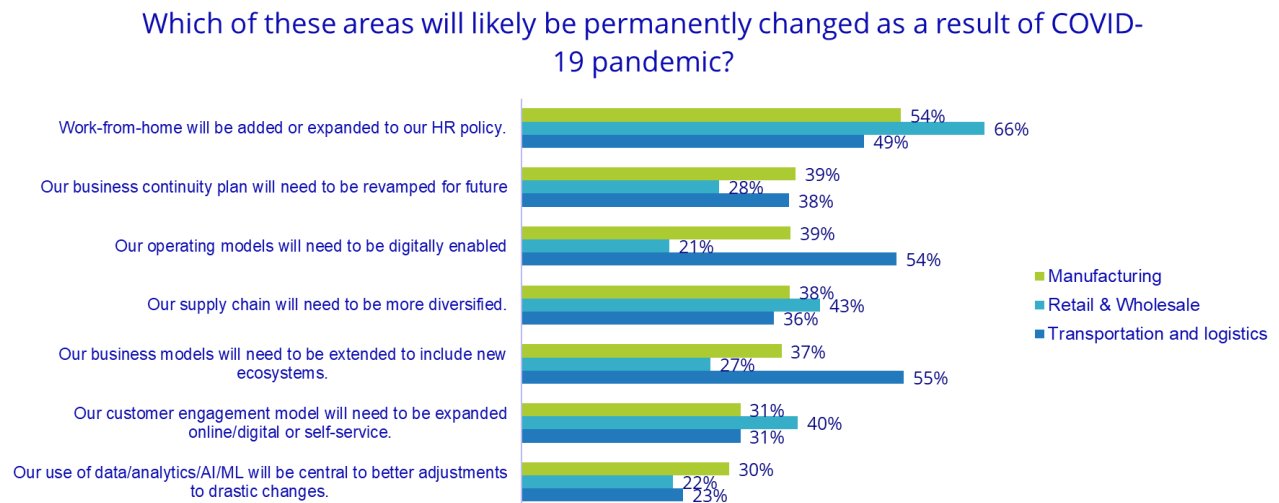
Source: IDC EMEA, COVID-19 Impact Survey, Internal, Wave 5, 18-25 May 2020 – Manufacturing = 160 respondents; Retail&Wholesale = 82 respondents; Transportation and logistics = 36 respondents

1.3 The open issues of B2B platforms

Digital has multiplied the potential value of B2B platforms, but adoption and success is not equal across all enterprises and industries in Europe. Digitalisation often acts as a multiplier that creates faster, more dynamic and competitive marketplaces, thus widening the gap between the few thriving companies — the best performers, that leverage their capabilities to create new digital products and services, expand digital ecosystems and foster digitally savvy workforces — and a lagging majority. The adoption level in Europe also differs across countries and company-size segments; it generally rises proportionally with company size. European companies that are not able to realise the benefits of B2B platforms are at risk of being left behind and losing market share to the front runners. According to McKinsey "Digital leaders in B2B achieve up to five times the revenue growth and up to eight times the EBIT (earnings before interest and taxes) growth of their peers"[24].

To amplify the positive impact of platforms across industries and enterprises of all sizes, there are some open issues that need to be addressed by policymakers. For example, some online platforms have disrupted or displaced incumbent firms, creating challenges about re-allocating workers or increasing the market concentration, catching policymakers unprepared in terms of adapting legacy regulations to new ways of competing. Moreover, platforms have raised many questions about how they collect and share users' personal data with third parties. For instance, GDPR applies to personal data relating to individuals acting as sole traders, employees, partners, and company directors wherever they are individually identifiable and the information relates to them as an individual rather than as the representative of a legal person.[25]

- **Regulatory compliance challenges**. B2B platforms create two potential types of regulatory challenges.
    - o Insufficient level-playing field for security and data protection: Platforms require clarity around data ownership, access and overall governance, to build and maintain mutual

---

[24] McKinsey Global Institute - Four pathways to digital growth that work for B2B companies, October 2019
[25] https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/what-is-personal-data/what-is-personal-data/

December 2020

trust between the parties involved. Currently, data exchange between different companies is often regulated by bilateral contractual agreements between the parties. These agreements do not come in standard formats and offer different levels of data transferability and data access depending on the sensitivity of the data forming part of the exchange. These types of contracts have proven to work in a limited environment, but the capability of an ecosystem to scale by leveraging a B2B industrial platform will depend on the regulatory framework that evolves in terms of whether it allows for a standardised approach to data sharing. Concerns over the complexity of B2B platform data governance and protection applies both to personal data – intended as data about individuals sole traders, employees, partners, and company directors –, intellectual property rights and trade secrets[26]. For instance, BMW Open Manufacturing Platform principles indicate companies that bring IP into the BMW Open Manufacturing Platform retain ownership of that IP, while all code that is created by the platform working groups is governed under open source IP rights.

o Fraud and safety risks: Collaborating with a broad ecosystem where not all buyers and sellers know one another also requires setting up mechanisms to establish and maintain mutual trust from a consumer protection, financial risk, contract risk and health&safety risk perspective. The consequences of business identity theft, payment fraud or health&safety fraud - for instance in the agri-food industry - can compromise the long-term sustainability of a B2B platform and of its participants. Traditional mechanisms, such as allowing inspections of each other offices, factories, warehouses are not scalable in a digital platform world. New forms of mutual control, such as ratings, know your customer checks, applying machine learning to detect suspicious usage of card payments can help[27]. Platforms also raise the question about the accountability of the platform provider itself, versus the responsibility of the individual participants.

- **Economic efficiency challenges**. Policymakers need to understand the impact of platforms on the efficiency of allocating scarce resources, such as government subsidies, labour, capital investment in innovation.
    - o Labour market disruption: Platforms have both generated new jobs and caused job losses. They have also changed models of employment, raising questions about the status of workers' relationships with platform providers with regard to health insurance, employment insurance, wage stability, paid annual leave, worker safety regulations, international labour rights and standards, the rights to unionise and bargain, training, certifications and licenses.
    - o Balancing scale with fair competition: B2B platforms lead to a better allocation of economic resources if they generate collaborative innovations among supply and demand. Realising the benefits of collaboration requires platforms to scale the number of buyers and sellers that participate; the earlier stages of development of the B2B platform market are characterised by a significant fragmentation, if compared with the traditional B2C landscape. Indeed, this fragmented market includes many B2B platforms in Europe that provide similar capabilities; for instance, Dassault Systèmes 3D Experience, Siemens Addictive Manufacturing and Fictiv all provide services related to industrial 3D printing, from CAD files to quality management and control processes. However, a very fragmented market[28] usually generates fast innovation cycles, which can result in a duplication of efforts. Therefore, from a policy maker perspective, actions are needed to accelerate standardisation and interoperability and foster collaboration between B2B providers. Nonetheless, as policy efforts become successful, more and more players are induced to enter the market and the concentration increases. The market can thus become a monopoly, or more often an oligopoly of suppliers who have less incentive to innovate and more to maintain the status quo. If a relative small number of platform players manages to take control of a vertically integrated catalogue

---

[26] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016L0943&from=EN<
https://www.researchgate.net/publication/220095032_Preserving_trade_secrets_between_competitors_in_B2B_interactions
[27] https://www.pymnts.com/news/b2b-payments/2020/b2b-ecommerce-corporate-customer-security-fraud/
[28] A characteristic of the initial stages of the development of a product service / business model

December 2020

of services, of a technology architecture and the pricing mechanisms, high barriers to entry and severe switching costs may be imposed. Higher concentration could result from consolidation of European players, or from a growth of the B2B lines of business of B2C platforms like Amazon. According to the OECD study on service industry platforms[29], the productivity gains induced by "aggregator" platforms are found to be reduced when a platform is persistently dominant on its market, suggesting that contestability of platform markets should be promoted, including by reducing switching costs between platforms and via strict enforcement of competition policy tools (see Figure 3). In 2017, the OECD Competition Committee also held a roundtable on "Algorithms and Collusion" to discuss concerns about the possibility that algorithms could be used to achieve and sustain collusion – possibly without even needing any formal agreement or human interaction. The analysis concluded that "despite the risks that algorithms pose for competition, this is still an area of high complexity and uncertainty where lack of intervention and overregulation could impose serious costs on society." The European Commission has conducted several studies and taken policy actions in this area. In 2016, the European Commission released a European agenda for the collaborative economy and conducted a fact-finding exercise [30] which indicated that some online platforms engage in trading practices that could harm professional users. The following year, in its Digital Single Market Mid-Term Review, the Commission committed to prepare actions to address unfair contractual clauses and trading practices identified in platform-to-business relationships and a proposal for a regulation on promoting fairness and transparency for business users of online platforms followed in 2018 [31]. Meanwhile, the Commission also conducted a study on consumer protection issues in Peer-to-Peer Platforms Markets (PPMs) [32].

Figure 3: Effect of platform development on average service firm productivity in the selected industries and countries, depending on structure of the platform market
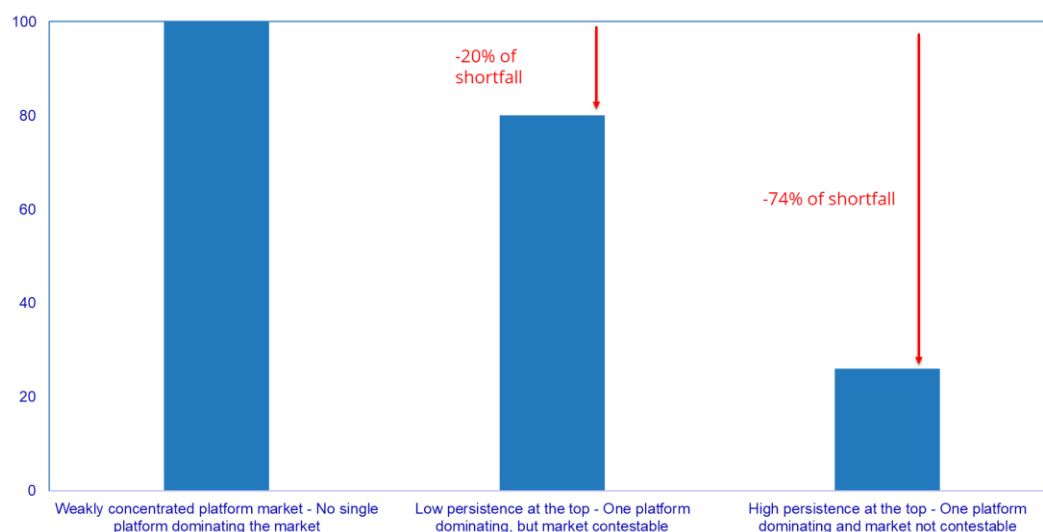
Source: OECD Economics Department Working Papers No. 1548 - Like it or not? The impact of online platforms on the productivity of incumbent service providers.[33]

---

[29]https://www.oecd-ilibrary.org/economics/like-it-or-not-the-impact-of-online-platforms-on-the-productivity-of-incumbent-service_080a17ce-en

[30]https://ec.europa.eu/digital-single-market/en/news/communication-online-platforms-and-digital-single-market-opportunities-and-challenges-europe; https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-356-EN-F1-1.PDF

[31] https://ec.europa.eu/digital-single-market/en/platforms-to-business-trading-practices

[32]   https://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=77704;   https://ec.europa.eu/digital-single-market/en/digital-services-act-package

[33] Note: Weakly (highly) concentrated indicates that the market share of the largest platform is below (above) the median in the sample. High persistence indicates that the largest platform was already the largest in the two previous years. The first two bars are not statistically different from each other, whereas the third one is significantly lower than the first one.

December 2020

o SMEs inclusion: Digital platforms can enable SMEs to more easily access markets, strategic resources and networks, by pooling resources, reducing information asymmetries, by connecting demand and supply[34]. However there is still a divide between SMEs and larger enterprises in Europe in terms of access and usage of digital technologies (See Figure 4) and skills[35] that limit the potential positive impacts of SMEs participation in the platform economy.

Figure 4: Adoption of digital innovation in European Enterprises

% of enterprises in EU-27 that use the listed digital capabilities

■ SMEs (10-249 persons employed), without financial sector ■ Large enterprises (250 persons employed or more), without financial sector

	Enterprises with internet access	Provide more than 20% of the employed persons with a portable device that allows internet connection, for business purpose	Enterprises with a website	Collaborate with business partners (e.g. suppliers, etc.) or other organisations (e.g. public authorities, non governmental organisations, etc.)	Enterprises with web sales - B2B and B2G
SMEs	97	36	76	13	11
Large enterprises	100	45	94	26	20

Source: Eurostat, 2019

- **Technology challenges**. Modern digital platforms thrive on continuous technical innovation that makes it affordable to scale business models rapidly, to collect and analyse data and to re-imagine customer experiences. Openness of platforms and widespread usage of cloud are key elements of such transformation. Technology platforms that are instead built upon closed systems limit innovation.
  o Data quality and interoperability: Enterprises can maximise the value of participation to B2B platform if they integrate the platform's workflows with the ones existing within the boundaries of the enterprise, from design, to marketing, to product life-cycle management, to sales and after sales support. For example, it is possible for several stakeholders in an ecosystem (such as a machine OEM, the factory or plant operator, and a third-party maintenance provider) to deliver end-to-end services based on a common view on the machine asset, its performance, its configuration data, and service documentation in real time. To achieve this, data and its semantics need to be captured and managed in a common format, so that it can be utilised by companies in the broader ecosystem. To maintain such a real-time digital twin of an asset in the field, every stakeholder in an ecosystem would have to use a common data model, but this remains a challenge. Therefore, having access to good quality and interoperable data is essential to intelligently automate business processes. That requires both the platforms to rely on open standards and the participating enterprises to build up the skills and modernise the systems that they use for data collection, exchange and analysis.
  o Cloud barriers: The (perceived or actual) lack of security, scalability, privacy, portability, and interoperability of cloud services, made it difficult for many European enterprises to embrace Cloud computing, especially for mission-critical and information-intensive processes. That is a problem, because Cloud computing is the native environment for many B2B platforms. Cloud adoption in Europe is accelerating, because of improved maturity of cloud management practices on the user side and enhanced offerings from

---

December 2020

suppliers, such as global hyperscalers. However, it is important for B2B platforms to be able to choose among several cloud options and shift among them with relatively low costs, otherwise part of the European B2B technology innovation roadmap will be owned by global oligopolist cloud service operators.

- **Business model and organisational challenges**. Platforms have a disruptive impact on industry value chains and companies. Enterprises impacted by these transformations need to have mature organisations that can take advantage of the opportunities and control the risks of change, by adapting their commercial processes (sales, marketing, data-driven customer segmentation and pricing), redesigning the customer journey (in terms of convenience, speed, flexibility and transparency), expanding into new channels (by cutting out intermediaries and building direct relationships with customers), and creating entirely new businesses (for example by enriching products with data-centric services, based on advanced analytics). Companies that resist the move from a product centric paradigm to an outcome-centric one that revolves around long-term customer engagement and ecosystem collaborations will fail to realise the benefits of platforms. If only few enterprises can realise the benefits of digital platform, the positive economic and social impact will be limited.
  - o Data monetisation challenges: many enterprises are yet unable to monetise the data and use it to transform their business processes. Companies are exploring new revenue models, such as platform sharing, risk/reward sharing, economic sharing, mixed advertising and subscription models and/or data monetisation sharing. But so far, no clear model has scaled. This is both true for industry incumbents that still earn a large share of their revenues from their core products and services, and platform companies, many of which struggle to make a profit[36].
  - o Governance: B2B platforms require aligning incentives of all participants on funding development and operations, prioritising development of new services, pricing of services. The more platforms are built through joint efforts across complex supply chains, the more it is necessary to establish collective decision-making processes and structures. Platforms that are entirely controlled by one commercial organisation experience fewer governance problems, but often raise complaints about complex, arcane contract language that favours platform owners, but hampers benefits for participants, particularly SMEs.
  - o Cultural barriers: These barriers pertain to stakeholders' reluctance to innovate and their lack of confidence and entrepreneurship in changing the way they work, which must move from a company-driven approach to an ecosystem-driven concept. Many companies only see the risks of giving away competitive differentiators, by participating into a B2B platform, rather than the potential value of exploring new markets and speeding up innovation that leads to productivity gains. Skills, managerial and leadership changes need to be implemented by organisations that want to realise the benefits of platforms.

These open issues are often interdependent, thus creating an amplified effect. For example, the lack of interoperability standards can drive higher switching costs, thus amplifying the effect of non-transparent contractual conditions. Platforms that use open architectures can instead create a virtuous cycle of network effects for third-party developers that create new services on top of the platform, thus growing the platform core business, as well as the developers' own market reach and success[37]. The lack of data interoperability and portability may undermine platform market contestability, but "excessive" portability can lead to increasing privacy concerns. Cloud barriers are not only a technological constraint but are also related to both data protection concerns and organisational immaturity. All these interdependencies make regulatory decisions more complex because policymakers need to balance many trade-offs.

---

[36] https://hbr.org/2019/05/a-study-of-more-than-250-platforms-reveals-why-most-fail
[37] MIT Sloan Management Review – Three Lessons From Germany's Platform Economy, August 2019

December 2020

Section 2

2 Policies realising the Value of Platforms

The issues presented in the previous section call for additional analysis and renewed attention by policy-makers and industry stakeholders. In this section we review the main challenges related to the development of B2B digital platforms in Europe and outline a series of top-level recommendations as an initial input for further action.

2.1 Regulatory compliance challenges

2.1.1 Challenge - Insufficient level-playing field for security and data protection

Recommendations:

1. In the context of the next round of research and innovation Horizon Europe funding, the EU should promote projects that address the development of technical solutions, such as homomorphic encryption, blockchain/smart contract and contract templates for the application of General Data Protection Regulation (GDPR), the Trade Secrets Directive and other data regulations in B2B platforms. The blurring boundaries of B2C and B2B platform require addressing questions like: secure secondary use/exchange of data across the platform ecosystem through analytics and information services and use of Personally Identifiable Information of individuals acting as sole traders, employees, partners and company directors.

2. Promote exchange of best practices across EU Member States for dispute resolution mechanisms for data governance, in order to lower transactions costs for European companies, in particular SMEs, that want to leverage platforms to access export opportunities through B2B platforms.

2.1.2 Challenge - Fraud and safety risks

Recommendations:

1. Promote best practices sharing for platforms to: (1) raise awareness of product safety issues, (2) serve as points of contact for removing goods identified by product safety authorities (across Member States) as noncompliant. Fund research that helps develop machine learning solutions that can automate blocking of banned goods via language processing technologies.

2. Promote standardised application, across Member States, of the provision that if platforms wish to benefit from an exemption from liability for the products and services that they intermediate, they must remove infringing listings or disable access to them expeditiously once they have obtained knowledge of the existence of such illegal listings on their platform[38].

3. Promote exchange of best practices across Member States for dispute resolution mechanisms for financial, intellectual property and other fraud and safety risks, in order to lower transactions costs for European companies, in particular SMEs, that want to leverage platforms to access export opportunities through B2B platforms.

4. Promote best practice sharing on peer reviews and ratings that are widely used by platforms as trust-building mechanisms. For instance, through the usage of truthin-advertising laws and standards (e.g. requiring content providers on platforms to disclose material connections with advertisers in their reviews), better ratings design (such as increased use of bilateral feedback mechanisms) and development of machine learning tools that help automate discovery of fake reviews.

---

[38] Regulation of the European Parliament and of the Council concerning the Respect for Private Life and the Protection of Personal Data in Electronic Communications and Repealing Directive 2002/58/EC (Regulation on Privacy and Electronic Communications); "Directive on electronic commerce", in Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on Certain Legal Aspects of Information Society Services, in Particular Electronic Commerce, in the Internal Market

2.1.3   Challenge – SMEs inclusion

Recommendations

1. Ensure that the implementation EU SME Strategy for a sustainable and digital Europe includes measures that support SME inclusion in B2B platforms. For example by setting up Digital Innovation Hubs (DIHs) dedicated to B2B platforms.

2.2   Economic efficiency challenges

2.2.1   Challenge - Labour market disruption

Recommendation:

1. Evaluate, for example through the creation of regulatory sandboxes[39], the trade-offs between strict employment protection that may prevent enterprises, particularly SMEs and those in industries that are starting to experiment with B2B platforms, from adjusting capacity to rapid demand fluctuations and the need to guarantee workers rights.

2.2.2   Challenge - Balancing scale with fair competition

Recommendations:

1. Promote cooperation across EU member states for the sharing of best practices and to incentivise the creation of aggregation platforms that can connect supply chain in adjacent ecosystems, such as manufacturing, wholesale and logistics, or across countries within each supply chain.
2. Closely monitor thresholds to identify high market concentration and its persistence over time and then enforce open competition policies, including promoting cost reduction technical and business requirements, such as data portability, multi-homing and best price clauses.
3. Re-assess thresholds for mergers and acquisitions, because large platforms may acquire innovative startups that have little or no revenue – hence falling below merger notification thresholds in many jurisdictions – but possess valuable user data. Austria and Germany[40] have recently taken such actions.

2.3   Technology challenges

2.3.1   Challenge – Data quality and interoperability

Recommendations:

1. Disseminate the usage of open source tools and common technical standards and architectural approaches (e.g. APIs) for data portability and interoperability. Consider that "excessive" portability could pose privacy concerns.
2. Fund research and innovation in IoT, edge computing and digital twin and how they could impact data portability and interoperability. The number and variety of edge devices that collect, parse, store and then transmit data for in-depth analysis to core and cloud data centres is increasing. Enterprises particularly in industries like manufacturing and agriculture need to integrate the intelligence edge data into their day-by-day business processes, including those enabled by B2B platforms.
3. Address the business aspects of portability; for instance, in the case of multi-homing (i.e. the possibility for enterprises to use several platforms at the same time), platforms do not typically prohibit data portability, but may give users important financial incentives to use almost exclusively a single platform, making it more difficult for policies to address this issue by simply promoting common technical standards.

---

[39] In the context of the digital economy, regulatory sandboxes are testing grounds for new business models that are not protected by current regulation or supervised by regulatory institutions.
[40]https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Leitfaden/Leitfaden_Transaktionsschwelle.pdf?__blob=publicationFile&v=2

4. Fund research and innovation in areas like artificial intelligence, intelligent process automation and blockchain to foster transparency and automation of B2B platform processes.

2.3.2 Challenge - Cloud barriers

Recommendations:

1. Collect and disseminate cloud best practices, such as cloud migration, multi-cloud and hybrid cloud management, cloud skills, in particular for SMEs. Encourage academia and industry associations to support the effort.
2. Disseminate best practices around data sovereignty (retaining control over the sharing and use of data) and digital sovereignty (trusted data infrastructures) to increase the ability of enterprises to make use of trusted cloud services.
3. Evaluate, test and scale European federated cloud infrastructures – in line with the European Data Strategy – for specific industries and use cases.

2.4 Business model and organisational challenges

2.4.1 Challenge - Data monetisation

Recommendations:

1. Encourage academia and industry to work together to create and adopt best practices that drive ecosystems to collect, exchange and analyse data, by helping them understand what they gain from treating data as a strategic asset.
2. Create regulatory sandboxes for the experimentation of new business models. Regulate clearly the industries, timeframe and responsibilities for executing and auditing projects in the context of the sandboxes.

2.4.2 Challenge – Governance

Recommendations:

1. Promote the sharing of best practices on the governance and operating models of B2B platforms between enterprises, industry association and academia.
2. Encourage enterprises and industry associations to define codes of conduct on the transparency of contractual condition. Monitor the impact of this self-regulation approach, before taking further actions.

2.4.3 Challenge - Cultural barriers

Recommendations:

1. Support European enterprises, in particular SMEs, with deployment funding that helps them work with academia, vocational training institutions and industry associations to re-skill their workforce, both from a technical and business point of view to leverage the benefits of B2B platforms.

Conclusions

B2B platforms are transforming industries, from automotive, to life-science and agri-food in Europe and beyond. They have the potential to grow productivity and innovation for the whole economy, but also bring disruption that negatively impacts social inclusion, fair and competitive markets, open and democratic society and other key pillars of the EU agenda set out in the European Industrial Strategy, the European Data Strategy, the Strategy on Shaping Europe's Digital Future and the Digital Service Act Package.

Indeed, while there is little doubt that B2B platforms are positively impacting economies and societies, helping consumers, enterprises, governments and non-profit institutions in the process, this report has highlighted a series of open issues that, if not timely and effectively addressed, could slow down the benefits associated with the development of B2B platforms and actually reinforce their distortive effects on the economy and the society as a whole.

The European Union and the EU Member States should therefore collaborate to define and implement policies that amplify the economic and societal benefits of B2B platforms by addressing in particular the challenges related to regulatory compliance, economic efficiency, technology development and business models. For each of these challenges and their associated proposed recommendations, policymakers should consider the balance between regulation imposed by authorities vis-à-vis co-regulation derived from a collaborative effort between the public and private sectors and self-regulation conceived and implemented by companies or trade associations. As noted by the World Economic Forum's Digital Transformation Initiative, one of the key differentiators of platforms is trust. B2B platforms require participants to agree to certain rules, so they can be particularly influential when promulgating and implementing co- and self-regulatory measures. Clearly, the challenges that have an impact on more sensitive issues, such as data sharing, labour protection and health&safety of products and services will require direct regulatory interventions, while other matters may be more suitable to co- and self-regulation.

December 2020

ANNEX 1 B2B platforms definitions

1. B2B Platforms: definitions and development models

1.1   What are B2B Platforms?

Digital platforms have become one of the principal ways of organising a wide range of human activities, including economic, social, and political interactions[41]. More specifically, from a B2B point of view, platforms can be defined as *virtual environments facilitating the exchange and connection of data between different organisations through a shared reference architecture and common governance rules* (IDC)[42].

The platform concept is not new. Historically enterprises and whole industry sectors have achieved increased customer relevance, opened new markets, obtained a competitive edge, managed costs, used new business models, and leveraged intellectual property (IP), sales and distribution channels by developing common working frameworks and shared environments. One could argue that business to business and business to consumer collaboration have relied on the platform concept, since when the wheel or money or stock exchanges were invented, as ways to facilitate interactions among users with different, but complementary interests. More recently, for example, the automotive industry introduced standardised chassis, as physical platforms, that formed the basis for several different car models.

Digital technologies are now making it possible to extend the platform concept to uncharted territories. The Internet, smartphones, Cloud computing, Big data and analytics, IoT and edge-computing combined to accelerate the growth and expanded the role of platforms. Hosting providers, search engines, electronic directories and catalogues, e-commerce portals, e-payment systems and social media have evolved to play a prominent direct service provisioning role. They capitalised on innovative ideas, direct and indirect network effects, economies of scale and scope, low-cost, high-speed transactions and global market reach. Many are now ranked among the global most valuable companies. Platforms work differently from traditional businesses in three main ways, according to the World Economic Forum's Digital Transformation Initiative[43]: value shifts, non-linear growth and trust.

- **Value shifts**. Historically, value has been created "upstream", by engineering products in companies design labs, manufacturing them and then systematically pushing the value down the chain to the consumer. Platform business models create value in an iterative and continuous fashion across entire ecosystems, with a customer-first mindset. In other words, scaling customer intimacy and personalisation of outcomes become more important than economies of scale within the boundaries of an enterprise.
- **Non-linear growth**. Network effects can accelerate the velocity of change for how value is created (and destroyed). The community/ecosystem collaboration becomes the key intangible asset, rather than the proprietary resources of one enterprise.
- **Trust**. Customer intimacy and network effects are predicated on open access to services and information. And this can happen only if participants understand and apply a core set of principles to govern platform-powered ecosystems.

New platform-enabled business opportunities can be targeted through the creation of virtual buyer-and-seller communities, thus brokering interactions of makers and users with diverse but complementary interests. Platforms offer new ways of maximising efficiency and improving profitability (Duch-Brown,

---

[41] Gerald C. Kane, Douglas Palmer, Anh Nguyen-Phillips, and David Kiron. "Is Your Business Ready for A Digital Future?" *MIT-Sloan Management Review* (56:4), Summer 2015. - Asadullah, Ahmad; Faik, Isam; and Kankanhalli, Atreyi, "Digital Platforms: A Review and Future Directions" (2018). *PACIS 2018 Proceedings*. 248.

[42] G. Cattaneo, G. Micheletti and L. Veronesi (IDC) 28TH July 2016. "European Data Market SMART 2013/0063. D3.10 Industrial Data Platforms – *Key Enablers of Industry Digitization*." The document is one of a series of in-depth analysis focusing on the development of the data-driven economy in Europe based on specific case studies by sector and/or by technology. It constitutes the deliverable D3.10 of the study "European Data market", SMART 2-013/0036 entrusted to IDC and Open Evidence by the European Commission, DG Connect, Unit G3 – Data Value Chain.

[43] World Economic Forum (WEF) Digital Transformation Initiative: Unlocking B2B Platform Value, March 2017, https://www.weforum.org/whitepapers/digital-transformation-initiative

---

December 2020

2017) and are therefore gaining in importance for their economic brokerage and intermediation services – at both the business-to-consumer (B2C) and business-to-business (B2B) levels.

Technology has expanded the range of capabilities that a platform can provide (see Figure 5 and 6):

- Purely **digital capabilities**, such as infrastructure services, data management, analytics and AI services, application services, digital identity services, are now the object of demand-supply exchanges on a platform. Examples includes the International Data Space (IDS), Accenture Cloud Based Informatics Platform for Life-Science and BMW-Microsoft Open Manufacturing Platform.
- Technology has also enhanced the depth and usability of **information exchange capabilities**, such as directories, product catalogues, ratings, standards, databases to drive new data-driven business models. Examples include IHS Markit KYC Services Utility and Bloomberg.
- Technology innovation has augmented **operational capabilities** to offer products and services, such as design and engineering, ordering, invoicing, paying, training, travel services, temporary labour, asset management and maintenance, warehousing and logistics, financing, marketing and communicating, quality control processes and supplier audits. Examples include Voith's merQbiz and Science Exchange.

Many platforms provide a blend of operational, information and technology capabilities, for instance, that is the case of Dassault Systèmes 3DEXPERIENCE Marketplace, fictiv and Siemens Additive Manufacturing Network that offer the digital capability of the 3D technology itself, the exchange of product design information, and the operational capabilities to deliver a physical product.

Figure 5: Description of platforms by type of capabilities

Source: IDC's "Industry Cloud Participation Models: The Customer Perspective"

1.2   The blurring boundaries of B2B and B2C platforms

Increasingly, the two worlds of B2B and B2C are blending into B2B2C models. It is in particular B2C platforms including the likes of Amazon and eBay in the retail world, or Booking.com in the travel industry, or Moovit in the mobility as a service market that are moving into the B2B world. This transformation happens in two ways:

- Opening a separate line of business for B2B: this is the case for the Amazon and Alibaba B2B marketplaces
- Blending the capabilities that they offer to the enterprises that sell on B2C platforms. In this case, platform providers have created an ecosystem that continuously develop B2B2C services

December 2020

that support the sellers with advanced payments, customer analytics, e-commerce, chatbots, cloud-based services.

1.3 How are B2B Platforms developed and operated?

Koh and Fichman have defined digital platforms as a "two-sided network that facilitates the interactions between distinct but interdependent groups of users"[44]. In a more practical sense, a digital platform is a technology-enabled business model that creates value by facilitating exchanges between two or more interdependent groups. Platforms also enable companies and organisations alike to share information to stimulate collaboration and enhance the innovation potential of products and services. By connecting two or more sides, the platform ecosystem generates powerful network effects whereby the value increases as more members participate[45]. Platforms have long played a key role in the IT industry. By linking different actors that are interested in sharing information in the form of data, digital platforms constitute a composite business ecosystem combining players from disparate backgrounds, thus fostering the creation of new data-driven services and innovative business processes.

The models used to develop and operate the exchanges among businesses in B2B platforms encompass a wide variety of forms. Some platforms are developed by one company who controls the intellectual property of the offered services and the underlying capabilities, such as GE Predix[46]. Other platforms are the result of joint efforts between industry and technology players, such as the "Open Manufacturing Platform"[47], built by BMW in partnership with Microsoft, or CODE[48], developed by SAP with pharmaceutical wholesalers and manufacturers including Boehringer Ingelheim, Amerisource Bergen, GlaxoSmithKline plc, Merck Sharp & Dohme and others. While platforms developed and controlled by one company are aimed to gain competitive advantage, many joint efforts seek to realise the benefits of pre-commercial collaboration.

The relationship among participants in the platform can be mainly transactional, such as in the case of travel platforms that offer booking services, or can be aimed at pre-competitive collaborative innovation, such as in the case of GitHub[49]. Many platforms blend the two models.

From a governance model standpoint, when the goal is to catalyse collaboration among a small group of participants that want to create a tight integration of their expertise, enterprises set up strategic alliances. While platforms come into play when the number of participants is larger. That is when the focus is less on the depth of the binding relationship among few stakeholders, but more on facilitating access to broader pools of suppliers and customers so that the volume of transactions can be scaled and streamlined by accelerating network effects. From this perspective, the IDC Industry Cloud practice classifies platforms along two main axes (see Figure 6):

- What **role** can a participant play?
  - Are participants supplying something for other participants to consume?
  - Or do participants cooperate for mutual benefit?
- How do participants **interact** with each other?
  - Do participants work together collectively?
  - Or can a participant choose who they work with?

---

[44] Koh, T. K., & Fichman, M. (2014). Multihoming users' preferences for two-sided exchange networks. Mis Quarterly, 38(4), 977-996.

[45] Rochet, J. C., & Tirole, J. (2003). Platform competition in two-sided markets. Journal of the european economic association, 1(4), 990-1029.

[46] https://www.ge.com/digital/iiot-platform

[47] https://www.bmwgroup.com/en/innovation/company/open-manufacturing-cloud.html#:~:text=The%20Open%20Manufacturing%20Platform.,faced%20in%20industrial%20production%20today.

[48] https://icn.sap.com/article/new-blockchain-software-from-sap-helps-eliminate-counterfeit-drugs

[49] GitHub is an Open Source development platform where a software developer can host and review code, manage projects, and build software alongside a large numnber of other developers (https://github.com/)

December 2020

Figure 6: B2B Platforms Governance Models
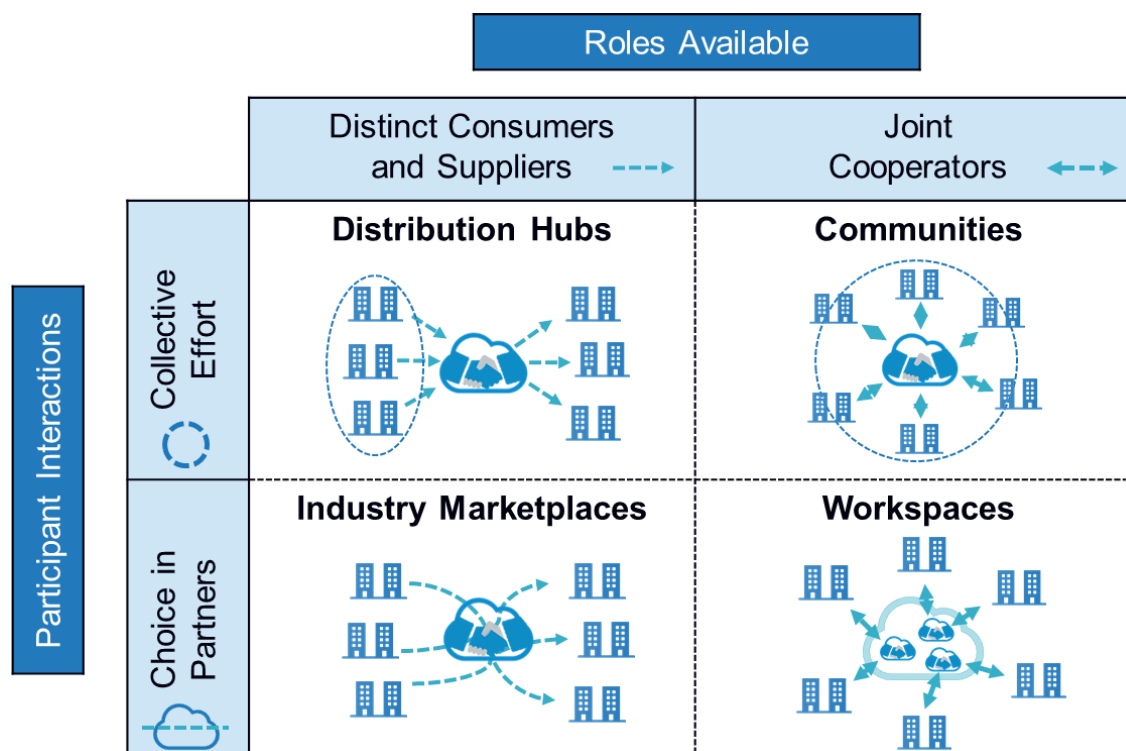
Source: IDC's "Industry Cloud Participation Models: The Customer Perspective"

- **Distribution Hubs** - where one group supplies collective value for a second group to consume. Often, the first group, an industry or a piece of the value chain, creates standards for the second and may receive additional benefits themselves. Bloomberg B-Pipe is an example of a distribution hub.
- **Communities** - All participants contribute in cooperation to receive enhanced, collective benefits. Benchmarking, analytics, cost mitigation, common platforms, standards, and compliance are common examples. HIS Markit KYC Services Utility is an example of a community.
- **Industry Marketplaces** – Participants can consume and supply (ex. buy and sell) industry-specific goods, services, software and data with chosen partners. Technology like Product Lifecycle Management or Computer-Aided Design may enhance the marketplace.
- **Workspaces** – Grants closed off areas for cooperation with chosen partners. Product collaboration, supply chain or information sharing with chosen partners are common examples. TraceLink Life Sciences Cloud is an example of a workspace.

The OECD[50] also classifies platforms, based on their overall scope and structure:

- "Superplatforms", or "platforms of platforms", which are walled gardens that users enter through a single portal (an app or a website) and that contain many individual platforms.
- Platform constellations, which are platforms owned by a single company and that may be seamlessly interoperable, share data or have synergies with one another, but can all be accessed separately without having to go through a single portal.
- Stand-alone platforms, which are self-contained.

And based on their operational model[51]:

- "Aggregators", which link buyers to existing sellers and service providers for example by providing searching tools, review, and rating systems.

---

[50] OECD - An Introduction to Online Platforms and their Role in the Digital Transformation, 2019
[51] OECD - Like it or not? The impact of online platforms on the productivity of incumbent service providers, 2019

December 2020

- "Disruptors", which primarily link buyers to new types of sellers' service providers, whose activity is enabled by the innovative business model of the platform.

From a business model standpoint, platforms earn revenues in several ways:

- Transaction fees/commissions.
- Subscription fees.
- Listing fees and/or additional service fees for services that are connected to the platform.

Many platforms offer freemium services. It means that they offer a microservice for free, but they gain their return in other manners, for instance by collecting user data and leveraging those for personalised promotions of products and services that require to pay fees.

ANNEX 2 B2B Platforms by industry

As a result of digital acting as an accelerator of the platform concept, B2B platforms are flourishing across all industries and blending into cross-industry ecosystems (see Table below).

A sample of B2B platforms by industry

Name of the platform	Brief description	Industry
BioLinked	e-marketplace for small and mid-sized organic food suppliers that simplifies the trade process by giving them online technologies to promote their businesses, connect with wholesale buyers and trade safe from payment to delivery	Agri-food
MyAgCentral	DN2K's MyAgCentral tool allows farmers as well as "precision farming" consultants and retailers to more easily collect, store and evaluate a host of information -- some of it gathered "machine to machine" by remote monitors -- and use it to improve farm productivity	Agri-food
Alibaba.com	Alibaba.com has three main services: the English language portal Alibaba.com, which handles sales between importers and exporters from more than 240 countries and regions,the Chinese portal 1688.com, which manages domestic B2B trade in China, and transaction-based retail website AliExpress.com, which allows smaller buyers to buy small quantities of goods at wholesale prices	Cross-industry
Ec21	EC21 is a global B2B marketplace connecting buyers with suppliers all over the world including China, Korea, United States and more. Suppliers/manufacturers/exporters can post and promote their products and selling leads. Buyers/importers can search and contact suppliers easily by B2B categories and keywords. Buyers can also post their own buying leads to get quotes or offers from manufacturers.	Cross-industry
GAIA-X	The GAIA-X program aims to create the next generation of a federated data infrastructure for Europe, its states, companies and citizens; a data infrastructure which satisfies our highest aspirations in terms of digital sovereignty while promoting innovations.	Cross-industry
IDS	International Data Spaces initiative (former Industrial Data Space) aims at creating a secure data space that supports enterprises of different industries and different sizes in the autonomous management of data.	Cross-industry
Bloomberg	Bloomberg's market data feed, B-Pipe, is available through cloud delivery. The cloud enables support of cloud applications, monitoring tools, and centralised entitlement controls.	Finance
IHS Markit KYC Services Utility	The service collects, enriches and centrally administers legal entity data and documents that banks require from their clients to conduct business and comply with Know Your Customer (KYC) and anti-money laundering regulations, including Dodd-Frank, Emir, Fatca and Mifid	Finance

December 2020

SWIFT Community Cloud	The SWIFT Community Cloud is an amalgamation of a few different cloud solutions but is primarily represented by Alliance Lite2 as a connection to external financial institutions to process messages and transactions.	Finance
ARROWHEAD	Arrowhead was initiated via an FP7 project. It provides an IoT Framework for factory automation that addresses interoperability across multiple Service Oriented Architecture (SOA) technologies. With these features, the Arrowhead Framework enables the design, engineering, and operation of large automation systems for a wide range of applications utilising IoT and CPS (Cyber Physical System) technologies	Manufacturing
Batchforce	Batchforce automates part of the production process via our online production platform. It focuses on small batch manufacturing, i.e. production in small series, for companies that need small numbers of custom made parts, but the production of these parts was often too expensive or too slow.	Manufacturing
Combient AB	Combient today is the collaboration network in the Nordics. It includes 30 large enterprises supported by an ecosystem of top universities and start-ups. Major partners in the manufacturing domain include Scania, KONE, Stora Enso, and Saab. The vision of Combient is to develop digitalised industrial innovations to the industry by means of collaboration and knowledge sharing.	Manufacturing
Dassault Systèmes 3DEXPERIENCE Marketplace	3DEXPERIENCE Marketplace enables access to on-demand 3D printing, CNC machines, injection molding, laser cutting, sheet metal, and engineering services. It also has a comprehensive catalog of sourceable, industrial 3D parts and components. The platform enables partner identification, design and parts choice through SOLIDWORKS & CATIA access, communication and collaboration on design specs, error checking, and business traceability.	Manufacturing
fictiv	Fictiv operates a quote-to-order platform where manufacturers can connect with suppliers of CNC machining, 3D printing, castings, and so on. Fictiv focuses strongly on the quality management and control process of each aspect of the customer journey. Certification processes, factory audits, and quality control are necessary prerequisites, as is consistent high-quality communication (such as sharing weekly performance scorecards with partners). Machine shops upload availability and designers upload CAD files. Fictiv aggregates orders and routes designs to open machines	Manufacturing
Krauss-Maffei Polymore	Polymore is an online marketplace for procurement of compounds, recyclates, and post-industrial recyclables in Europe	Manufacturing
MachiningCloud	MachiningCloud is a platform providing a single source of product data from the leading manufacturers of cutting tools. Connecting cutting tool manufacturers with end users, it helps streamline finding, selecting and determining the best use of tooling products	Manufacturing
merQbiz	Voith, a manufacturer of paper-production machines (among others), initiated a digital industrial B2B marketplace called merQbiz to overcome the lack of transparency in the recovered-paper raw material market. Voith expanded its merQbiz trading platform with integrated logistics solutions from U.S. logistics group C.H. Robinson, which gives merQbiz customers additional access to integrated logistics services. Functionality and services such as credit checks; shipment, invoicing, and	Manufacturing

	payment tracking; or quality inspections have also been included on the platform to increase customer value. 24	
Open Manufacturing Platform	In April 2019, BMW and Microsoft announced a joint initiative called the Open Manufacturing Platform. OMP aims at creating a reference architecture with open source components based on open industrial standards and an open data model. The goal of this initiative is to build a community that develops digital factory solutions that address process optimisations and innovations across the manufacturing value chain. In February 2020, the founding companies welcomed Anheuser-Busch InBev, Bosch, and ZF as members of the steering committee. Capgemini, a provider of consulting, system integration and engineering services, also joined this initiative in July 2020.	Manufacturing
Siemens Additive Manufacturing Network	The Additive Manufacturing Network is an open ecosystem and virtual marketplace for printing equipment suppliers, users, products designers, and software vendors for additive manufacturing. It enables on-demand design and engineering expertise, collaboration, digital tools and production capacity for industrial 3D printing to manufacturers globally. It can be used for prototyping and spare part production	Manufacturing
Smart Factory Kaisers-Lautern	SmartFactoryKL is a platform of more than 45 member organisations from industry and research. These member organisations perform research and development projects related to Industrie 4.0 and the factory of the future. Its members include Festo, HARTING, Pilz, proALPHA, and IBM.	Manufacturing
Techniplas Prime	The Techniplas Prime platform connects qualified manufacturing partners to fulfill orders placed through its platform. It provides automated lightweighting solutions, additive manufacturing options with instant pricing quotations and localised manufacturing. Techniplas Prime manages projects from pre-production stage through tooling, manufacturing, final inspection, and product delivery to an OEM.	Manufacturing
Volkswagen Automotive Cloud	German car builder Volkswagen is working with Amazon Web Services (AWS) and Siemens MindSphere to build its own Industrial Cloud, which aims to increase efficiency of plant operations of Volkswagen group companies (e.g., Audi, SEAT, SKODA) and to reduce production costs accordingly. The plan includes integrating Volkswagen suppliers and developing this initiative into an open ecosystem of partners to drive the development of innovative platform-based solutions.	Manufacturing
XOM Materials	In 2017, Kloeckner initiated the launch of an open industry B2B marketplace called XOM Materials. Since its official start in March 2018, this marketplace has brought together about 70 distributors (including steel producers and competitors of Kloeckner) and 1,400 registered buyers in Europe and the U.S. The platform also provides ready-made procurement and sales solutions as well as analytics services to enable customers to better understand their own data. This includes, for example, data about how much they are selling and how volumes are distributed across countries.	Manufacturing

December 2020

Xometry	Xometry is an Industrial B2B platform that connects industrial parts, manufacturers and buyers. It allows buyers to upload their 3D models, specify the materials, features and components. They will also receive feedback on pricing, lead times and the best manufacturing processes. Buyers can review manufacturer profiles and rankings and make purchase decisions. Manufacturers, especially mid-market companies engaged in sheet metal fabrication, 3D printing and urethane casting, can join the partner network to serve as a seller of the platform	Manufacturing
Accenture Cloud-based Informatics Platform for Life Sciences	The Cloud-based Informatics Platform for Life Sciences is an AWS-based platform bringing together analytics and data management capabilities to support pharmaceutical research and early development.	Pharma and life science
antibodies-online.com	antibodies-online.com is an online marketplace for proteomic products offerings customers antibodies from suppliers. The company standardises product data to make offerings comparable and simplifies searching	Pharma and life science
Collaboration for Oncology Data in Europe	The Collaboration for Oncology Data in Europe (CODE) is aimed to address information gaps by providing timely information on anti-cancer medicine use back to healthcare systems.	Pharma and life science
Google Genomics Cloud	Google Genomics Cloud is an API-enabled platform for processing Genomics data. Users can process, store, explore, and share genomic data at scale.	Pharma and life science
IQVIA OneKey	OneKey provides data on B2B relationships for 1m+ organisations and plans that influence treatment protocols and purchase decisions. It helps life sciences companies answer questions like: How many Healthcare Providers (HCP) are likely to prescribe my products? What are their communication preferences? Who has the best prescription potential? Who are the key opinion leaders at national and local levels? What did this expert publish? Who is present, active and influential on internet?	Pharma and life science
Science Exchange	Science Exchange is a marketplace and integrated procurement system for R&D services and experiments. Resources and life sciences supplies are also bought and sold on the platform.Science Exchange's enterprise clients include major drug and biotechnology companies, including Merck, Amgen, Gilead Sciences and Genentech	Pharma and life science
Scientist.com	Scientist.com is an AI-powered marketplace for outsourced life sciences research services that enable participants to deliver faster sciences to R&D. Additionally, participants can buy and sell resources including human biological samples, biomarkers, immunotherapy, protein engineering, molecular pharmacology, in vitro / in vivo assays, and more	Pharma and life science
TransCelerate SIP	SIP supports common research and clinical trial requirements for the biopharmaceutical industry. It brings together best of breed technologies from an eco-system of partners to streamline collaboration and provide a centralised point of access for trial sponsors, CROs, investigators, clinical researchers and ultimately regulators	Pharma and life science
Veeva OpenData	Veeva OpenData is a subscription service that provides life sciences companies access to Healthcare Provider (HCP), Healthcare Organisation (HCO), affiliation and compliance data, that is updated and improved in a shared manner by all	Pharma and life science

	participating LS companies, led by a Veeva-provided data steward service	
Amadeus GDS	Amadeus Global Distribution System (GDS) provides search, pricing, booking, ticketing and other processing services in real-time to travel providers and travel agencies	Travel and tourism
Hotelbeds	B2B travel technology company that operates a hotel distribution platform accessed by travel agents, tour operators, airlines and loyalty programs to make hotel bookings for their customers	Travel and tourism
Star Alliance Digital Service Platform (DSP)	Digital Service Platform was developed by Star Alliance in collaboration with Accenture. It provides members a platform to build customer-facing applications.	Travel and tourism
Esources	The UK's Largest Directory of verified wholesale suppliers, dropshippers, wholesale offers and trade leads. The service aims to fulfil the growing need for reliable and readily available information on legitimate UK and international wholesalers, distributors, dropshippers, importers, exporters, manufacturers and agents, as well as their products and latest offers.	Wholesale and logistics
MixMove	MixMoveMatch, a Norwegian company born out of an EU iCargo a Research and Demonstration Action, offers a Software as a Service solution to shippers and logistic service providers to ship their products to a warehouse where the loads of different transport orders are mixed (Mix) and loaded onto trucks for long-distance transport (Move), then sent to a distribution center, where they are sorted and palletised for final delivery to the customers (Match).	Wholesale and logistics

Source: IDC analysis, based on platform websites

Bibliography

Asadullah, A., & Faik, I. &. (2018). Digital Platforms: A Review and Future Directions. Twenty-Second Pacific Asia Conference on Information Systems. Japan.

Cattaneo G., Micheletti G. and Veronesi L. (IDC) 28TH July 2016. "European Data Market SMART 2013/0063. D3.10 Industrial Data Platforms – Key Enablers of Industry Digitization."

CODE- SAP Innovation Center Network(webpage, 2020).https://icn.sap.com/article/new-blockchain-software-from-sap-helps-eliminate-counterfeit-drugs

Duch-Brown, N. (2017). Platforms to business relations in online platform ecosystems. Brussels: European Commission. doi:JRC109186

European Commission (2016). A European agenda for the collaborative economy, retrieved at https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-356-EN-F1-1.PDF

European Commission (2016). Communication on Online Platforms and the Digital Single Market Opportunities and Challenges for Europe, retrieved at https://ec.europa.eu/digital-single-market/en/news/communication-online-platforms-and-digital-single-market-opportunities-and-challenges-europe

European Commission (2017). Exploratory Study of consumer issues in peer-to-peer platform markets, retrieved at https://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=77704

European Commission (2018). Statement on Commission decision to fine Google €4.34 billion for illegal practices regarding Android mobile device, retrieved at https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_18_4584

European Commission (2019). Platform-to-business trading practices, retrieved at https://ec.europa.eu/digital-single-market/en/platforms-to-business-trading-practices

Falk S., Riemensperger F. (2019). Three Lessons From Germany's Platform Economy, MIT Sloan Management Review, retrieved at https://sloanreview.mit.edu/article/three-lessons-from-germanys-platform-economy/

Federal Cartel Office (2018). Guidance on Transaction Value Thresholds for Mandatory Pre-merger Notification (Section 35 (1a) GWB and Section 9 (4) KartG), retrieved at https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Leitfaden/Leitfaden_Transaktionsschwelle.pdf?__blob=publicationFile&v=2

Federal Ministry of Economic Affairs and Energy (2020). Project GAIA-X: A Federated Data Infrastructure as the Cradle of a Vibrant European Ecosystem, retrieved at https://www.bmwi.de/Redaktion/EN/Publikationen/Digitale-Welt/das-projekt-gaia-x-executive-summary.pdf?__blob=publicationFile&v=6

FIWARE webpage https://www.fiware.org/

GitHub webpage https://github.com/

International Data Spaces Association webpage https://www.internationaldataspaces.org/

Kane, G. C. (2014). What's Different About Social Media Networks? A Framework and Research Agenda. MIS Quarterly, 275-304

Koh, T. K., & Fichman, M. (2014). Multihoming users' preferences for two-sided exchange networks. Mis Quarterly, 38(4), 977-996.

McKinsey Global Institute (2019). Four pathways to digital growth that work for B2B companies, retrieved at https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/four-pathways-to-digital-growth-that-work-for-b2b-companies#

OECD (2019). An Introduction to Online Platforms and their Role in the Digital Transformation, retrieved at https://www.oecd.org/innovation/an-introduction-to-online-platforms-and-their-role-in-the-digital-transformation-53e5f593-en.htm

December 2020

OECD (2019). Like it or not? The impact of online platforms on the productivity of incumbent service providers, retrieved at https://www.oecd-ilibrary.org/economics/like-it-or-not-the-impact-of-online-platforms-on-the-productivity-of-incumbent-service_080a17ce-en

OECD (2019). Public consultation document Secretariat Proposal for a "Unified Approach" under Pillar One, OECD Proposal, retrieved at https://www.oecd.org/tax/beps/public-consultation-document-secretariat-proposal-unified-approach-pillar-one.pdf

OECD Multilateral effort (2019). OECD leading multilateral efforts to address tax challenges from digitalisation of the economy, retrieved at https://www.oecd.org/tax/oecd-leading-multilateral-efforts-to-address-tax-challenges-from-digitalisation-of-the-economy.htm

Open Manufacturing Platform https://www.bmwgroup.com/en/innovation/company/open-manufacturing-cloud.html#:~:text=The%20Open%20Manufacturing%20Platform.,faced%20in%20industrial%20production%20today.

PREDIX Platform https://www.ge.com/digital/iiot-platform

Richards M. (2018). Google hit by Android fine in Turkey, retrieved at https://globalcompetitionreview.com/article/1174654/google-hit-by-android-fine-in-turkey

Rochet, J. C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the european economic association*, *1*(4), 990-1029.

TNO (2019). Industrial B2B platforms: The race Europe cannot afford to lose, retrieved at https://repository.tudelft.nl/view/tno/uuid:425cb6d9-57d3-4c81-8b3e-461d190f15b0

Yoffie D.B., Gawer A. and Cusumano M.A. (2019). A Study of More Than 250 Platforms Reveals Why Most Fail, retrieved at https://hbr.org/2019/05/a-study-of-more-than-250-platforms-reveals-why-most-fail

December 2020

About the 'Advanced Technologies for Industry' project

The EU's industrial policy strategy promotes the creation of a competitive European industry. In order to properly support the implementation of policies and initiatives, a systematic monitoring of technological trends and reliable, up-to-date data on advanced technologies is needed. To this end, the Advanced Technologies for Industry (ATI) project has been set up. The project provides policymakers, industry representatives and academia with:

- Statistical data on the production and use of advanced technologies including enabling conditions such as skills, investment or entrepreneurship;
- Analytical reports such as on technological trends, sectoral insights and products;
- Analyses of policy measures and policy tools related to the uptake of advanced technologies;
- Analysis of technological trends in competing economies such as in the US, China or Japan;
- Access to technology centres and innovation hubs across EU countries.

You may find more information about the 16 technologies here: https://ati.ec.europa.eu.

The project is undertaken on behalf of the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs and the Executive Agency for Small and Medium-sized Enterprises (EASME) by IDC, Technopolis Group, Capgemini, Fraunhofer, IDEA Consult and NESTA.

December 2020