3 Data Monetization Misconceptions in Manufacturing

Published 14 June 2021 - ID G00744919 - 11 min read
By Analyst(s): Ivar Berntz
Initiatives: Manufacturing Digital Transformation and Innovation

Manufacturing CIOs are increasingly pressured to make their companies more data-centric, support sales of products as a service and monetize existing data. CIOs can focus on the commercial and technical requirements of data monetization by understanding three common misconceptions.

Overview

Key Findings

- Three common misconceptions about data monetization prevent companies from progressing in an already-complex scenario: all data has market value, you can start with what you have and people can utilize data as-is.

- The term "monetization" is often understood as referring only to scenarios where something is sold for money, but actually, data is more frequently monetized in an indirect manner, such as by helping achieve internal, financially measurable benefits.

- Sixty-one percent of respondents in Gartner’s Fifth Annual Chief Data Officer Survey say they actively use data to improve internal business processes, also known as indirect data monetization. Only 10% say they directly monetize data by selling or licensing data assets to others for cash.

Recommendations

Manufacturing CIOs seeking to advance their data monetization initiatives in the context of transformation and innovation must:

- Create a data product — ready to be indirectly or directly monetized — by narrowing the scope of analysis to make it manageable and determining which data is needed to drive quality and costs or generate new revenue.
Introduction

Data fuels digital business transformation.

Data is the new oil.

Data is the new gold.

Manufacturing CIOs have likely heard at least one business leader say a version of the statements above for at least a few years. Business leaders — charmed by claims like these and inspired by the success stories of companies in other industries such as Amazon or Netflix — expect manufacturers to quickly generate value from their data. That could be via better process outcomes, products or outright data sale, configuring what are called indirect and direct data monetization flows.

While oil and gold are finite resources, data generation is, in principle, inexhaustible and a big part of it is not necessarily useful. This means that one can actually squander a sizable amount of time and effort before being able to extract value from data-related projects. Figure 1 illustrates the difference between indirect and direct data monetization.

- Separate data nuggets from noise by identifying data that creates value for both your organization and your ecosystem partners, and a market (i.e., a problem-solving usage) for existing data that can complement missing or partner data.

- Utilize data to create new opportunities by contextualization that transforms the data itself into a value-added product.
Gartner data shows that direct data monetization remains elusive in all industries, not only manufacturing. While 61% of chief data officers (CDOs) say they actively used data to improve internal business processes (an indirect monetization), only 10% say they were monetizing the data (see Figure 2 and **CDO Success Factors: Three Best Practices From the Fifth Annual Gartner Survey**).
Why do manufacturers (and others) struggle to monetize their data, and how can CIOs change this? Research discussions led by Gartner analysts reveal false assumptions — or misconceptions — that prevent the development of valuable data products (like the ones described in 3 Ways to Monetize Data and Analytics):

1. **Existing data has great value in an external market.** This assumption is false because most enterprise data is either too context-specific or too generic to be of interest to anyone, plus a market needs to be identified for which you are able to create a value proposition.

2. **One can start by monetizing the data already on hand.** Monetization requires a market, internal or external, in which data you could provide — possibly complemented with data you do not yet have — creates a value-adding data product, with a proper means of delivery. This means that data needs to be refined, like converting oil into fuel or a raw diamond into jewelry.

3. **Monetization requires the sale of data.** According to the survey, data is monetized indirectly much more frequently than directly.
Analysis

Discover Which Data Aids More Efficient Operation or Creates New Opportunities

In manufacturing, machines can create data indefinitely. You must narrow the scope of analysis to make it manageable, such as by determining which data is needed to drive quality and costs or generate new revenue. Then, you may find out that you need to complement it with missing data. The additional data could come from internal or external sources, or be calculated by an algorithm. By doing this, you are effectively creating a data product, similar to what is described in Emerging Technology Analysis: Productize Application Data to Increase Software Value, ready to be indirectly or directly monetized.

To go beyond thinking and talking about information as an asset, to actually valuing and treating it as one, consider the concepts described in “Infonomics” (see Treat Your Information Like an Asset — for Competitive Advantage). Manufacturing CIOs should leverage the principles below to create a better base for data monetization (see Applied Infonomics: 7 Practices for Chief Data Officers to Monetize Information Assets):

- **Measure**: Since the ownership of data is often unclear, few enterprises are gauging and improving their information's economic characteristics (for a complete breakdown of options, see Applied Infonomics: How to Measure the Net Value of Your Information Assets).

- **Manage**: A few leading-edge enterprises are focused on this for their internal information — but few, if any, have IT asset management (ITAM) best practices in place. For instance, how do you know if you are keeping your artificial intelligence/machine learning (AI/ML) algorithms or carbon emission goals updated?

- **Monetize**: Enterprises are experimenting with their customer (Internet of Things [IoT]) data, and sometimes are ceding their own IoT data unknowingly to others; thereby, forgoing opportunities to monetize the data (like via data exchanges).

**Recommendations:**

- Manufacturing CIOs should work with their data and analytics (D&A) leaders or CDO team to map digital business ecosystem data and collaboration flows. This will help to identify areas where digital twins, their data and metadata, and real-time, event-driven behavior can drive competitive advantage, and thus, value (see Figure 3).
Enrich and Complement Data to Make It Useful

You can’t start monetizing data already on hand because data gaps need to be filled before it is truly useful. Monetization requires that a market — a problem-solving usage — is found for which existing data, more often than not, complemented with missing or partner data, can be delivered by appropriate means.

To monetize the data generated by its systems and ecosystem partners, auto parts manufacturer ZF Group analyzed markets to determine the ones where information it could provide would solve business problems. It found that value was being wasted in the market by not having the means to correctly implement predictive maintenance (see Case Study: Data Monetization Through Data Product Development [ZF Group]). Then it determined that there was a need for new data and created an IoT-enabled, ball joint sensor to fill the data gap and deliver intuitive analytics to clients in an easy-to-understand format. CIOs play an important role in both the market and data analysis above.
Tractor manufacturer Fendt, part of the AGCO Corporation, provides another good example of how to serve different market segments by using different cuts of the same information at the same time. Fendt realized that its end product was someone else’s asset and created Fendt Connect, a robust data visualization tool that seamlessly connects owners, operators and dealers through one easy-to-use interface. ¹

How do you find a market for your data? Use an innovation and business model augmentation perspective.

**Recommendations:**

- Manufacturing CIOs need to determine markets in which their organization is credible. Credibility is a function of brand trust and adjacent business capabilities.

- Find market opportunities where value is being wasted. This happens when transactions are poorly timed (like when there is unplanned downtime, buyers and sellers are poorly matched, or offerings are incomplete).

**Contextualize Data to Create a Value-Added Product**

Data is typically monetized indirectly — by improving an existing or upcoming process or product. Renault Group created a digital twin of its supply chain to better understand how to cope with a mix of aging assets, using it to establish a globally integrated view, and to compare and choose scenarios. ²

Airbus found a way to directly monetize its satellite data by creating a product based on satellite images that helps monitor the progress of a construction site or of movement in mines. ³

A factor that is helping drive more data monetization is the abundance of IoT data from sold devices (see *The New Money: Help Your Clients Turn IoT Data Into Monetizable Data Products*).

In the direct monetization scenario, some companies are launching platforms and app stores where you can upload your data to share, or download an app to treat your data (further examples of integration) or apply an algorithm to it. While you are leveraging their hard-won experience, they are directly monetizing their data (or algorithms). Some examples:
Bosch.IO, a vendor of IoT solutions, adapts its track-and-trace offering to customer needs. Some prefer to track assets in real time, while others prefer a more gradual approach. 4,5

CoroPlus Machining Foresight performs analysis throughout the manufacturing value chain, from design and planning to machining and verification. That generates real-time and historic process reports based on data from machine tools, cutting tools and other manufacturing software. 6

Gaia-X, an EU cloud initiative, aims to establish an interoperable data exchange through which businesses can share data. The system would see various suppliers of cloud services linked up via an interoperable data exchange that would act as a vessel for data across industries. It will also act as a repository that businesses can search when looking for specific data services — such as AI, IoT, analytics and big data. 7

The Volkswagen Group (VW) collaborated with Amazon Web Services (AWS) to jointly build the Industrial Cloud, bringing into the cloud the networked vehicle and digital services, and now VW’s production and logistics. 8

Intelligent Plant devised an Industrial Internet of Things (IIoT) portal known as the Industrial App Store, which enables the secure, remote performance monitoring of equipment and processes through the analysis and visualization of real-time data. 9

Mazda Motor’s (Mazda) research found that drivers torque the steering wheel while reaching for the touchscreen because every surface feels the same and drivers have to look at what they’re selecting — creating a danger. Mazda’s data convinced the company to abandon touchscreens and pursue other types of user interfaces, such as voice, gestures or haptic interfaces 10 (This shows that data alone isn’t enough to reach a conclusion, as automakers are currently deploying more touchscreens, not fewer.)

Airbus teamed up with Palantir, a company specializing in big data analytics, data platforms and cybersecurity, to create Skywise. The system breaks down traditional data silos by connecting the aviation industry’s operational, maintenance and aircraft data with data provided by Airbus. Airlines can now use massive-scale sensor data, maintenance systems, aircraft schedules and passenger bookings in one environment. 11

Terbine is a system intended to evolve into the world’s index and curator for machine-generated data and go beyond a simple search, to handle the issues and elements needed to remove friction from what they call the “Internet of Silos.” 12
Recommendations:

- Manufacturing CIOs should design a data monetization approach for clients by aggregating multiple datasets into themes (such as quality, security, location, health and safety, and fraud) and identifying innovative insight use cases based on combined data insights.

- Apply the Gartner product management framework for the planning, development and introduction of data products. Review it periodically, as described in Critical Steps for Product Managers: Innovate Product Management Approaches.

Evidence

The 2019 Gartner Chief Data Officer Survey was conducted to explore the business impact of the CDO role and/or the Office of the CDO. The research was conducted online from September through November 2019 among 293 respondents from across the world.

Respondents were required to have the title of CDO or CAO, or to have the responsibilities of an executive-level D&A leader in their organization (in the case of organizations without an official C-level D&A title). The survey sample was gleaned from a variety of sources (including LinkedIn), with the greatest number coming from a Gartner-curated list of over 2,000 CDOs and other high-level data and analytics leaders.

1 Fendt 500 S4 Series Brochure, Fendt.


4 Real-time Tracking of Time-Critical Shipments in Bosch's Reutlingen Plant, Bosch.IO.

5 Track and Trace Adds Transparency to Supply Chains, Bosch.IO.

6 CoroPlus® Machining Foresight, Microsoft.


8 We’re Going Live With Industry 4.0, Volkswagen Group.
Acronym Key and Glossary Terms

<table>
<thead>
<tr>
<th>Data Monetization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data monetization refers to the process of using data to obtain quantifiable economic benefit. Internal or indirect methods include using data to make measurable business performance improvements and inform decisions. External or direct methods include data sharing to gain beneficial terms or conditions from business partners, information bartering, selling data outright (via a data broker or independently), or offering information products and services. For example, offering information products could include information as a value-added component of an existing offering.</td>
</tr>
</tbody>
</table>

Recommended by the Author

Some documents may not be available as part of your current Gartner subscription.

Toolkit: Industrie 4.0 Program Governance

The Difference Between Enterprise Asset Management and Field Service Management

Hype Cycle for Managing Operational Technology, 2020

How to Monetize Data Assets With Your Data and Analytics Service Provider

Predicts 2020: Resilience in Industrie 4.0 for Advanced Manufacturing Builds on Data and Collaboration Models

Use Gartner Scenarios to Tackle Culture Barriers in Manufacturing Organizations