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accilium Primer: Data Exchange in Cooperation Projects – Challenges and Potential Solutions

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Players in the automotive industry are increasingly engaging in joint business activities to tackle industry-wide challenges

Current challenges in automotive

Collaboration forms to overcome them

Cooperations
Joint business activity by two or more firms without founding a joint entity.

Ventures
Business enterprise or activity set up to pursue a specific objective.

Joint Ventures
Entity founded by two or more companies to attain a joint interest.

Mergers
Fusion of two or more entire companies under a single entity.

Industry examples

Ford Volkswagen Alliance
Entails projects for shared vehicle development and autonomous driving, among other topics.

Volkswagen 100% TechCo
A Volkswagen venture established to reduce development and go-to market times in China.

Audi NevCo
Production of all-electric AUDI models at a new production site in cooperation with Chinese FAW [1].

Stellantis
A 50-50 merger between Fiat-Chrysler and PSA, pursuing investments into carbon-neutral mobility.

Car makers are seeking to tackle large-scale trends and challenges by cooperating within and outside of their own industry.

accilium = accilium involvement | [1] FAW Group is an automobile manufacturer headquartered in Changchun (China)

Said joint business activities are challenging due to many reasons, increased data generation levels being one of the most urgent

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OEMs must ensure real-time availability of data for cooperation partners

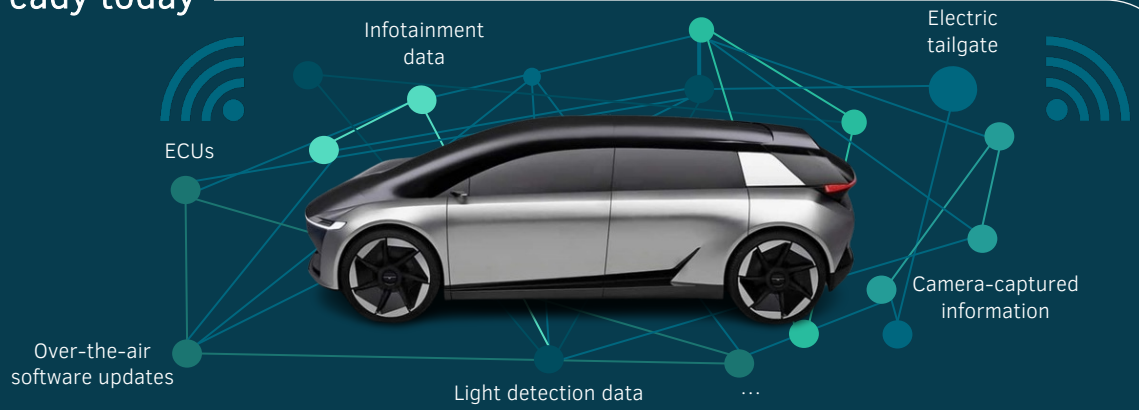
Modern vehicles have increasingly large flows of data generation. When it comes to forging alliances between major players in the automotive industry, this is a main factor to consider, both from a technical and from a compliance perspective. So, data exchange must be considered holistically to ensure that real time availability of development, aftersales, and production-relevant data is made possible.

Car connectivity in the past

Minimal data generation through Control Units and Infotainment Systems

Car connectivity already today

Up to 10 exabytes of data generation per month on connected cars due to various data sources



= Exemplary data points

Today’s joint developments of vehicles are complex due to the high data traffic involved

Data traffic required (- / +)

Badge-in / Badge-out cooperations

The vehicle is completely developed and produced for one or more cooperation partners by one OEM. After production, the vehicles are handed over to the cooperation partner(s) and are sold by the partner(s) as part of their own brand and fleet.

Design data is provided from one OEM to another during design phase, whereas sales & after-sales relevant data flows in the opposite direction starting from conception. Moreover, software data is provided continuously until lifecycle end to enable OTA-updates.

For instance, Japanese OEMs Suzuki and Toyota have rebadged several models from each other, including the Toyota Belta and Suzuki Across.

Platform cooperations

An OEM provides a vehicle platform[1] for cooperation partners to develop their own product. Based on the provided platform, the partner develops its own brand specific top hat of the vehicle and distributes the fully developed car as part of its own brand and fleet.

To enable development of the “top-hat”[2], OEMs exchange specific design, engineering, sales & after-sales data starting from vehicle design phase. Moreover, software data is provided continuously until lifecycle end for the purpose of enabling OTA-updates.

For instance, the MEB[3] platform created by German automaker Volkswagen has served the development of Ford´s Explorer EV.

Joint vehicle development

Two or more OEMs jointly develop a vehicle in its full scope. The partners engage on the entire product development process, thus constantly exchanging information and jointly delivering a ready-to-use product to end customers.

Both partners exchange the full scope of design and engineering data during design and conception phases. Furthermore, information relevant for use case-driven production, aftersales and sales is shared between both OEMs.

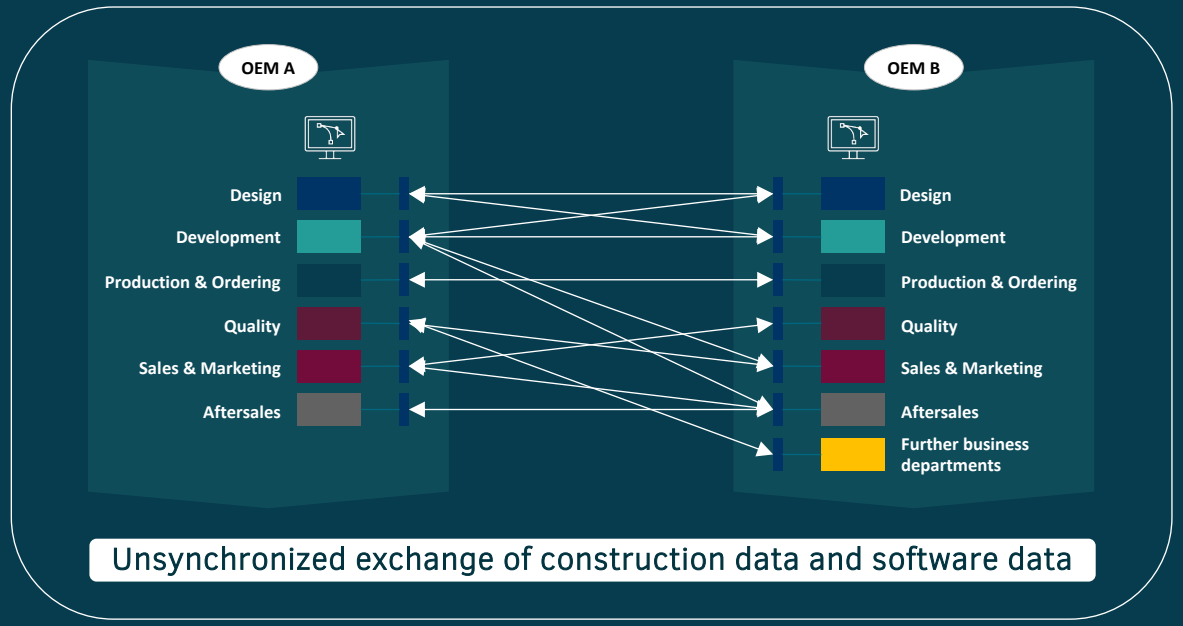
For instance, German brand Mercedes and British McLaren joined development efforts to create the Mercedes-Benz SLR McLaren.

Complexity in terms of product data mapping (- / +)

[1] Usually underbody and suspensions, and potentially powertrain and battery cells | [2] upper body structures that can share a common platform | [3] Modular car platform for electric vehicles developed by Volkswagen Group

Traditional tool landscapes need to adapt to endure large levels of data flow with cooperation partners

Initial situation: Complex data transfer between source systems



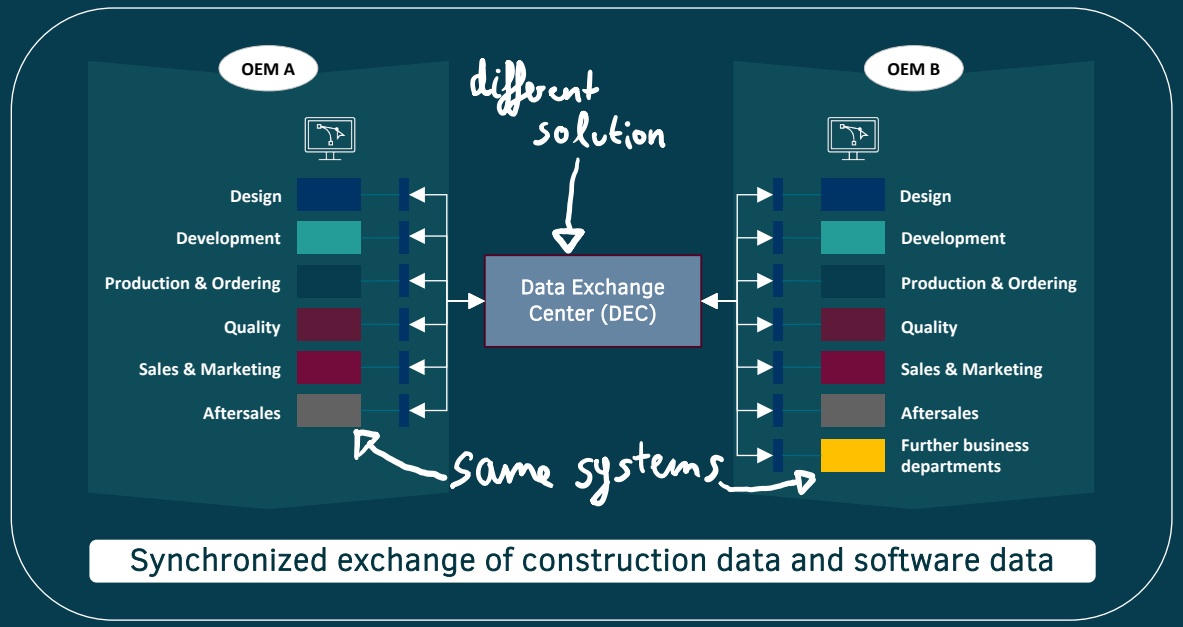
Challenges entailed by traditional tool landscapes

- Countless interfaces need to be set-up between the cooperation partners' legacy system landscapes and supported over lifetime
- Decentralized data exchange involving multiple systems entails the risk of increasing data inconsistencies
- OEMs that exchange data with partners that use a different product language are exposed to an increased risk of data mapping errors, which scales with the amount of data exchange points between the partners
- Cooperation partners that do not use a centralized solution experience a high need for alignment between system teams, thus increasing costs
- The large number of architectural changes needed to connect all systems leads to increased technical complexity and thus higher costs for implementation, maintenance and support

The large number of data sources within OEMs entail the need for a sophisticated data transfer solution

A Data Exchange Center (DEC) functions as a solution to merge needed APIs, enabling large levels of data flow for cooperations

Possible solution: Single point of contact for data transfer



Benefits of a centralized solution

- The number of interfaces required between cooperation partners' systems can be minimized with the help of a centralized solution
- The risk of a of data inconsistency decreases drastically when streamlined data format rules are established through a DEC
- Flawless translation and mapping of product data can be ensured through the establishment of cross-reference tables
- Support requests by system owners reach out to the central DEC team, reducing the need for costly alignment meetings with the cooperating OEM
- In cooperations with several partners, the technical infrastructure can be re-used for upcoming partners and use cases, increasing cost efficiency

A Data Exchange Center can serve the purpose of receiving and sending out data to one or many cooperation partners

Our recommended setup for a DEC is based on previously successful implementations in the automotive sector

	1 Set up data strategy	2 Identify affected business processes	3 Determine required IT actions	4 Create an MVP	5 Deliver continuously
Activities	› Align cooperation business with corporate strategy and derive premises for solution concept › Identify business areas and services in scope and derive baseline for data exchange requirements	› Determine and assess Business Process Interfaces (BPIs) between cooperation partners › Identify and set up interface processes within the cooperation › Derive required data logistics	› Align and set up an agile IT demand process › Identify data exchange use cases and capture IT requirements › Define required APIs and derive technical solution concept	› Set up of demand and supply teams and implement agile principles for development › Implement clear project management structures › Design and develop first increment	› Set up streamlined service and support processes and responsibilities › Set up holistic release management procedures
Results	› Aligned premises for a sustainable solution concept for data exchange › Generic requirements for data exchange	› List of business process interfaces between partners and accordingly designed joint business processes › Data logistics per business process (involved source systems, data types & formats, etc.)	› Concretely designed technical use cases and according IT requirements › First technical delivery releases planned	› Initial project team set up › „Modus operandi“ determined › First functionality launched	› Continuously identified synergies and improvements › Concretized release plan › Service & support concept
	1 month	2 months	2 months	4 months	>1 year

A structured approach is key to delivering the desired data exchange functionalities in optimized time and quality

Let’s shape the transformation towards seamless data exchange!

Why you should act now

The current automotive landscape **is impregnated by a strong focus on collaborations to deal with severe challenges** (e.g., autonomous driving). A decisive approach towards seamless data exchange within these collaborations represents a **key steps towards a** successful partnership.

The business interfaces, on which leverage can be created, must be **identified and served** accordingly **to ensure cost-efficiency and quality**. This requires a dedicated project setup with clearly defined responsibilities, a thoroughly planned project, and full commitment from all involved partners.

What’s in it for you

The setup of a Data Exchange Center brings **plenty of opportunities** in terms of **improving financial KPIs**, as the technical solution helps reduce costs in ongoing collaborations and eases the setup of new ones. Furthermore, it helps reassess your data infrastructure strategy internally, empowering your teams for a more holistic data management approach.

An end-to-end data exchange solution therefore enables your business units and opens up the space towards a sustainable business expansion.

accilium serves as a sparring partner and supports clients through the entire process with strong focus on strategy and IT transformation

Contact our cooperation project experts for more insights

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