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Creating a successful Internet of Things data marketplace

Business Technology Office October 2016

Monetizing the flood of information generated by the Internet of Things requires a well-executed strategy that creates value.

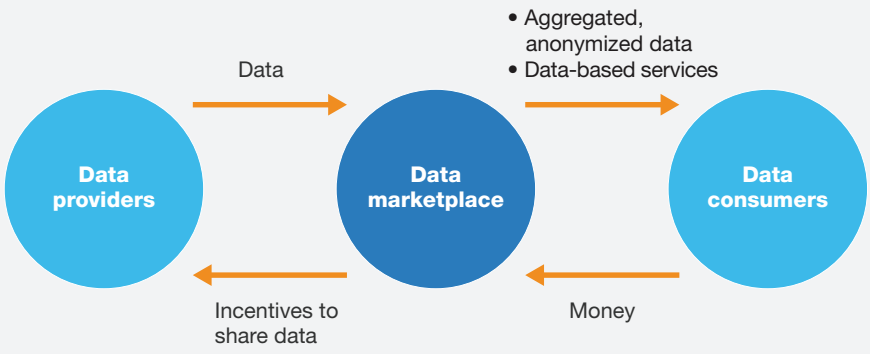
The Internet of Things (IoT) will turn the current rush of industrial data into a rogue wave of truly colossal proportions, threatening to overwhelm even the best-prepared company. As the gigabytes, terabytes, and petabytes of unstructured information pile up, most organizations lack actionable methods to tap into, monetize, and strategically exploit this potentially enormous new value. McKinsey research reveals that companies currently underutilize most of the IoT data they collect. For instance, one oil rig with 30,000 sensors examines only 1 percent of the data collected because it uses the information primarily to detect and control anomalies, ignoring its greatest value, which involves supporting optimization and prediction activities. One effective way to put IoT data to work and cash in on the growing digital bounty involves offering the information on data marketplaces to third parties.

How a digital marketplace creates value

Digital marketplaces are platforms that connect providers and consumers of data sets and data streams, ensuring high quality, consistency, and security. The data suppliers authorize the marketplace to license their information on their behalf following defined terms and conditions. Consumers can play a dual role by providing data back to the marketplace (Exhibit 1).

Exhibit 1

Aggregated data can be an incentive for providers to share information.



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Third parties can offer value-added solutions on top of the data the marketplace offers. For example, real-time analytics can make consumer insights more actionable and timelier than ever before. The marketplace also has an exchange platform as a technical base for the exchange of data and services, including platform-as-a-service offers. Six key enablers of the data marketplace can help companies put their data to work more effectively:

1. Building an ecosystem. By assembling multitudes of third-party participants, companies can increase the relevance of their own digital platforms.

2. Opening up new monetization opportunities. Today's interconnected and digitized world increases the value of high-quality data assets while creating innovative revenues streams. One digital marketplace, for example, adds value to Europe's electric-automobile market by providing information and transactional gateways for businesses such as charging-infrastructure providers, mobility-service players, and vehicle manufacturers. Charging-station operators, for example, are free to determine their own pricing structures based on data available about customer habits and market trends

3. Enabling crowdsourcing. Data marketplaces make it possible to share and monetize different types of information to create incremental value. By combining information and analytical models and structures to generate incentives for data suppliers, more participants will deliver data to the platform.

4. Supporting interoperability. Data marketplaces can define metaformats and abstractions that support cross-device and cross-industry use cases.

5. Creating a central point of "discoverability." Marketplaces offer customers a central platform and point of access to satisfy their data needs.

6. Achieving consistent data quality. Service-level agreements can ensure that marketplaces deliver data of consistently high quality.

Designing a data-sharing platform

As they consider the process of setting up a data marketplace, company leaders need to work through a number of critical questions. An enterprise might ponder the following issues as it clarifies its data-market strategy:

What is the data marketplace's scope? In most cases, a data marketplace begins when companies set up a central exchange for data within their own organizations. Later, they determine which categories of information within that internal exchange are appropriate (from a security and a profitability perspective) and then allow other players outside their organization (and perhaps outside their industry) to access that data.

How is the marketplace best structured? To foster a dynamic ecosystem, the data marketplace needs to assume a neutral position regarding participants. The legal/tax entity that the marketplace becomes and the structures that govern and finance it are key to this neutrality. Among the guiding principles that players follow in setting up data marketplaces are that a) the marketplace must finance itself through transaction-related fees and commissions, and b) neutrality must extend to future participants that provide or receive data or services, offering indiscriminate access to all interested players under fair terms and conditions. And while the data marketplace will support the creation and definition of data licenses, the data suppliers must nevertheless take responsibility for enforcing and legally auditing them. With respect to the marketplace's governance, two business models are leading the way. Data marketplaces tend to be either independent platforms or limited ownership hybrids. Under the former model, data sets are bought and sold, while fully owned data-as-a-service providers sell primary data in specific segments or with services and solution wraps. Under the latter, the marketplace collects and aggregates data from multiple publishers or data owners and then sells the data.

Who are the data marketplace's customers? Once the marketplace is commercially viable, customers will include all types of data providers, and the marketplace system should actively source new kinds of data to become more attractive. The key providers of data will be the companies that capture it, own it, and authorize its sharing. At some point, however, application developers will offer infrastructure and support services that further increase the value of the data by offering a relevant analysis of it and facilitating its delivery.

What are the marketplace's overall terms and conditions, and data categories? During the marketplace's technical setup phase, data suppliers define their licensing conditions independently, and the platform provides benchmarks for licensing conditions. The overall terms and conditions of the marketplace apply to all traded data. In the subsequent commercialization phase, the marketplace relies on centrally defined data categories and related licensing agreements as expressed in its general terms and conditions. This strategy enables players to license crowdsourced data independently of specific suppliers.

How does the marketplace relate to other licensing models? When dealing with proprietary data, suppliers usually hold certain information apart and do not share it in the marketplace. However, data suppliers that also offer services can make use of their proprietary data to create services they can trade on the marketplace. For other licensed data, information suppliers can freely create licensing agreements that extend beyond the marketplace—for example, with their strategic partners. Both data amount and type, along with the scope of licenses for using the information, can vary from that of marketplace-supplied data. Likewise, suppliers can also impose separate licensing arrangements for data already traded in the marketplace if buyers intend to use it under different conditions.

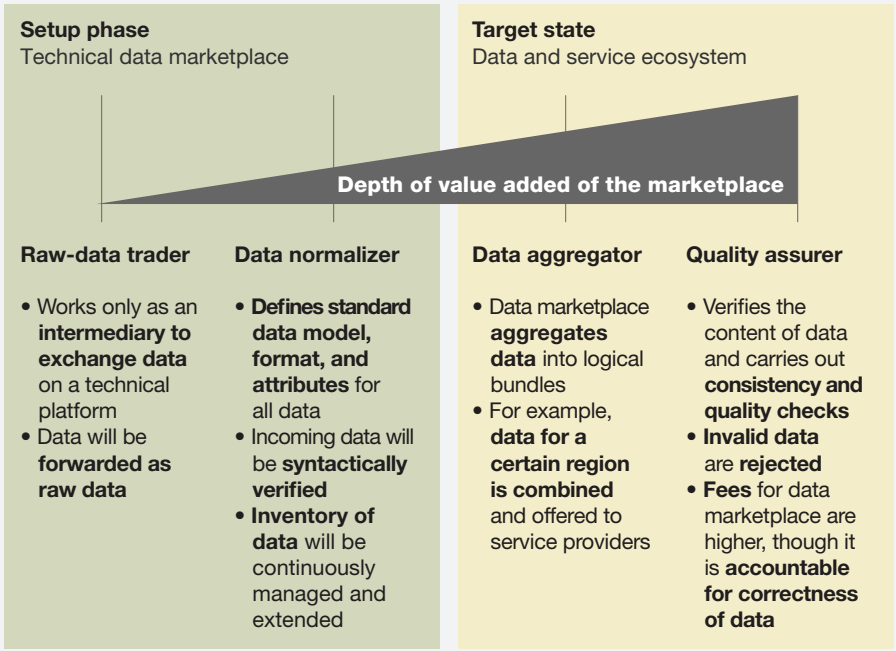
What are the role and value-creation potential of the marketplace company or participating data brokers? The potential value of the data will differ depending on whether the marketplace is in the technical start-up phase or has achieved full commercialization (Exhibit 2). In the former, the marketplace acts as a data normalizer, defining standard data models, formats, and attributes for all of the traded information. It syntactically verifies all incoming data compared with the defined standard and continuously manages and extends the data inventory. Once the marketplace enters the commercial stage, it becomes a data aggregator. At this point, in addition to normalizing data and verifying incoming information, it aggregates data and organizes it into logical bundles. For instance, it will enable users to combine data for a given region and offer it to service providers.

Choosing a monetization model

While traditional licensing will provide marketplace revenue streams, participants can also develop transactional models to monetize data and services, with on-demand approaches constituting the preferred approach. With traditional licensing, companies can pursue either

Exhibit 2

Depending on the role of the marketplace, depth of value added will vary.



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perpetual or one-off deals and collect customer fees using several approaches. For example, they can sign contracts with fixed fees and run times, renegotiate expired contracts, or earn revenues at the time of sale (this final approach typically provides less stability in revenue forecasting). At the transactional level, the two primary alternatives are on-demand and subscription services. With on-demand services, customers either pay as they go or choose volume pricing and pay charges based on metrics such as usage volume, the number of incidents, or hardware-related fees. Subscriptions can involve flat fees—typically applied on a monthly or yearly basis—or free/premium ("freemium") offers, which provide the basics free of charge while offering additional features for a flat fee.

Another monetization option is the "give and take" model, which offers incentives to data providers to share their information. The incentive can be monetary or take the form of something like highly relevant, aggregated data as an enticement to share. The marketplace then aggregates and anonymizes the data and offers it along with associated data-focused services to customers.

One give-and-take example is an Internet-based service that offers geolocated real-time aircraft flight information. The service reportedly has one of the largest online aviation databases, covering hundreds of thousands of aircraft and flights as well as large numbers of airports and airlines. Data suppliers receive free radio equipment that collects and transmits aircraft data and a free business-level membership to the service worth $500 a year for as long as they transmit data. In another case, a large European credit bureau offers credit-rating information for consumers and corporations. Data suppliers provide information that includes banking activities, credit and leasing agreements, and payment defaults. In return, they receive credit-ranking data for individuals or businesses. Yet another give-and-take marketplace focuses on data and performance analytics on mobile-operator network coverage. It trades apps and coverage information to data suppliers in exchange for crowdsourced data that can generate mobile-network coverage maps and reveal a mobile operator's performance by region and technology (for example, 3G or 4G networks).

Assessing the competition

A wide variety of traditional commercial data services currently exists, although these services are largely in silos that focus on specific topics, such as healthcare, finance, retail, or marketing. This balkanization provides an opportunity for new, more holistic data-business models. One advantage of the current ubiquity of data providers is that most companies are already familiar with dealing with them. In fact, some sources estimate that 70 percent of large organizations already purchase external data, and all of them are likely to do so by the end of the decade. The value potential inherent in data marketplaces is attracting key players from a variety of advanced industries. A number of aerospace companies, for example, offer systems that provide guidance to customers in areas such as maintenance and troubleshooting. Similar efforts are also under way in the agricultural and mining-equipment industries, among others.

The IoT's big data promises to help companies understand customer needs, market dynamics, and strategic issues with unmatched precision. But in pursuing this goal, organizations will amass previously unimaginable quantities of information. The data marketplace offers them an innovative way to turn some of that data into cash and reap the benefits that will accrue from building a self-reinforcing ecosystem, enabling crowdsourcing, supporting interoperability, satisfying customer data needs, and improving data quality. ☐

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The authors wish to thank Mark Patel for his contributions to this article.