OSME Showcase:
OSME Platform Architecture

For an ecosystem to enable its participants to share information, a common platform must be put in place to make this possible. Large corporations have, for decades, offered their suppliers this type of service, through portals and similar arrangements. However, the challenge is that individual suppliers must then use separate portals for each large customer. OSME aims to develop a common platform architecture that can be used by the Finnish mechanical engineering sector, enabling information sharing and therefore accelerating transformation of processes as well as bridging the digital divine among SMEs.

The development of the **OSME platform** began with Wärtsilä's idea of serving as an **extended enterprise** that wants to actively collaborate with its suppliers both to improve efficiency and strengthen innovation. All OSME members have been actively involved in the joint development of the OSME platform.

The first step was to develop **a technical solution that can support ecosystem-level communication.** Here, the starting point was the Dot connector platform that had been developed for internal use in Wärtsilä, and that Wärtsilä was prepared to share with the OSME partners to provide the foundation for the development of the OSME platform. For SMEs the Dot connector is a way to get started with digitalization. Through the collaboration, Roima Intelligence, Fastems, and Fliq have actively contributed to the development of the platform. The development work has been strongly driven by the support of key Wärtsilä suppliers such as Leinolat Group, Tasowheel, and

Prohoc who have offered **use cases that have provided the concrete context for the development work.**

From the outset, it was recognized that the **OSME platform has two dimensions:** the technical and the social. The technical solution has been developed by addressing the individual use cases such as sharing production information and handling issue management. This work has taken place in different technical environments, which has enabled Roima Intelligence, Fastems, and Fliq to flexibly engage in the development work by focusing on their own specific needs, while acknowledging that the development will also contribute to the overall progress of the whole OSME platform.

The first phase of the OSME platform development has provided a **proof of concept**, whereby it has been shown that the platform can support **information exchange between the principal and its suppliers**. The next steps

OSME Ecosystem IT Architecture – Logical breakdown
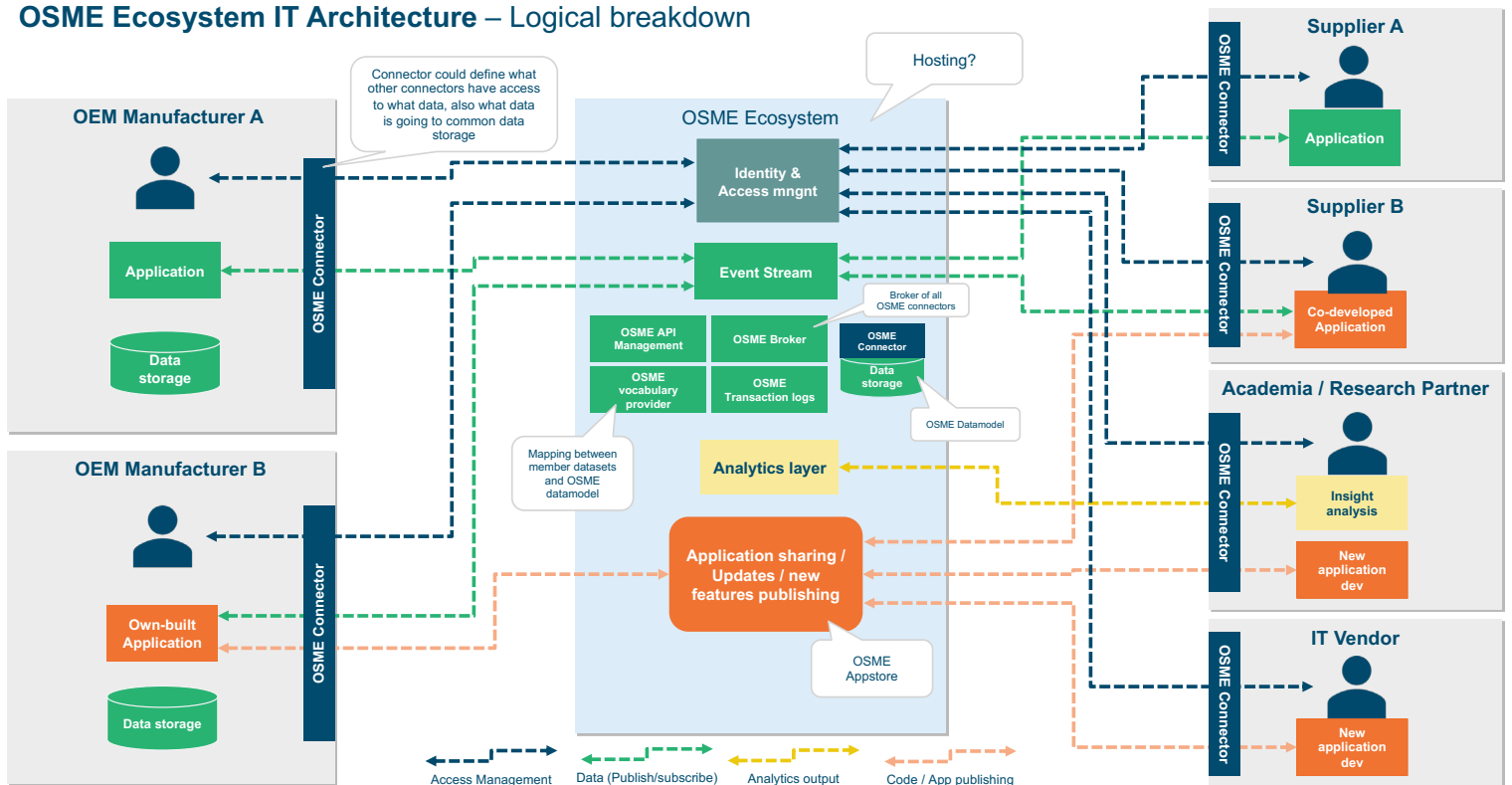
are to add more functionality to the platform and expand the number of organizations that are involved in the collaboration.

The social architecture has evolved through the continuous flow of meetings between the key individuals that have been involved in the development work. The majority of meetings have been virtual, but there have been important **full-day, in-person workshops** on a quarterly basis, through which joint experiences have been shared and next development steps have been agreed upon.

The picture below illustrates how OSME members jointly developed the architectural framework in a full day workshop in November 2022.
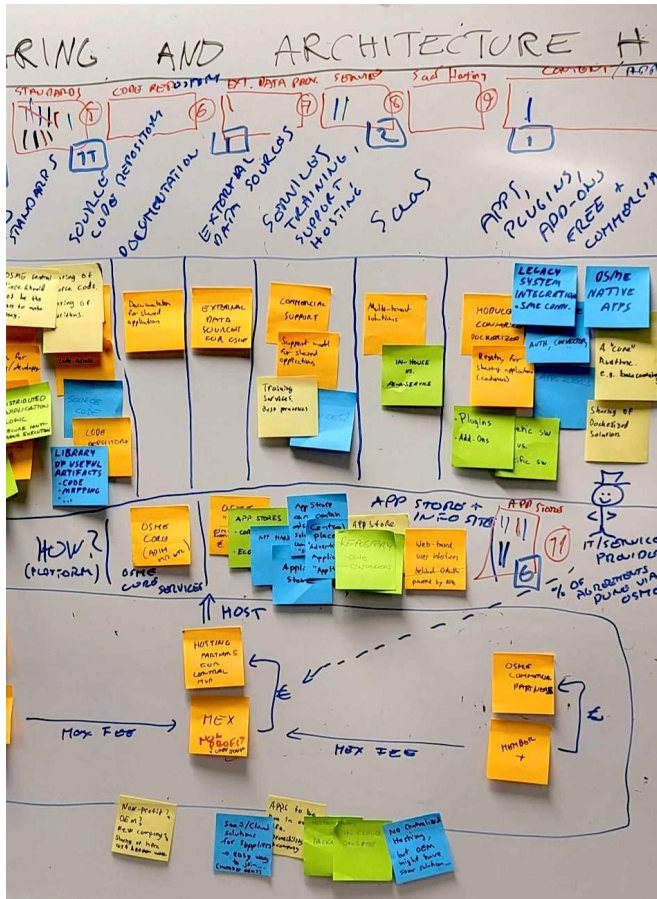
The **OSME platform** is based on a **common vocabulary** and **taxonomy** that has been developed jointly by the OSME partners. This enables the **backbone of the platform**, developed by Roima Intelligence, to harmonize the data between an individual supplier and the principal. This translational feature of the OSME platform is a prerequisite to enable the use of the same platform for many different companies. There is still need for a certain degree of principal-specific definitions to consider the aspects of the products and features of respective principals. However, the ambition is to minimize the amount of such tailor-made adjustments. This has been verified by piloting the platform with several companies. Through the proof of concept, the process has been technically

evaluating both upcoming architectures, e.g., IDS, as well as existing market solutions e.g., API management offered by cloud providers.

The solution can be used **flexibly for different application areas**. The issue management feature of the platform has already supported collaboration with external partners that are not original OSME members.

What has been unusual with the OSME platform development has been its **collaborative governance model**. While Wärtsilä set the scenery in the beginning, over time, the collaboration has been like the performance of a jazz band, where each professional has had his or her moment of taking the lead and bringing the process forward. This was made possible by the nature of the OSME proof of concept phase as a research project, whereby the participants have not yet had to commit themselves to the permanent use of the OSME platform.

The main challenge, which remains to be solved, is how to establish the collaboration model once the external funding from Business Finland ends. The way to address this is **to look for additional partners** that are interested in continuing innovation collaboration with the existing OSME partners and gradually institutionalize the collaboration into a vibrant ecosystem.

The learnings from the collaboration have **attracted significant interest** both in practice and academically, and this has encouraged the partners to continue the work.

Wärtsilä is hosting workshops where the OSME partners will present what they have learned from the collaboration, and what their expectations are for **the next steps** in the development of the OSME platform. Wärtsilä will also invite companies that may become new OSME members, and the intention is that the next steps will be agreed upon together with these new members.

Impacts:

– **Support of performance and innovation**
– **Leveraging API management**
– **Sharing experiences with external stakeholders and broadening the OSME influence**
– **Potential to become a tool to improve the competitiveness of the Finnish mechanical engineering sector**

Collaborators: Wärtsilä, Roima Intelligence, Synocus, Fastems, Fliq

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For more information on the Open Smart Manufacturing Ecosystems initiative, please visit mexfinland.org/osme

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