

From Big Data to Better data: Dataspace Top 10

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From big data to better data: Dataspace top 10 list

David Letterman, the famous US television celebrity and longest-serving late night talk show host in American television history, would famously present each night a list of ten items centered around a common theme. We skip the drumroll and get straight to it in reverse countdown order: A dataspace is ...

- 10 ... unique for its data sharing with **data sovereignty protection** – the power to control rights to your data. This is accomplished using trust mechanisms, such as self-description requirements (who is requesting your data, see Gaia-X 2022), access controls (who can see your data offer), usage policies (how can your data be used - duration, purpose, etc.), as well as legal and technical enforcement (Otto et al. 2019).
- 9 ... a data **sharing network**, not a data storage system, no database or warehouse or lake. It holds no payload data; instead, it presents a radical U-turn in data management as it facilitates peer-to-peer data exchange: Instead of pushing data from the source into storage, apps can pull data on demand and just in time. A single dataspace membership can replace a multitude of 1:1 data interaction data be used - duration, purpose, etc.), as well as legal and technical enforcement.
- 8 ... **decentralized**, without central control, and therefore, more resilient, and corresponding with the larger **Web3** upgrade. In the early 2000s, Web services or service orientation have increased fragmentation and decentralization at the application layer (see Schlueter Langdon 2003). Now, it is happening at the data layer.
- 7 ... a **reality**. The very first dataspaces have arrived: the **Mobility Data Space** created by the German government and linked with **Mobilithek**, the National Access Point for mobility data mandated by the European Commission (and implemented by T-Systems, T-Systems 2022); and **Catena-X**, a pace-setting dataspace by the German automotive industry (with funding support from the German government; Catena-X [link](#)).
- 6 ... looking like a **telecommunications business**, which evolved from voice dial-tone to video dial-tone in the early 1990s and now to peer-to-peer data dial-tone. There will be public dataspaces, like phone networks, and private ones, like enterprise systems. In the phone business there are typically a few, big, competing public networks with operating companies in each region or country (like Europe's top 3 of Deutsche Telekom, Telefonica, and Vodafone; see Schlueter Langdon & Hort 2023).
- 5 ... based on **technical standards**, like in the phone business where operators have aligned globally on a common 5G standard, the fifth-generation technology for broadband cellular networks. For dataspaces, Catena-X is currently spearheading

dataspace technical standardization based on requirements extracted from a rich portfolio of ten automotive use cases, including material traceability and digital twins (a field of expertise of T-Systems).

- 4 ... based on **open-source software**, like the core Internet standards of HTTP, HTML, and URL. Catena-X is (a) developing novel software as open source in Eclipse and (b) in close alignment with the International Data Spaces Association (IDSA, provider of the first generation (IDS) dataspace technology) and the Gaia-X AISBL organization (Allahyari et al. 2023).
- 3 ... presenting **operational defense and offense** opportunities. On the one hand, it helps to build applications to achieve compliance with new regulation, such as the German Act on Corporate Due Diligence Obligations in Supply Chains (Lieferkettensorgfaltspflichtengesetz, LkSG, [link](#)). On the other hand, a dataspace is a savior of analytics and artificial intelligence as it helps to obtain the right data and in the right quantity. This allows for new data products, such as digital twins and cross-organizational data chains, which in turn enable entirely new software applications including super-apps (like the WeChat consumer app, see Vaswani 2021) with leaps in cost savings potential and blue ocean marketspace opportunities (Kim & Mauborgne 2004). Examples include material traceability (launched with the Catena-X network) and intermodal mobility (a super-app demonstrator built in RealLab Hamburg, Schlueter Langdon & Eckert 2022). For example, without material traceability GM had to recall an entire model year of an electric car at the cost of US\$ 2 billion because it could not trace a few bad batteries into individual vehicles (Eisenstein 2021).
- 2 ... a **strategic priority**: German chancellor Olaf Scholz is doubling down on dataspace as the “top megatrend” (Scholz 2022) following his predecessor’s quest to “build a first automotive dataspace” (Angela Merkel during Autogipfel or auto summit in October 2020, Delhaes 2020). For the economy dataspace presents the last missing ingredient in a successful digital transformation recipe, namely data supply chains: (a) treat data as a product, (b) industrialize data productization using data factories, and (c) optimize factories with data supply chains or data spaces (Schlueter Langdon & Hort 2022).
- 1 ... easy to use like a **fax machine**, so “pick up the phone,” get connected. First dataspace service providers are emerging. Deutsche Telekom is Europe’s leading telecommunications carrier and a pioneer of dataspace. It is a founding partner of Gaia-X ([link](#)) and an early contributor to the International Data Spaces Association (IDSA, [link](#)). Its T-Systems subsidiary will offer easy-to-use data space connectivity, a “data phone with SIM card and contract” all hosted in the cloud as a plug-and-play managed service – no device, no software installation required. It will also offer clients a service to build a customized private dataspace for their enterprise family complete with “phone numbers, SIM cards, switching” not unlike a company’s telephone private branch exchange system. (Schlueter Langdon & Hort 2023; for first solutions, see Telekom Data Intelligence Hub, [link](#)).

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