

Patterns of capturing value from knowledge

Servitization is a transformation that poses challenges for traditional machinery and plant manufacturers who often have become successful through product engineering and sales. One example might be the necessity to explore new markets and develop and sell customer solutions, while exploiting existent resources (Kohtamäki et al. 2020). To develop and exploit customer solutions, organisations strongly depend on knowledge within their organization, e.g., of their individual employees (Larsen 2001; Valtakoski 2017). Although manufacturing is already seen as a knowledge-intensive industry (Larsen 2001), it can be assumed that new business logics that emerge from servitization like service orientation and customer centricity will change the perspective on how to use and integrate knowledge in customer solutions. Servitization can here be understood as a step towards a “post-industrial” economy when manufacturers integrate more knowledge-intensive business services (KIBS) into their portfolios (Ditillo 2004) and put “a greater reliance on intellectual capabilities than on physical inputs or natural resources” (Powell and Snellman 2004). In order to support companies in this transformation, we examine the question how knowledge can be strategically used or integrated in knowledge-intensive offerings.

Since there is still little information on the proper use of knowledge in the servitization transformation, our intention was to create transparency on how knowledge can be used in different knowledge-intensive business services. To get a broader perspective on this phenomenon, it seemed appropriate to, on the one hand, investigate innovative manufacturing firms that already pursue the KIBS path, and, on the other hand, look at providers of information and communication technology (i.e., software firms), which are usually considered as prime examples of KIBS. For the development of the patterns, we analyzed 22 cases of software and manufacturing companies with a total of 185 knowledge-intensive offerings.

As a result, we derived five patterns for the strategic use of knowledge in knowledge-intensive business models:

1. Knowledge protection: Companies apply their knowledge for the benefit of third parties, but do not share it with them. Maintenance services or remote support as well as consulting services where suppliers accomplish a knowledge-intensive service for the customer are common examples.
2. Knowledge sale: Companies sell their knowledge so that it can be applied by third parties. This is accomplished by, e.g., giving access to the company's explicit knowledge base or through training.
3. Knowledge baiting: Companies provide a certain amount (often knowledge of a basic level) for free. This is to enable actions and might lead to a lock-in, whereby further future transactions can be achieved. This pattern could come along with and might initiate the previous pattern of knowledge sale.
4. Knowledge amplifying: Companies offer a shared knowledge base with the aim of extending and generating knowledge. One example are open support communities where third parties as well as the supplier's employees can interact, e.g., for troubleshooting.
5. Knowledge spreading: Companies share their knowledge for free and try to bring it into widespread use, e.g., to increase efficiency or awareness. In comparison to knowledge baiting companies following this pattern also share expert knowledge free of charge.

Each pattern describes a distinctive form of knowledge utilization. Although this set of five patterns should not be understood as comprehensive, we were able to assign most offerings from our sample to one or more patterns. For example, standard maintenance activities in manufacturing can often

be categorized as knowledge protection. If customers are trained and enabled for self-servicing, knowledge is sold. The software cases were particularly interesting, as knowledge was often provided free of charge. This behaviour was mainly assigned to three patterns. Either the knowledge was on a basic level with the intention to initiate a follow-up transaction. It acts like a bait with knowledge elements. Another behaviour showed the possibility of enriching and supplementing knowledge. This can contribute to the generation of new knowledge that was previously lacking. A common example of this are community approaches. The last pattern is knowledge spreading. Here, the aim was simply to provide with easy access to knowledge to as many people as possible. Considering the difference between software and manufacturing, whether the free provision of knowledge also makes sense for manufacturing firms. Even if it is said that mechanical engineering companies need to increasingly transform themselves into software companies (Leminen et al. 2020), their existing knowledge (e.g., product and service knowledge) might be worth protecting. This goes along with the results of Huikkola et al. (2021, p. 46) who stresses that “manufacturers’ existing capabilities, culture, and position in the markets” need to be considered in strategic decision making and specifically in the transformation towards a knowledge-intensive service provider. Software enterprises may decide on knowledge sale or spreading, because service for their usually much larger customer bases would otherwise be difficult to organize.

Some offerings, mainly those of manufacturing companies, described organizational knowledge bases that are used for internal process optimizations, e.g., to support field service technicians. Here, knowledge amplifying might become increasingly important in the future, as resources and skills for the development and implementation of integrated solutions will no longer be anchored in individual organizations. Companies must manage the effects of knowledge loss in the long term while at the same time ensuring collaboration. To better understand such phenomenon and maybe give advice on how to act, further studies are needed. Another interesting field of investigation might come up when industrial products are increasingly bundled with software components. Customers may have the expectation of getting knowledge free of charge, because they have become used to knowledge spreading within the software industry. With such expectations, it might be challenging for manufactures to monetize smart knowledge-intensive offerings.

Concluding, the identified patterns can help organizations to understand strategies of utilizing existent knowledge and to develop new knowledge-intensive offerings which might question the prevailing industry logic (e.g., knowledge protection in manufacturing). Following the resource-based view, organizations should strategically consider how to deal with different forms of knowledge, i.e. such that is important for sustained competitive advantage. Here, our results shed light on corresponding strategies (e.g. knowledge protection, knowledge spreading).

References

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