

Platform Business Models in Industry

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01. History of industrial revolutions

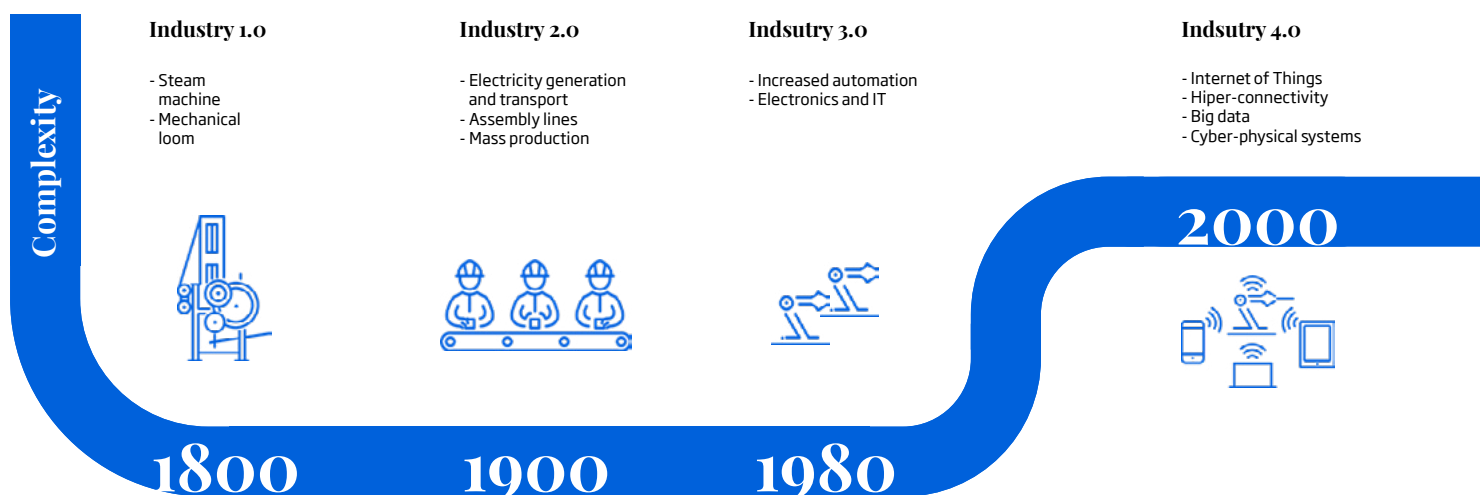
Around the year 1800, the 1st Industrial Revolution began with the development and application of the steam engine to a mechanical loom, to increase its productivity. Since then, the industry has had several technological revolutions. In 1900, mass production appeared with the first assembly lines, thanks to the production and distribution of electricity.

By 1970, automation and electronics drastically changed the ways of manufacturing, with the introduction of robots and automated lines. Then year 2000 came. The use of Internet, computing power and storage increased, as its cost plummeted down, and concepts such as connectivity, cyberphysical systems, IoT and Big data began their budding development.

All these technological advances allowed the appearance of new commercial and business models, capable of exploiting the advantages brought by these new technologies. The first Industrial Revolution changed the product markets from a trade based on handmade products, to a business model based on industrial products. This led to a considerable growth of the secondary sector. Then the second revolution reduced the price of industrial products and enabled the appearance of new activities, such as marketing.

Thus, the services sector developed, giving a growing significance to other activities over manufacturing. Finally, the third Industrial Revolution generated new business models, basing their value on solutions over products, thanks to the new electronic and software capabilities.

Figure 1: Industry Revolutions timeline



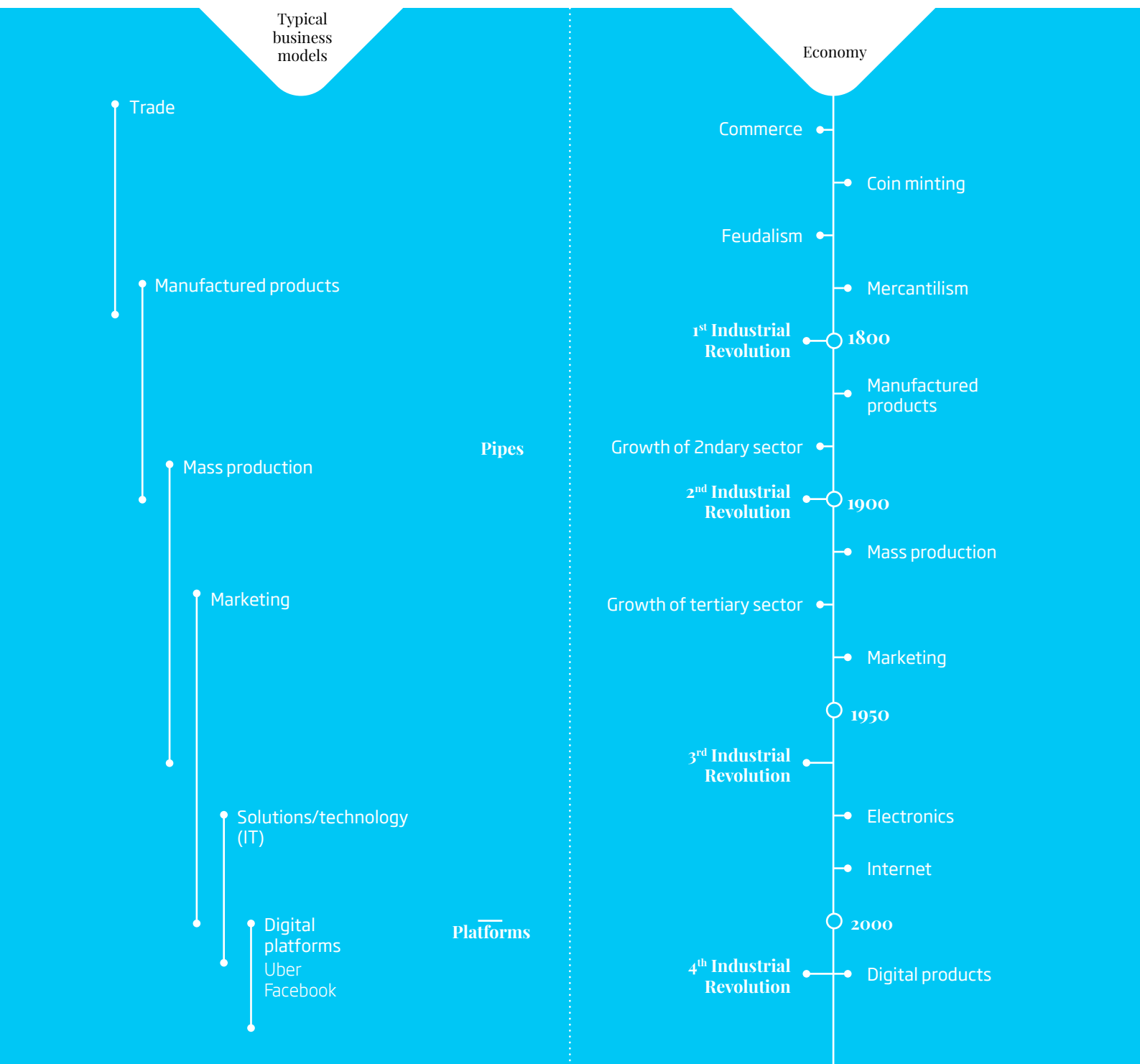
Nowadays, the new digital technologies – connectivity, data acquisition, advanced analytics, etc. – are known as the 4th Industrial Revolution, for they are also leading to a change in business models, by taking advantage of the digital platforms. Clear examples of these are brands such as Uber, Apple, Facebook...

02. Changing the business models. From pipes to platforms

The 4th Industrial Revolution has allowed the creation of business models based on *platforms* as opposed to the previous models which were based on *pipes*.

The main characteristic of these new business models is the advantage obtained from the networks themselves, with the connection of different nodes and the sharing of information between them.

Figure 2: Economy and Business models evolution in time

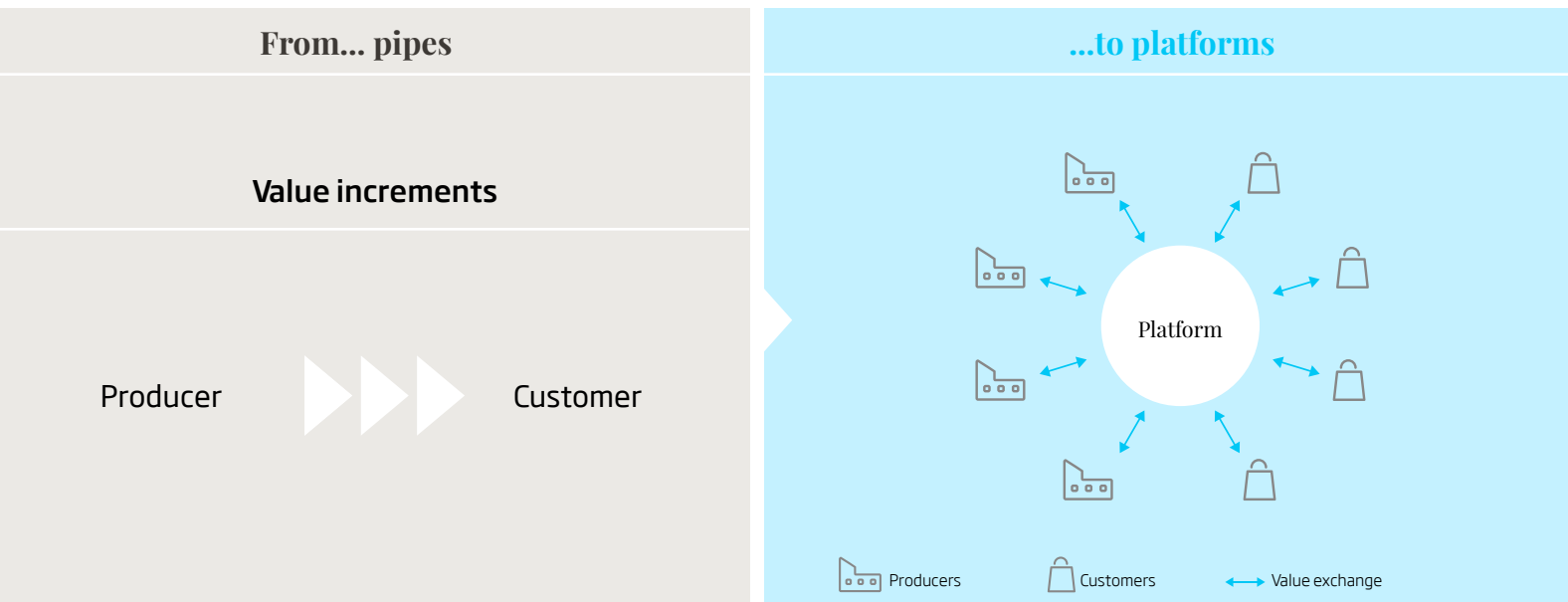


On the one hand, *Pipe* based businesses focus their efforts in the creation of value for the customer, considering:

- The end customer is at the center of the business (marketing channels, segmented products, etc.)

- Internal value chain inefficiencies have to be optimal (e.g.: factory capacity optimization)
- Value creation is achieved by producers thinking about what the customers want

Figure 3: Business models change

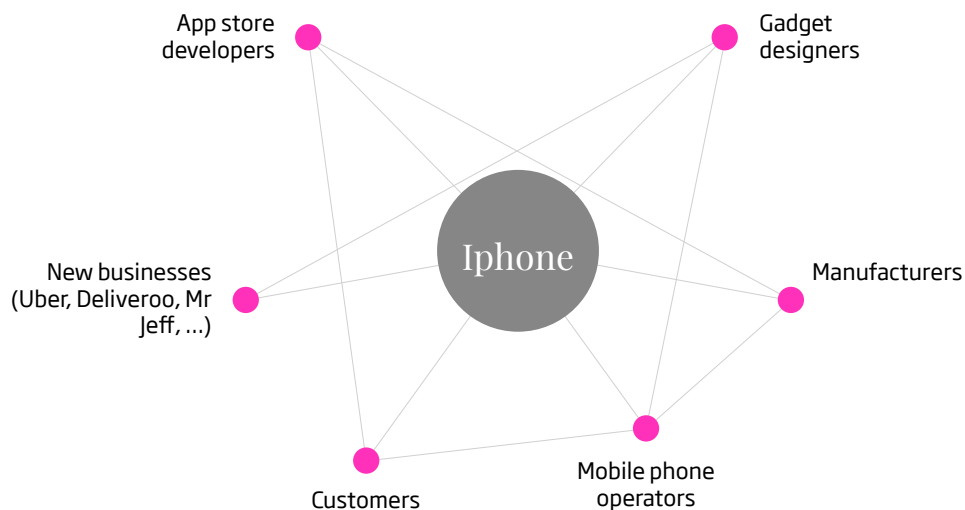


On the other hand, *Platform* based business have shifted the share in value creation, from only producers to both "ends" (consumer/producer) of the network. As a result, co-creation spaces have appeared in which:

- The Network's effects can have an impact on both sides

- The focus lays on producers and customers, not customers alone
- Value proposition is jointly defined between customers and producers

Figure 4: iPhone platform



The new business models, which appear thanks to value co-creation, do so with fewer resources, in platforms such as Google, Apple, Facebook, Amazon, etc. these networks have exponential positive effects, based on the number of users, different from those of economies of scale, which manage to enhance the value of:

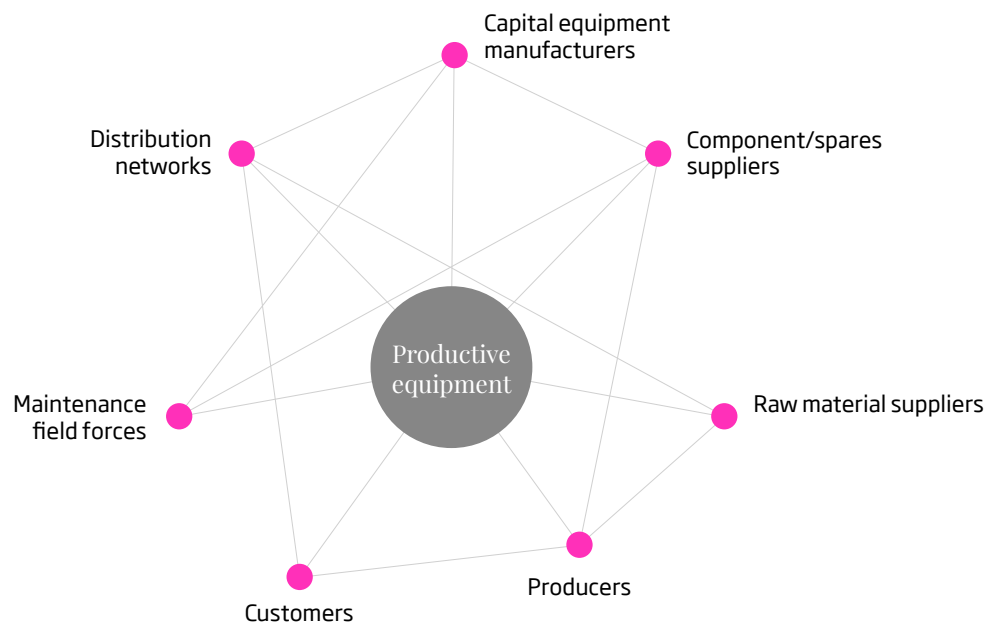
- **One sided or direct effects:** affecting only “one side” of the networks –being so only the demand or the supply-. This entails that when the value of the network increases for that side, a new user/node is added. For example: with every new LinkedIn user the value of being on it, and not in others, increases for each user
- **Cross-sided or indirect effects:** these effects make it more appealing for the user/node to become part of the network, when a new user/network joins the other side of the network. For example: when more and more users share their data with Google by using their *free* applications (Gmail, Calendar, etc.) more valuable Google becomes for the advertisers who place their ads, in a much more targeted and effective way, through other Gmail applications (search, maps, etc.)

Taking Apple as a case, we can have very good examples of both network’s effects. On the one hand, Apps like iMessage, Facetime or Game Center increase their value to users, whenever more users have an iPhone and make use of these apps, being this a direct network effect. On the other hand, we can see the indirect effects in the App Store. Developers have higher incentives to develop quality apps and content as the number of potential users increases. Therefore, quality apps and content make more users select iPhone as their smart phone over other options.

Concerning the industry, we can clearly see, it is facing a paradigm change. Around capital equipment and machines, new platform business models, which exploit network’s positive effects that benefit both sides, can be built. As of today, we can already find three examples of these business models in the industry:

- Manufacturing capacity marketplace
- Service marketplace
- Connected machine platforms which enable servitization

Figure 5: Industrial network



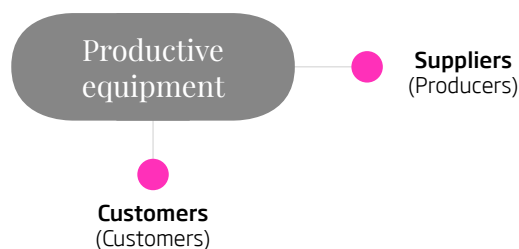
Capacity marketplace

HP and Siemens have created a platform⁽¹⁾ surrounding additive manufacturing technology with which they seek to accelerate the growth of 3D printing. The platform connects designers and manufacturers in an open marketplace.

This sort of integration seeks to link supply and demand, without customers incurring in large costs of market research in search of suppliers, while at the same time suppliers come upon an easier access to customers, lowering in tandem their marketing costs. This platform also takes advantage of the additive manufacturing benefits of not needing to invest in fixed assets and machinery or the standardization of file formats that enables the share of information with greater ease.

These type of platforms profit from cross network benefits, that consist of optimized use of installed capacity for producers and more competitive prices and a potential improvement in delivery times for customers. Other applications can be thought for sectors with a high degree of flexibility in production, such as packaging industries with relatively standardized formats, where batches for different customers could be produced in a flexible way in different supplier's lines.

Figure 6. Capacity marketplace

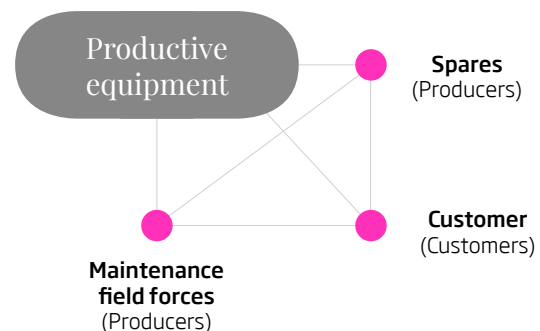


Service marketplace

Amazon Home and Business is a marketplace type platform⁽²⁾ that focuses on the building's maintenance and improvement business, joining in the same place, suppliers of different services together with customers that have a common geographical location.

In this context, customers give information about the maintenance and improvement services required (type of work, technical needs) and issue requests for the job so that maintenance companies can quote for published works and thus create a fit in which the response time and the cost is optimal for both sides.

Figure 7. Service marketplace



(1) Siemens AG Communications. Siemens launches Additive Manufacturing Network to transform global manufacturing.
[https://www.siemens.com/press/en/pressrelease/?press=/en/pressrelease/2018/digitalfactory/pr2018040255dfen.htm&content\[\]=DF](https://www.siemens.com/press/en/pressrelease/?press=/en/pressrelease/2018/digitalfactory/pr2018040255dfen.htm&content[]=DF)

(2) Amazon Home
<https://www.amazon.com/b?ie=UTF8&node=8098158011>

Connected machine platforms which enable servitization

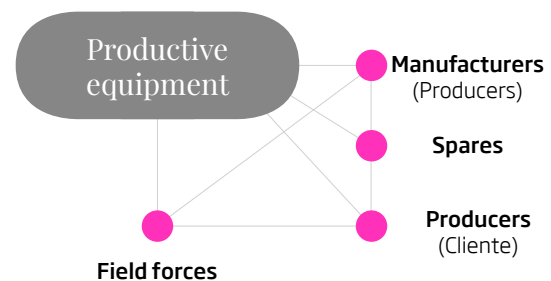
Digital networks built around machinery from a same manufacturer, currently in different customers, could be connected to a unique source, in order to gather and exploit the data generated by their activity. This connectivity will change the way in which the manufacturers of capital goods relate to their customers. The customers will only connect their machinery to the network, formed by all the machines in the different clients of the manufacturer, and share the data regarding production, only if they can gain an advantage from doing so. The capital equipment manufacturer could convince them of this by providing new services enabled by the expert exploitation of the data gathered from all the machines in the fleet.

New services (such as advanced parameter optimization, prescriptive maintenance, personalized recommendations for overhauls and retrofits, etc.) will be based on the intelligence extracted through advanced analytical tools, applied to the data extracted in real time from a large number of similar machines connected in the same network.

In addition to this, including the connectivity of the machinery to IT and IoT systems as part of the manufacturer's portfolio leads to product enhancement. It begins to transform into a solution/service, more than a product such as: "connected machines" ready to be integrated into corporate big-data and IT platforms; with embedded intelligent applications that facilitate management (performance dashboards, maintenance applications and predictive quality, traceability, etc.)

Pushing to the extreme, the potential applications of data exploitation from the fleets of machinery and the competitive advantage gained from the manufacturers' know how regarding their own equipment, will possibly cause a radical change in the business model for capital equipment manufacturers. They may change their proposal towards more customer centric services (instead of selling equipment) such as payment by use or payment by output, assuming part of the risk of the operation of their equipment (quality, MRO, point) in exchange for a change in the method of payment, which in tandem benefits both sides involved.

Figure 8. Connected machines platform for servitization

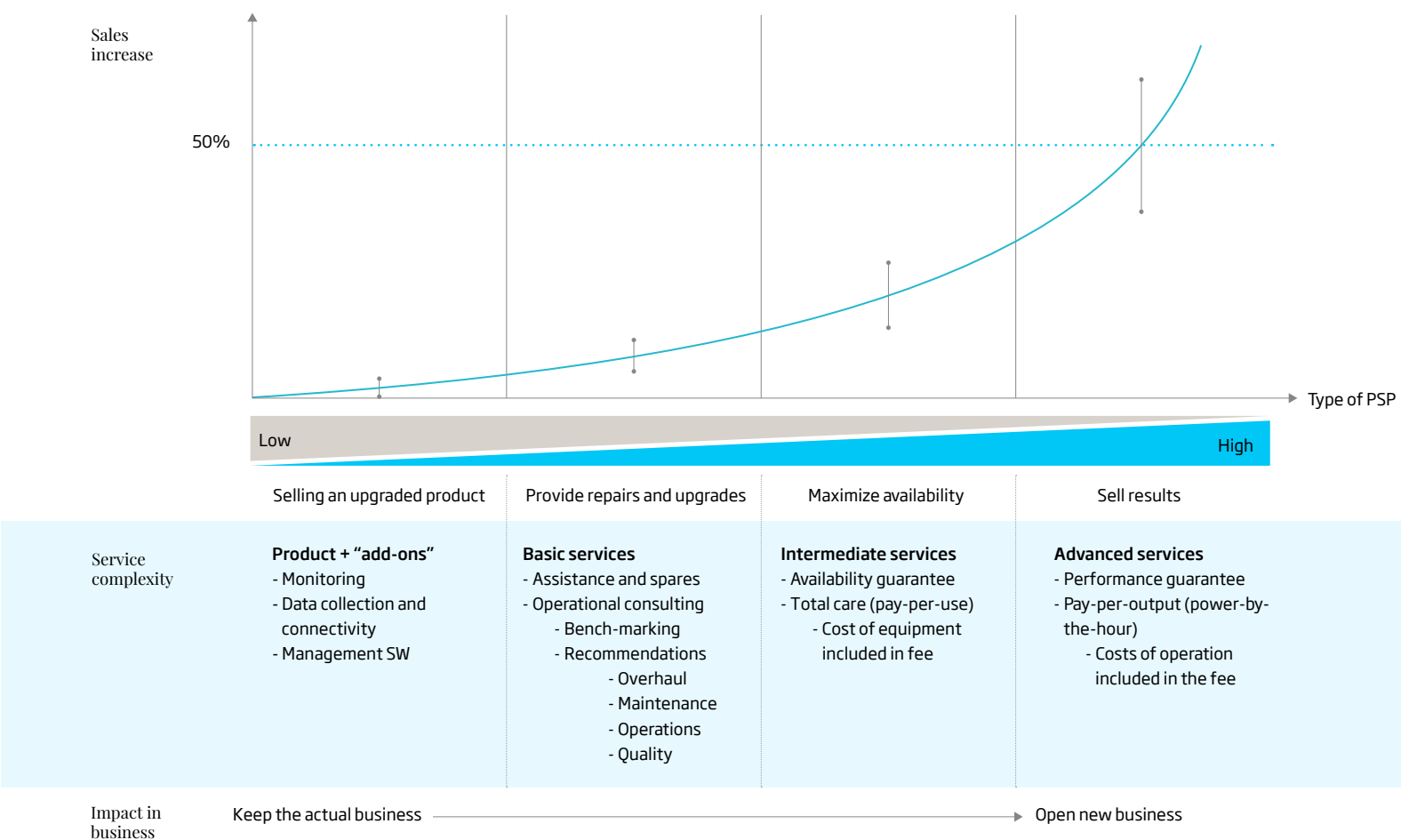


03. A new business model: improved servitization with technology

Transitioning from being a capital equipment seller to creating a closer relationship with customers around services, is a strategy that is currently affecting those companies that manufacture capital goods. There is a generalized change of strategy, in order to continue growing and locking-in new and current customers, ranging from small improvements, to the characteristics of the machinery sold, to the sale of a pay-per-output service etc.

Equipment manufacturers can improve their sales results by changing their business model towards servitization. Transforming into companies that provides services for long periods, rather than a punctual supplier of equipment and spare parts. The more intense the level of services offered, the more the potential impact.

Figure 9. Impact on sales according to servitization level



04. Technology as an enabler of servitization business models

Technology is the corner stone in the provision of these higher value added services. In the Cambridge University survey *"The Future of Servitization: Technologies that will make a difference"* the key technologies enabling this servitization, pin-pointed by a panel of capital equipment manufacturers as well as by a panel of academia, happened to be all digital technologies:

- Mobility and connectivity
- Advanced analytics (optimization, predictive quality and maintenance)
- Dashboarding technologies (KPIs, signal monitoring, etc.)

Figure 10. Survey results

Top 5 technologies to enable services and servitization survey

(% order of importance by # of mentions, % in top 5 out of 10 choices)

CEM panel			Academic panel		
1	Predictive analytics (maintenance)	100%	Predictive analytics (maintenance)		77%
2	Advanced analytics (optimisation, RCA ⁽¹⁾)	92%	REmote communications (control)		46%
3	Remote communications (control)	83%	GPS-a-geo-spatial technologies for asset/people location (HSE)		62%
4	Dashboarding Technologies (KPIs, monitoring)	67%	Consumption monitoring (connection to customers consumption)		69%
5	Case based reasoning (MRO optimisation, RCA) on historic data	65%	Mobile platforms to connect data to users (smartphones, tablets)		54%

05. Rolls Royce *Pay by the Hour* and *Total Care*

Rolls Royce has been offering, for several years, to its civil aviation customers (followed by GE soon after) a relationship model based on a pay-per-use scheme (Pay by the Hour) and in controlling and on managing the critical steps of the MRO value chain themselves (Total Care: spare parts, MRO, improvements).

The digitalization of processes and the extraction of intelligence from the data generated by the engines during flights, have been fundamental in the deployment of these services and the optimization of R&R operations. For this task alone, Rolls Royce, has created a new business unit for Control and Data Services.

Currently, the percentage of sales derived from services is greater than 50%, of which more than half, a 28% of the total, come from Power by the Hour contracts.



06. Minsait and platforms in industry

At Minsait we believe that digital technologies will radically change the business models of capital equipment manufacturers and that digital technologies will be the key to these changes.

As a technology company, we want to support these changes based on our differential capabilities and experiences: we are experts in digital technology, we know how technology affects the business and we have first-hand experience in providing services to third parties.

07. Authors

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