

Author(s) Ahonen, Toni; Hanski, Jyri;  
Valkokari, Pasi  
Citation 2nd Annual SMACC Research  
Seminar, 7 November 2017,  
Tampere, Finland  
Date 2017  
Rights This abstract may be downloaded for  
personal use only.

VTT <a href="http://www.vtt.fi">http://www.vtt.fi</a> P.O. box 1000 FI-02044 VTT Finland	By using VTT Digital Open Access Repository you are bound by the following Terms & Conditions.  I have read and I understand the following statement:  This document is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of this document is not permitted, except duplication for research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered for sale.
--	--

Digital asset management service offering as an integrated part of customers' business

Toni Ahonen, Jyri Hanski & Pasi Valkokari

VTT Technical Research Centre of Finland

firstname.lastname@vtt.fi

## ABSTRACT

Large Finnish technology companies had already started developing knowledge-based services long before any widespread discussion of the topics of digitalization or the industrial Internet had appeared. However, one key problem is that the service development has included rather product-centric practices and real integration to customers' processes has not often taken place. While customer's decision-making processes have remained unknown and the real potential of the service offerings underexploited, many companies have also developed ICT solutions from the perspective of bilateral partnerships, neglecting the customers' multi-vendor problematics and needs for integrated solutions. Current paper discusses the challenges of digital asset management service development from the perspective of how these services are connected to the customers' asset management processes and systems. Furthermore, we discuss the needs for finding the optimal development practices, thus finding the balance between long-term visions and rapid experiments and developing the new digital capabilities in-house.

## INTRODUCTION

The impact of the Industrial internet and digitalization is expected to be systemic in many industries. Therefore, understanding the business environment and the networked nature of the business is crucial. Although the literature does include a number of examples of digitalization in asset management (e.g. Baines & Lightfoot, 2013; Lee et al. 2015), there are relatively few examples of thorough transformations involving the efficient integration and exploitation of digital channels of data in industrial environments.

While many of the impacts of digitalization are difficult to predict beforehand due to their systemic nature, many companies have adopted productivity, lead times, features, quality and cost as the drivers behind the creation and development of digital concepts (Sommarberg 2016). In order to effectively develop services, one needs to understand how value related to these topics can be created and how customers' assets are to be managed. There is a risk of individual tools being

isolated from the customers' business processes and remaining underexploited, despite their potential of creating customer value. Thus, creation of novel digital solutions requires thorough understanding at strategic, tactical and operational levels.

## CONSIDERATIONS ON CREATING DATA-BASED DIGITAL SERVICE OFFERINGS

Development of digital asset management services calls for new capabilities in the organization. Understanding the customer needs and the requirements related to the networked business environment is in the core of the development. The transition from bilateral partnerships towards business ecosystems is challenging the companies to think differently. Furthermore, the company networks produce lots of data, which are rarely efficiently integrated in the decision-making processes in the ecosystem. Thus, in addition to the understanding of the networked business environment, we find the capabilities to integrate the various sources of data as the core competitive advantage of the future asset management ecosystems.

In addition to the organizational capabilities, understanding of the phenomena related to the customer's production environment is crucial. According to our findings, service development needs to address the following generic trends and to define the approach to respond to them:

- increase in automation level and the step-wise approach towards autonomous systems
- value-based business models and earning logics in a business network
- from analytics-based and consultative services towards AI-based automated decision-making processes

## FROM DISTINCT SERVICES TOWARDS INTEGRATED ASSET MANAGEMENT SERVICE OFFERING

Companies often collaborate in large business ecosystems in order to maximise the value creation. Customers are offered a variety of services, platforms and digital tools. Making all the solutions work together and integrating all the new solutions with the older ones and the strategic, tactical and operational practices of the company is a challenging task. Development of data-oriented digital tools is often seen as a straight-forward software development effort where agile practices and quick experiments have been found important. However, OEMs have limited knowledge of the complexity of the customers' process. Therefore, development is too often carried out with a narrow perspective. From customers' point of view, the selection and development of the service platform should be done very carefully in order not to reduce the future opportunities. Table 1 presents the scenarios that define the OEM's role with respect to service offering and IT solutions.

Table 1. Scenarios for OEM with respect to service and IT solution development (based on Kortelainen et al. 2017).

<b>Service strategy</b>	<b>IT solution strategy</b>
OEM companies develop their information or knowledge based offering mainly to support the customer's daily operations.	OEM focuses on the provision of measurement solutions, on-board analytics tools and data transfer technology to enable the provision of asset level data.
OEMs and service providers develop the excellence in refining data in a way that delivers more value to the asset owner.	OEM companies build the analytics capabilities and integrate the resulted information-based service in the platform used by the end customer.
OEM companies take the responsibility of managing and optimising the performance of customers' assets in the business ecosystem.	OEM builds the capabilities for the provision of platform for managing the data and the services in the network.

There are a number of operational asset management processes, such as spare parts order and delivery processes, maintenance processes and customer support, that can be supported by digital technologies. Both larger and smaller OEMs have started development of new tools for supporting these processes. This may not have to be dependent on the choices made related to the above-described service and IT strategies. The fact that customers are different in their needs, requires that OEMs need to be adaptive in how they integrate to customers' processes. Thus, while OEM develops the digital toolset, it needs to be carefully planned how these tools are integrated in the customers' processes and IT infrastructure. Figure 1 shows an example of the various sources of data in customers' production environment and the needs for integration at 1) operational, 2) tactical and 3) strategic levels.

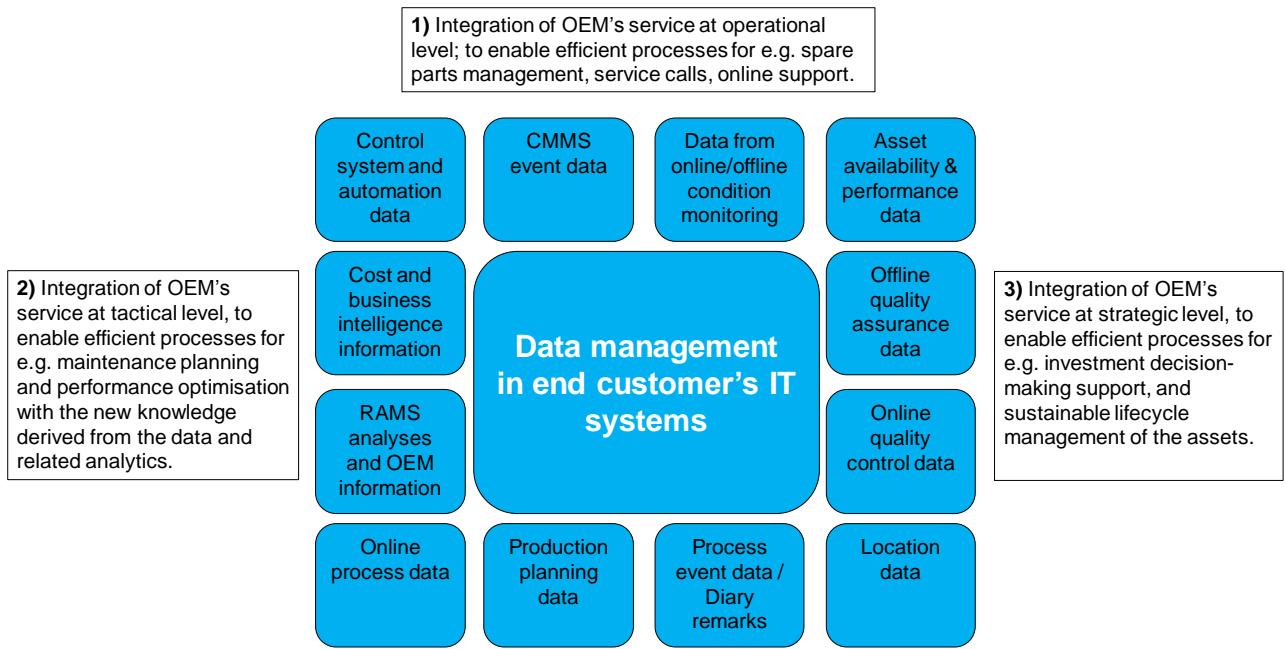


Figure 1. Example of the need for integrating different sources of data and the services of OEM at strategic, tactical and operational levels.

## CONCLUSIONS

In order to develop successful digital asset management services, OEM company needs to understand the complexity related to the business ecosystem, various sources of data, decision-making levels and service and IT strategies. Therefore, OEM company needs to understand how digital asset management services are integrated into customers' decision-making, asset management processes and IT infrastructure.

## REFERENCES

Baines, T. and Lightfoot, H.W. (2013), “Servitization of the manufacturing firm”, International Journal of Operations & Production Management, Vol. 34 Iss. 1, pp. 2-35.

Kortelainen, H., Happonen, A. and Hanski, J. (2017). ”From asset provider to knowledge company - transformation in the digital era”, WCEAM 2017 Conference, Brisbane, Australia, 2.-4. August 2017.

Lee, J., Bagheri, B. and Kao, H-A. (2015), “A Cyber-Physical Systems architecture for Industry 4.0-based manufacturing systems”, Manufacturing Letters, Vol. 3, pp. 18–23.

Sommarberg, M. (2016), “Digitalization as a Paradigm Changer in Machine-Building Industry”, (Tampere University of Technology. Publication; Vol. 1436). Tampere University of Technology.