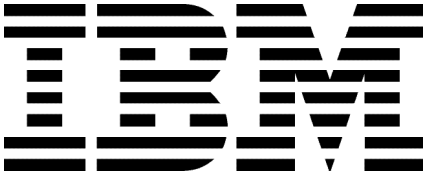

The Rise of the Data Economy: Driving Value through Internet of Things Data Monetization

A Perspective for Chief Digital Officers and Chief Technology Officers

By Albert Opher, Alex Chou, Andrew Onda, and Krishna Sounderrajan

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Synopsis

The purpose of this report is to provide business leaders a perspective of the emerging data economy and how to drive value through data monetization. Data, specifically Internet of Things (IoT) data, has become a strategic asset that can be sold and exchanged. Determining how to evaluate the potential uses of different types of data is complex and has far-reaching implications. Companies will need to evaluate their organization's structure, go-to-market approach, and overall corporate identity in the lens of the new data economy.

We explore the various players in the data economy, describe how Data Producers - companies that assess, control, and produce data - are positioned for long-term success, and describe how companies in other layers of the data economy need to move up and down the data economy 'stack' or risk being marginalized. Aside from Data Producers, Data Presenters are playing an increasingly important role in the data economy. They are the interface to the end consumer and must create valuable user experiences or run the risk of devaluing data underneath.

For companies that cannot immediately participate in the data economy, there are still opportunities to play a critical role. We highlight the importance of industry specific taxonomies and how their creation and curation can generate value, independent of datasets.

As the data economy emerges, changes in customer expectations and technological advancements will transform supply chains into complex mesh ecosystems. Production strategies will shift and collaboration across organizations and ecosystems will create a more open flow of information and ideas. Companies will need to reinvent themselves by defining their desired role in the data economy through an evaluation of their engagement in these ecosystems. This will allow organizations to assess whether new business units, joint ventures, and/or acquisitions will be required.

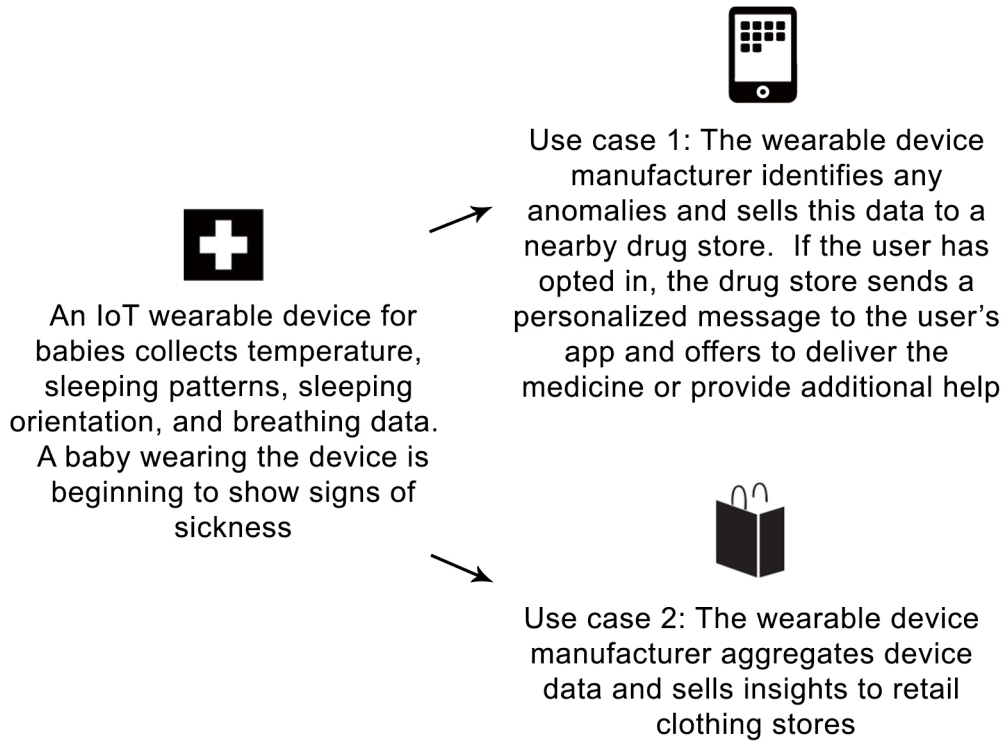
Data as an asset

Companies have historically managed assets such as property, plants, equipment, inventory, cash, and intellectual property. In today's digital world, a new type of asset is emerging – data. Companies are reporting, collecting, and analyzing vast volumes of data. Data is becoming a key measure of whether a company will remain relevant through the digital revolution.

Data originates from many new sources and is increasingly becoming easier to collect and analyze. Due to the rise in data availability and new data-driven insights, more and more data is being exchanged within and among companies. This has spawned a new data economy built upon using data to generate value through both internal and external means.

Data from IoT devices are one of the driving forces behind the shift to the data economy. As the number of "things" become more instrumented, interconnected, and intelligent, data will grow exponentially. New approaches and business models will be required. As described later in this section, there are many opportunities for cost containment and value attainment with IoT data. These opportunities are driving IoT investments by companies and increasing the number of new players. As data continues to grow, the data economy will continue to emerge and enable companies to sell and exchange data. Figure 1 provides an illustration of how data may be used in the data economy.

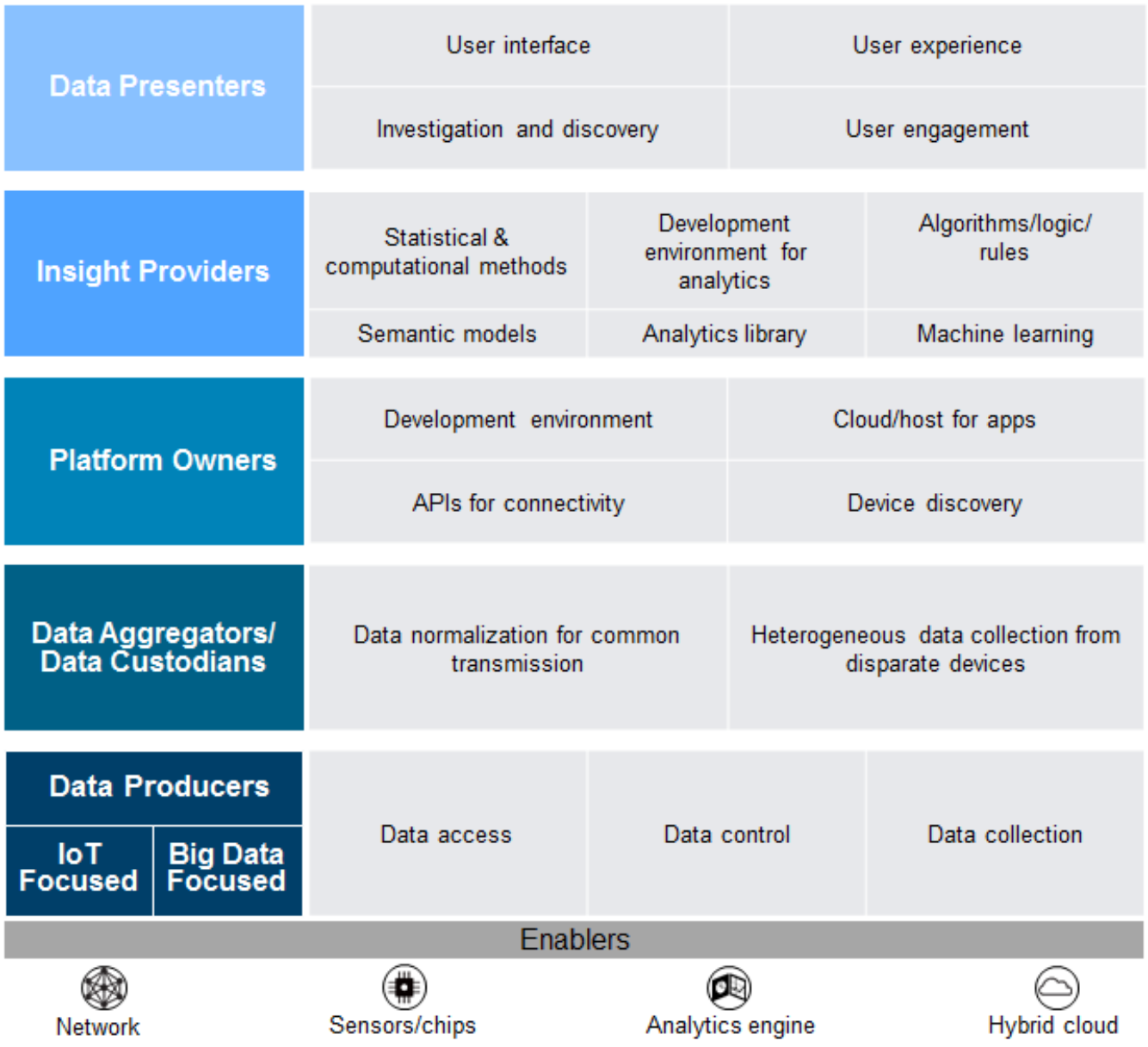
Figure 1: Data economy monetization example



Data Economy Framework

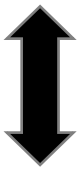
The Data Economy Framework was developed to characterize companies, their roles, capabilities, and overall trends in how they act in the data economy. As highlighted in Figure 2, the future marketplace contains Data Presenters, Insight Providers, Platform Owners, Data Aggregators, Data Custodians, and Data Producers. Specifically, Data Producers generate data from IoT and traditional big data sources. Big data sources include categories such as: business applications, social media, websites, open sources, financial transactions, surveys, censuses, and digitized hard copies. IoT data sources include data from physical technologies (e.g. embedded chips, attached sensors/wearables, mobile phones, and gyroscopes).

Figure 2: Data Economy Framework



Companies grow their presence and potential value in the data economy in many ways. It is not necessary for a company to stay within one of these layers; leading companies are in multiple layers or in the entire stack. Table 1 highlights how companies may move in multiple directions in the Data Economy Framework.

Table 1: Potential movements in the Data Economy Framework

Movement	Description
Move across the layer 	Gaining a bigger portion of a specific layer involves adding material and content to a company's current capabilities. **Example**: A company that makes fitness trackers to monitor steps and heart rate adds sleep monitoring.
Move up or down the stack 	Taking on a new role and capabilities of another layer further up or down the data economy stack to gain further differentiation (e.g. closer consumer interactions, increase interoperability). **Example**: RFID/GPS device companies in the transportation industry have moved up the stack. They moved from collecting data from IoT devices and aggregating data from multiple sources (e.g. weather, telematics) to providing insights, optimizing transportation routes, and improving fuel efficiency. **Example**: A Data Presenter acquiring a Data Aggregator (e.g. Qlik acquistion of DataMarket)
Compress or expand the stack 	Compressing the stack or jumping from Data Presentation to Data Producer and continuing to build out data offerings. Companies often perform this movement to use platform ownership to get more data or use data producing supremacy to become a Platform Owner. **Example:** Companies like Google and Amazon have provided platforms to make finding and buying things easier for people around the world. Behind the scenes these companies continue to optimize their platforms experience through data. Data such as reviews cause people to go back to these company's platforms. Google and Amazon's devices make it easier for these organizations to produce more data, which they reinvest back into their platform. Their platforms attract more companies to interact with them because of their wide use, which, once again, produces more data. Data production helps keep their platforms relevant. **Example**: Large industrial manufacturers have started as a data producer collecting data from their products. Their large presence within the industrial space make it logical for them to provide a platform for their customers to access data from their equipment as well as other manufacturer's equipment. The platform allows more data to be produced by the company that it can then use to improve its product and services. This, in turn, helps them sell more products and collect more data.

How does data affect the value of your company?

Data is not new. Data-driven organizations have often re-imagined their businesses to help them gain a significant competitive advantage. So, what is new? The ability to collect data coming from new end points, such as IoT devices, will increase the amount of available data. Data from IoT devices are delivered in real-time, can uniquely identify "things", and can continuously collect/monitor "things" without human intervention. Enablers for the rise of IoT include: cheap sensors, cheap bandwidth, cheap processing, smartphones, ubiquitous wireless coverage, big data, and IPv6.[1] In addition, cognitive systems enable us to learn from and infuse intelligence into the physical world to transform business and enhance the human experience.

Table 2 specifically describes numerous ways data improves a company's financial performance. Data that bolsters cost containment provides incremental savings, resulting in short term advantages. Alternatively, data that creates value attainment opportunities has the potential to create new businesses and long term differentiation. Value attainment opportunities often require companies to disrupt themselves and result in new industries, products, services, or mesh ecosystems.

Table 2: Examples of cost containment and value opportunities

IoT data uses for cost containment	IoT data uses for value attainment
Workforce productivity increases through new automation, improved visibility, and early identification of anomalies via usage and excursion analysis.	**Data monetization** is possible by selling company data or licensing taxonomies.
Supply chain efficiency improves as data from sensors on factory floors and vehicles make the supply chain more efficient; enables removal of unnecessary work steps and optimizes routes.	**Enhance existing products and services** by analyzing data coming from purchased products.
Safety improves by synthesizing equipment, personnel, and location data.	**Identify new applications** for existing products and services.
Manufacturing defects and design flaws are reduced as companies utilize embedded sensor data to conduct failure pattern and failure risk analysis (e.g. Parametric Analysis and Degradation Analysis, Random Forests, Support Vector Machines).	**Existing product margins increase** and new products are launched by assimilating data into a process.
Building Optimization reduces energy usage, lowers maintenance and management costs, and extends asset life.	**Product placement**, store layouts, marketing, and overall customer experiences improve through new data and analytics.
Asset utilization improves as equipment is monitored. **Maintenance costs**, resource costs, idle time, breakdowns, and production defect rates are reduced by sensored manufacturing equipment.	**Pay-per-use** and **as-a-service** pricing is possible by collecting usage data.

[1]Goldman Sachs, IoT Primer; The Internet of Things: Making sense of the next mega-trend, 2014

Common IoT data types

As described in the Data Economy Framework section, IoT data is generated from physical technologies. Although there are billions of datasets and sources throughout the world, IoT data can be categorized into a few key types. Table 3 provides an example of common IoT data types and how IoT data can be monetized.

Table 3: Common types of IoT data that may be used for monetization

Common IoT data types	Description	Examples
Location 	Where a particular thing is positioned geospatially. Typically identifies a location based upon GPS, wi-fi, beacon, or simply asking a user for their location.	Uber knows the location of its users based upon their pick-up and drop-off locations. With the users' permission, Uber may sell this data to other businesses. Businesses use this data to provide promotions that encourage consumers to spend money with their company. Uber launched a service that lets its customers connect their Uber account to their Starwood Preferred Guest Account. When a Starwood customer is traveling and they don't choose Starwood, they can receive promotions.[2]
Environment 	Based on the measurement of environmental variables (i.e. the state of the environment)	A wind farm company is looking to expand into new areas. By utilizing wind sensors, the company is able to identify the locations that have the greatest energy generation potential and maximize their return on investment. After identifying their future locations, the wind farm company can continue to monetize its wind sensors by selling the data to weather companies looking to supplement their own sensors.
Machine 	Data that is automatically created from a computer process, piece of equipment, application, or other machine without the intervention of a human	IoT devices that interface with a vehicle's computer can sense driving speed, braking force, acceleration, engine problems, and a variety of other diagnostic information. This data can be used by insurance companies and can also be packaged and resold to a variety of other industries. For example, engine and diagnostic information are valuable to automotive companies that want to prevent systemic mechanical issues on vehicles or automotive repair shops looking to improve their marketing campaigns.
Living 	Data collected from sensors that monitor vitals (e.g. blood pressure, heart rate, temperature)	Pharmaceutical companies looking to improve sales can purchase anonymized health data that is generated by IoT sensors in order to find new customers and more effectively target their product marketing.

[2]http://www.forbes.com/sites/ronhirson/2015/03/23/uber-the-big-data-company/

Event 	Point at which an affair or occurrence transpired	As sports fans move through future stadiums, they will be greeted with incentives from nearby stores that are customized to each specific fan's interests. With offers that appeal to each individual fan, sports franchises will have the opportunity to sell more products and increase revenues.
Attribute 	Characteristic of an object that can be categorized and/or counted	A TV manufacturer wants to ensure that display units are properly calibrated to reduce after-sale support and warranty repair. By measuring color quality and luminosity of display units while still on the production line, the manufacturer can ensure its products are within benchmarks.
Motion 	Movement or position of an object or human being	Companies measure forms of movement in 3D space and compare it against the ideal model. For example, an instrumented cyclist may be compared against a professional cyclist and an accompanying real-time virtual coach could provide feedback to improve form and speed.
Orientation 	Relative position of an object	The orientation of a smartphone determines specific actions. For example, if a smart phone is face down, it can be switched to do-not-disturb mode.

Assessing datasets

Determining which datasets a company should monetize and/or acquire is complex. Companies should consider their strategic objectives, data access and control, ability to consistently collect data, and data's exclusivity. They should also weigh the costs and benefits of becoming a Data Producer, as illustrated in Table 4.

Data Producer differentiation and the power of the oligopoly

Many companies are expanding in the data economy stack to become a Data Producer. IDC reports that, "50.6% of Asia Pacific enterprises want to monetize their data in the next 12-18 months".[3]

Data Producers are differentiated because:

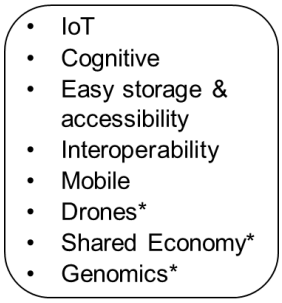
- Data may be highly exclusive
- Data describes the physical world in the digital age
- Data drives how work gets done. With new sources and uses continuously being discovered, data will drive the evolution of new types of work
- Most products will transition to "smart products" and provide valuable real-time IoT data
- Large and complex datasets are easily shared and exchanged

Oligopolies are well positioned in the data economy. By having a large market share, these companies have the potential to control and leverage a large portion of data. This data can be generated from "instrumented" products, the interaction between various products, and the interaction between products and end users. When these individual data streams – often collected in real

[3]IDC Big Data Pulse 2014

time – are combined into large datasets and presented in a user friendly way, they create value. Due to industry rivalry in today's environment, companies in an oligopoly must act or risk losing market share. However, companies that do not own data but own industry taxonomies can still play a critical role and gain a position of power.

Figure 3: Key drivers of the data economy



* Prediction

Table 4: Common benefits and costs of becoming a Data Producer

Benefits	Costs
• Increasing revenue	• Data collection and curation
• Obtaining new customers	• Systems to interact with data
• Making competitors customers	• Integration
• Entering new value chains	• Security
• Entering new channels to market	• Talent
• Improving competitive positioning	• Liability
• Becoming a data driven company	• Brand reputation
• Driving innovation through new ecosystems	
• Transforming brand equity	

Long term diminishing marginal returns of data economy participants

Outside of the Data Producer and Data Presenter, layers in the data economy stack will experience diminishing marginal returns. Key elements that will lower economic returns include: an increase in connectivity, Application Program Interfaces (APIs), data standards, open source, public cloud, competition, automation, and advancements in mathematics and cognitive computing.

Increase in connectivity

As much as 85% of IoT devices were not connected to a network at the beginning of 2015.[4] Device connectivity continues to increase as the cost for broadband and wireless communication becomes more affordable. This increases the availability of data through open channels and reduces the value of expensive proprietary protocols, which diminishes the role of Data Custodians. In addition, as device discovery capabilities increase and devices become more intelligent and interoperable, the demand for Data Aggregators that do not use standards will decrease.

Increase in data sharing with APIs

APIs are not new, but the confluence of cloud, analytics, mobile, and social technologies has triggered the latest evolution of the API-based economy. The API economy enables Data Producers to work directly with each other and other layers of the Data Economy Framework, diminishing the need for Platform Owners. APIs make it relatively easy to share and consume data with ecosystem partners, without using Data Aggregators, Data Custodians, or Platform Owners. According to ProgrammableWeb, over 14,700 public APIs have been published.[5] Over time, proprietary APIs will give way to public and insourced APIs.

[4]Intel – Keynote at 2015 IoT World
[5]http://www.programmableweb.com/category/all/apis?order=field_popularity, February 2016

Increase in adopted data standards
Data standards play a large part in the diminishing value of Data Aggregators and Platform Owners. As data becomes more important and is used across a variety of instruments, machines, and applications, there is a need for data normalization so that data can be easily used across different functions. The emphasis on data normalization allows for data to be combined and aggregated by other participants of the data economy without the need for a Data Aggregator.

Open source
The proliferation of open source projects will diminish the direct monetary gains of Platform Owners and Insight Providers. Industry specific semantic data models will remain a relevant method to identify information in business documents to be exchanged in the appropriate business context. Industry accepted models will be replicated across companies, similar to open source, in order to aid interoperability. This will further erode value from Data Aggregators who often serve as a bridge between different standards.

Public cloud
The influx of companies in the public cloud market diminishes the marginal return of Platform Owners and Data Custodians. Price wars among commodity cloud companies are intense. According to an IDC analyst, "The price war is now perpetual and will carry on until the cost of disk capacity, memory capacity and processor capacity stop falling – in other words, until Moore's law breaks down".[6] Hybrid cloud, a combination of public and private cloud platforms, is a key enabler for the data economy.

Increase in automation
Automation utilizes technology to replace a series of human actions or human involvement. It improves governance, security, reliability, productivity, and efficiency. Knowledge automation[7] could have an economic impact of $5.2-$6.7 trillion by 2025 due to greater output per knowledge worker.[8] Automation reduces manual tasks performed by Data Aggregators and Insight Providers. For example, automation has been applied to Data Aggregators by extracting data, formatting data, and uniting data sources. Virtual operators and engineers have been deployed for nearly a decade to perform routine and repetitive tasks in IT infrastructure management and finance.

Advancements in mathematics and cognitive computing
Insight Providers generate value from advanced analytics such as machine learning algorithms and statistical models. Once an algorithm is created, it has a definitive shelf life in which: a.) it is copied, b.) a better algorithm supplants it, or c.) an open source or crowd sourced algorithm becomes available. In many cases, these base algorithms, rules, and logic are added to software programs.

As advanced analytics capabilities and cognitive computing become embedded in devices, Insight Providers will continue to be adversely affected. Data Presenters, device manufacturers, and software vendors will look to build more ingrained relationships with their customers and/or consumers and offer insights as part of their overall value proposition. This is in contrast to today's world, where data insights are an independent revenue stream. In the long term, many data insights will be bundled with software licenses or devices.

[6]http://www.computerweekly.com/news/2240236953/Price-cuts-and-posturing-in-the-public-cloud-war
[7]Knowledge work automation is the use of computers to perform tasks that rely on complex analyses, subtle judgments, and creative problem solving.
[8]Disruptive Technologies: Advances that will transform life, business, and the global economy" McKinsey Global Institute 2013

How can data economy participants maintain their value?

There are many strategies to delay diminishing marginal returns for roles in the Data Economy Framework. As stated in Table 1, there are three potential movements in the Data Economy Framework: horizontal, vertical, and compressed/ expanded. Each offers companies in the data economy opportunities to delay diminishing marginal returns. Horizontal movements are used to gain a bigger portion of a specific layer and involve adding material and content. Vertical movements are used to gain further differientation (e.g. get closer to the consumer, increase interoperability). Companies often compress or expand the stack to get more data or use data producing supremacy to become a Platform Owner. Over the long term, the data economy will be characterized by participants that are not confined to one area of the data economy stack. For example, a Data Producer may be a Data Presenter and Platform Owner. This will enable firms to reach their customers directly, minimize costs, and have greater control of their channel.

Leading Data Producers and Data Presenters are in a position of strength. Data Producers derive their strengths from collecting, accessing, and controlling large amounts of exclusive data. Data Presenters are in a position of strength due to customer loyalty and content. They have strong user interfaces, interactive experiences, and data discovery capabilities. Many Data Presenters also have real-time collaboration capabilities. Data Producers and Data Presenters must build trust among ecosystem partners to set up an environment for data sharing and data monetization. All players must abide by pre-defined agreements and safeguards.

Strengthening a company's position through taxonomies

The inertia of the data economy will force companies to selectively sell and exchange data. When that's not possible, companies may create and monetize industry specific data taxonomies. Data taxonomies are used to classify, name, and map "things" in a consistent structure. Why would anyone buy a data taxonomy?

Arranging, storing, and classifying datasets for optimal use are challenging for companies. As IT and operational technologies merge, these issues increase in frequency. For example, a temperature sensor embedded in equipment could be collecting the same data as a similarly placed sensor on another unit, but the naming conventions may be different. The same temperature sensor could be named "discharge air temperature", "supply air temperature", "SAT", "DAT", or a number of other monikers. Naming convention errors cause downstream issues when they are aggregated into enterprise wide-data for analysis and reporting. Having a structured and accepted naming convention accelerates time to value, reduces costs, and improves reliability.

These dataset challenges can result in external opportunities for companies. ExxonMobil Research and Engineering Company (EMRE) developed an equipment taxonomy for classifying, measuring, and tracking equipment specifications and performance across ExxonMobil operations. The taxonomy helped ExxonMobil obtain lower operating and maintenance costs through consistent measurement of metrics and streamlined data collection. The resulting data structure had applicability across companies in the oil and gas industry. Without providing any of its potential sensitive internal data, ExxonMobil was able to license the taxonomy to other companies.[9]

[9]https://www.meridium.com/about/news/exxonmobil-and-meridium-form-alliance-market-exxonmobil-equipment-taxonomy

Companies gravitate towards businesses that provide their data or products in the acceptable taxonomy. For example, Meridium further capitalized on ExxonMobil's taxonomy by making it compatible with its equipment reliability management solution. Companies that wanted to use ExxonMobil's proven framework were also enticed to use Meridium's software versus competing software that was not already set-up to handle this framework.

In another example, a tax-exempt corporation named Project Haystack was formed to have software and technology companies collaborate on developing semantic modeling solutions for data related to smart devices.[10] Companies that adopted the open source naming convention attracted new customers.

If a company can establish a widely accepted taxonomy, it can change the way customers look at a company's products and services. As a market leader or first adopter, there are many advantages in the data economy.

Data Presenters are the critical interface to the consumer

Data Presenters make complex and large datasets easy for business users to consume. They allow consumers to have intuitive access to the underlying data and its derivatives. Users expect to be able to visualize, interact, manipulate, and discover new insights. In an IDG study, 51% of respondents stated that big data needs to "make relevant data more consumable without relying on data scientists".[11] Data Presenters that make data consumable will drive consumer loyalty and increase revenue.

Bloomberg Professional provides an example of how users have been loyal to companies that provide valuable data in a user friendly interface. Bloomberg Professional has been a leading source for financial news and information since the early 1980s. Their computer platforms provide real-time financial market data, news, price quotes, messaging, and the ability to place trades on a proprietary and secure network. Bloomberg needs to balance upsetting its users by changing the user interface and keeping up with new visualization practices. Their users are so accustomed to the interface, they often complain when it is changed.[12] Based upon users' loyalty, Bloomberg has been able to maintain a large market share and price point.

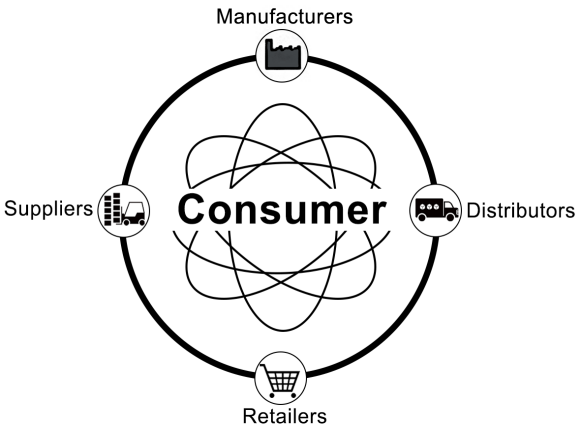
The Weather Company is another example of how industry leaders benefit from data and a strong presentation layer. Although weather data is widely available and offered by a variety of competitors, some companies have been able to maintain a lead. In the case of The Weather Company, part of the reason they have held a lead is by offering an easy way to consume IoT data that their weather sensors are generating. This presentation layer adds to the underlying value of their weather data, attracting and retaining consumers. If the data is not presented in a consumable way, some consumers may look for alternative solutions. In fact, the average app loses 77% of its users within three days after it's downloaded. In the U.S., 30% of the time when an app is downloaded, a person never opens it more than twice.[13]

[10] http://project-haystack.org/about
[11] http://www.prnewswire.com/news-releases/idg-research-survey-exposes-pent-up-demand-for-consumable-big-data-to-make-it-rapidly-actionable-207558891.html
[12] http://www.fastcompany.com/3051883/behind-the-brand/the-bloomberg-terminal
[13] http://www.wsj.com/articles/a-few-ways-to-declutter-your-phone-1456117380

The new value chain

As the data economy takes off and disruptive technologies emerge, traditional supply chains will evolve and provide competitive advantages. As shown in Figure 4, suppliers, manufactures, retailers, and distributors interact in a complex mesh ecosystem focused on consumers. These ecosystems foster supply chains that are adaptive, interconnected, and flexible. It is possible to collaborate directly with consumers and upstream or downstream partners. In this type of environment, companies need to embrace orchestration rather than control.[14]

Figure 4: Mesh ecosystem of partners



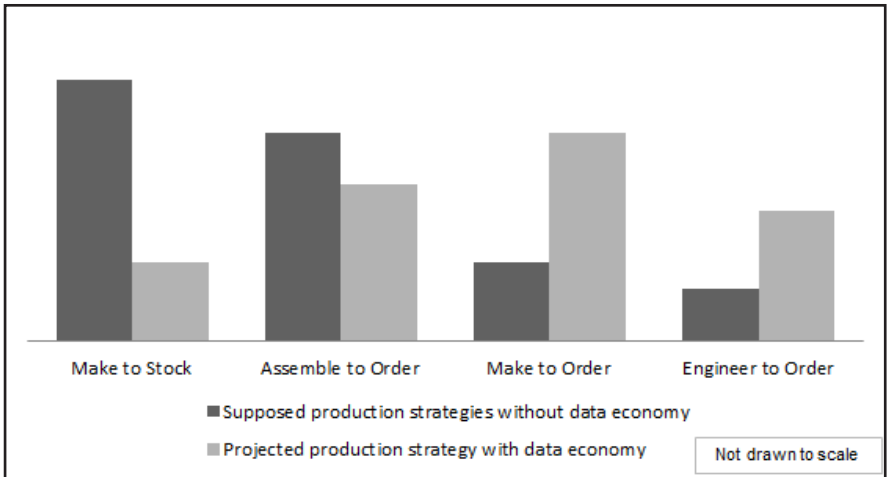
Production strategies evolve in a new value chain. Figure 5 provides an illustrative example of how the production mix shifts over time due to the data economy. In the new supply chain, when emerging technologies such as 3D printing become widely adopted, on-demand manufacturing will be disruptive to many industries. In the retail industry, it will enable consumers to design their own shoes that fit perfectly to their feet. "Imagine walking into an Adidas store, running briefly on a treadmill, and instantly getting a 3D-printed running shoe."[15] From a supply chain perspective, it will drastically change the model, eliminating steps and slashing costs. In this case, the shoe will be produced based upon real-time demand rather than projections. The process from designing to receiving the shoe will be short and inventory and logistics costs will be significantly reduced. Once a shoe company has a consumer's data, they could potentially sell it to other manufactures or distributors. Other companies may be interested in this data to customize other types of shoes (e.g. dress shoes) or to offer promotions (e.g. buy a health exercise device).

Increasing customer expectations (e.g. same-day delivery, greater customization, etc.) has many implications. Sales and operations planning, production, planning and forecasting, logistics, sourcing and network design are all affected. Companies participating in any phase of a supply chain may be affected as well. From a supplier's perspective, demand volatility will likely increase. Traditional demand sensing methods and the integration of a broad range of demand signals to create accurate forecasts to real world events will become increasingly important.

As IoT enabled products are adopted, access to data from those products will enable improvements and reduce total cost of ownership. Several supply chain dynamics are becoming common, including: decentralized production, omni-channel approaches, fulfillment by brick and mortar stores, and the utilization of drones and autonomous vehicles. As complex mesh ecosystems rise, collaboration and data visibility remain essential. With the emergence of the data economy, if companies are able to develop flexible supply chains, new value chain opportunities can emerge in response to near real-time consumer and consumption data.

[14]IBM, The Business of Things
[15]http://fortune.com/2015/12/15/3d-printed-shoe-race/

Figure 5: Illustrative View of Production Strategy Shifts



Make to Stock:	Products are created before receipt of a customer order.[16]
Assemble to Order:	Products are assembled from components after the receipt of a customer order.[16]
Make to Order:	Products are made entirely after the receipt of a customer order; a combination of standardized and custom items to meet the customer's specific needs.[16]
Engineer to Order:	Customer specifications require unique engineering design, significant customization, or new purchased materials.[16]

[16]APICS

Are you ready?

There is no pre-defined go-to-market approach for the data economy. The process is complex and should be managed by a specialized team, often led by a CxO. These leaders work with other executive officers to mobilize their organizations around an enterprise-wide data and IoT strategy, to determine new ways to utilize data, and to build more data-driven cultures. As part of this process, companies will need to reinvent themselves and evaluate their roles in expanding ecosystems. To provide a higher probability of success, the team should:

- Define the company's desired role in the data economy
- Define a corporate data economy policy and mission
- Develop ways to control data when its shared with partners
- Develop institutional knowledge regarding data monetization
- Engage a strong data science team- the driving force behind data innovation inside organizations
- Find data in all its forms across the company as well as publicly available with the express goal of understanding the scope of monetization and potential value
- Identify beneficiaries of data in the market

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