The Amazon Way on IoT
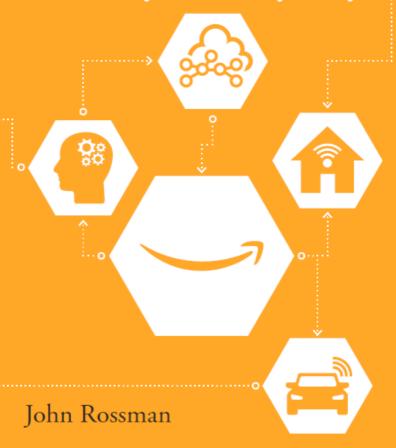
10 Principles for Every Leader from the World's Leading Internet of Things Strategies

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Principle 7

The Outcome-Based Business Model

I've worked in the project-management business essentially my entire career, leading teams of people to accomplish focused, specific objectives driven by a business opportunity. Whether at Amazon or in my consulting practice, solving problems and launching new products or capabilities can be incredibly energizing.

Along the way, I've learned that my favorite word in the English language is "done." It's especially gratifying when it's preceded or followed by the word "well." "Well done" is a powerful phrase. Something is complete; it's packaged; it meets expectations; it's independent; and you get to move on to the next item. "Well done'" is what my clients hire me for.

But there is something even more important, and that is the intended result of "done"—an outcome.

Outcome-based models transition companies from selling a product or service through a transaction to providing what the customer is truly seeking—an outcome.

What exactly does that mean? If you're a music lover, you care less about the specifics of the machine playing your music than you do about its outcome—an endless selection of high-quality music in your pocket. If you need transportation, you care less about whether or not you own your specific vehicle than about the outcome of owning that vehicle— that you have affordable, reliable transportation whenever you need it.

Lastly, if you're a small business owner, you probably don't feel particularly attached to the idea of owning a data center and all of the employees and infrastructure providing the technology infrastructure. You do want highly scalable computer power that you pay for only when you use it.

Welcome to the outcome-based economy.

Principle 7: Connected devices facilitate the creation of outcome-based businesses, an innovative model in which customers pay for the results a product or service provides rather than the product or service itself, shifting ownership, effectiveness, and maintenance responsibilities back to the provider and aligning customer and provider interests.

In this chapter, I'll explain how the Internet of Things facilitates outcome-based business models. We'll also explore the differences between the three types of outcome-based business models—self-service monitoring products, subscription, and as-a-service. I'll also explain how the Internet of Things should be integrated with each and explore whether an outcome-based model might be right for you.

Outcome-based business models, also frequently referred to as "as-a-service" models, are a relatively recent addition to the business landscape. That's not because they're complicated or advanced (though they are. From an operational perspective, it's much more complicated to own and service a product than just to sell it). It's because it wasn't until the widespread arrival of the Internet that they became viable.

Careful observers of outcome-based models will notice several variations. There are self-monitoring services, which replenish themselves automatically; subscription models, which charge a regular, generally time-based fee; and as-a-service businesses, which provide services specially tailored to your individual and dynamic needs.

Being a provider of outcome-based capabilities can increase your profits, improve your relationships with your customers, and increase customer

loyalty. But like a platform business, they're not for everybody. Making the switch to an outcome-based model is a complex transformation best suited to companies with specific goals and capabilities.

OUTCOME-BASED MODEL 1: SELF-MONITORING PRODUCTS

"The moment of running out is a really bad moment for consumers,"[33] a spokesperson for Brita jabs in an ad promoting the company's automatically replenishing water filters. Brita is a great example of our first outcome-based model—self-monitoring products. Earlier in the book, we talked about Brita's Infinity Smart Water Pitcher, which uses embedded sensors to automatically order fresh filters through Amazon's Dash Replenishment system.

Working with Amazon Dash Replenishment, companies like Brita, Clorox, and others are providing automatic replenishments, service reminders, and other event-driven product-to-company scenarios. For busy customers, this is a godsend: no more trying to remember when you last replaced your Brita filter or whether you were supposed to pick one up at the store. The product not only monitors the situation but takes the next steps in ordering the part or service.

If self-service business models allow customers to interact with you on their own terms, then self-monitoring products are the next generation. They transcend the need for a customer to manage or even interact at all. And they assure that the product—whether that's a Brita filter or your car's oil filter—is always fresh, working, and usable.

Replacing human memory or involvement with sensor-based measurement and reordering is one of the biggest opportunities that the Internet of Things creates for brands and manufacturers. But companies that choose to adopt this model will also face some sticky decisions.

Let's say, for example, you're a washing-machine manufacturer, and you decide to add sensors into your product that automatically alert your company whenever the machine needs servicing. You, as the manufacturer, will automatically schedule and send an in-house repairperson to deal with any needed part replacements or machine failures. The customers, for their part, will automatically be charged for needed repairs. That's great news for you—you just picked up another source of revenue for your business. It's also great news for the customers—they don't have to guess about what's wrong with their washing machine or deal with unforeseen outages.

But it's not great news for the network of preferred distributors and repair people that used to install and service your washing machines. How do you decide who owns the customer relationship and ongoing revenue opportunity in these cases? How do you make a transition to this model over time?

Businesses that choose to make the switch should be aware that disruption, breaking traditions, reorganization, and structural changes will be a part of the fun.

OUTCOME-BASED MODEL 2: SUBSCRIBE-TO-THIS

Rent-the-Runway, a subscription business for fashion clothes; Pley, a subscription business for toys; Ditto, a subscription business for prescription eyewear. Each of these is an example of one of the hottest consumer business-model fads of the last few years: subscription.

Like any fad, the subscription craze is likely to birth a couple of winners, lots of losers, and a stream of great company names, but that's no reason to be discouraged by the subscription model—particularly given the unique opening that the Internet of Things is creating for subscription models by animating products and services with a digital heartbeat.

One of the clearest examples of this is usage-based insurance (UBI), which typically uses a proprietary plug-in device like the Progressive Snapshot or native software in the car to track your driving habits. Your monthly bill and risk evaluation are calculated by the volume and safety of your total driving. Ironically, usage-based insurance is really just converting one type of subscription business (uniform monthly car-insurance payments) into another (payments and risk based on how much you drive

and the quality of that driving). It is estimated that by 2020, over fifty million US drivers will have tried usage-based insurance.[34]

This model will have a significant impact on driver behavior, of course, but its real impact might end up being to the insurance companies. Guess who might get into the car-insurance business? Perhaps automobile manufacturers? Companies using their product positions to extend services and other products will be a common and disruptive theme.

Zipcar, which provides on-demand car usage, is another form of outcome-based business model. The company blends a monthly subscription model with a per-use fee (either hourly or daily) to provide access to a variety of cars and trucks. Your subscription includes gas, insurance, and on-demand access to Zipcars at thousands of locations. None of it would be possible without the Internet of Things: customers are issued a credit card–sized smartcard with an embedded chip to unlock Zipcars they've reserved. RFID transponders on the windshield link with the card to identify the customer and remotely unlock the car. Mileage, usage, and location are tracked from the car, and a remote "kill" feature will turn the car off in case it's stolen. Each car is also equipped with significant operational and fleet-management capabilities to track maintenance and service status.[35]

B2B and established enterprises also have new opportunities to pursue subscription-based models. Many of the more complex, less obvious B2B subscription business models are using the Internet of Things to measure, provision, and manage their products or services and to improve experiences for their customers.

Kaeser Kompressoren is a hundred-year-old German air-compressor manufacturer that provides air-compression systems to manufacturing and chemical processing and other industrial companies. Recently, Kaeser has made the transition from selling cylinders of compressed air to selling, on a subscription basis, what its customers really want—reliable compressed air.

When Kaeser began installing sensors in their compressors, it found itself with a body of data that gave the company new insights into its customers' usage patterns and allowed it to improve its preventative maintenance. As Kaeser got smarter about customer use and how to avoid quality errors, it was able to make the transition to an "air-as-a-service" subscription program.

Through that program, Kaeser now guarantees both an uninterrupted supply of compressed air and full maintenance of the system. This also creates an interesting incentive swap: in its traditional business, making a service call actually generated revenue for Kaeser. Now that the company is a subscription business, it has become a cost. Kaeser has much more skin in the game to reduce necessary repairs.[36]

In the case of Kaeser and Zipcar, the customer is paying for use of specialized products without having to buy and own them, but the subscription model can also coexist with a product-purchase model.

Dropcam, for example, sells customers on an affordable home-surveillance camera and then provides optional recording and video storage services on a subscription basis. Likewise, Scout, another home-security business, sells a wide array of wireless, easy-to-install, and artfully designed sensors, monitors, and cameras that connect to a hub unit. Customers can choose to operate the hub as-is for security alarms, notifications, and recording. Or they can add a subscription to human-monitored surveillance services and on-site installation and response services. For both Dropcam and Scout, the real profit is in the subscription.

OUTCOME-BASED MODEL 3: AS-A-SERVICE

As-a-service is similar in some ways to the subscription and self-monitoring services models in that it replaces products that you used to own and operate with the usage and outcome of those products. But where, in a subscription, you more or less commit to a monthly amount, as-a-service charges for its services based on volume and quality. It also generally provides the ability to scale, both up and down, based on your particular needs.

The clearest example of this is Amazon Web Services, the industry's dominant cloud-computing provider and innovator. Although the

technology of providing on-demand infrastructure and tools is a big part of the story, AWS's business model is its other significant innovation.

Traditionally, it was left to individual companies to build and operate data centers, procure large computer servers and network gear, and hire a staff to operate and monitor that data center. For obvious reasons, this was a less-than-ideal arrangement for smaller businesses. Then a new model emerged: rather than manage their own servers, businesses began renting data-center space from a provider. This was known as CoLo, or "colocation."

But even CoLo had its downsides. The software applications and database technology running on this infrastructure required a large up-front licensing fee and an annual maintenance fee—typically 15 to 20 percent of the original license fee. And again, you would have to hire specialized staff just to keep the applications running on the infrastructure.

Cloud computing turned this model on its head.

Instead of committing up front to buying computers or licenses, you now purchase just what you use. Rather than being responsible for operating and maintaining high availability and performance, your cloud provider (more likely than not, AWS) takes responsibility. Rather than being limited by inflexible and mostly underused capacity, you pay for a flexible amount based on your actual usage. Dramatically fewer employees are needed to manage this environment.

Another example of an Amazon as-a-service business is Fulfillment by Amazon (FBA), which sells access to Amazon's vast product-logistics and distribution network. Sellers have on-demand access to warehouses, goods transportation, and planning algorithms. How much should I purchase? How should I allocate it across the country? They can scale up and down as their business demands.

In the last few years, the as-a-service model has grown dramatically. Where it used to be primarily facilitated by cloud computing, the Internet of Things has hugely expanded the possible range of as-a-service businesses. IDC Manufacturing Insights estimates that 40 percent of top one

hundred discrete manufacturers and 20 percent of Top 100 process manufacturers will provide product-as-service platforms by 2018.[37]

Rolls Royce now provides jet engines as a service for commercial airlines, moving the ownership of an airliner's engine and the responsibility for its care and maintenance back to Rolls Royce itself. Airlines pay a fee per engine flying hour to rent a Rolls Royce engine embedded with thousands of sensors. Those sensors stream information into Rolls Royce HQ, creating a digital twin of the engine that tracks real-time engine conditions and uses predictive analytics to plan for needed future maintenance. Airlines benefit from simplified operations, and Rolls Royce benefits from increased revenue (a 40 percent jump in 2015).[38]

Another benefit to businesses that use outcome-based models is a much tighter relationship with customers. At a B2B level, these businesses become more critical to management and operations and have much better data, making them valuable partners.

As companies move from a transaction-based business to a relationship- and services-based business, their value propositions become better aligned with their customers. Where vendors might previously have benefitted from required services or replacements, both vendors and their clients are incentivized to control costs, improve quality, and increase reliability.

Instead of pushing more product, vendors are aligned with customers on efficient operations and preventative maintenance. That reinforces the customer relationship, creating longer lifecycles and more strategic positioning.

NAVIGATING THE TRANSITION TO AN OUTCOME-BASED MODEL

In this chapter we've learned the outcome-based models and the results this approach can generate. But how do we get there?

Even in the easiest situation, making the switch to an outcome-based business is tricky. Shifting from a product or service company to offering "outcomes" will change almost everything about your organization.

In order to succeed, you'll need to offer significant differentiation from other offerings in your space and make significant internal changes to your team and company operations.

If you're considering whether to make the transition, here are a few things to keep in mind:

- *Channel Conflict.* As models change to outcomes-based services, manufacturers may provide services directly to their customers that have traditionally been provided by distributors. As a company, you'll need to handle this transition delicately to preserve customer relationships.
- *Customer Education.* Your customers will need to understand not only how your product and services are changing but any other implications the change might hold for them.
- *Accounting Uh-Ohs.* Investors love recurring-revenue business models, but the transition from nonrecurring revenue to recurring impacts many accounting treatments and often creates a revenue dip in the up-front periods. You'll need to communicate clearly with customers, investors, and others to help set their expectations.
- *Internal Reorganization.* As an outcome-based business, you will have contractual obligations to customers for specific service levels. In order to provide those and meet customer expectations, you'll need to restructure your company. Without changes to your operations, account management, and sales processes, you're unlikely to be able to provide proactive service that minimizes the number of issues you'll need to address.
- *New Talents.* The right people are key to making all of these transitions work. Specifically, product managers, partner managers, and business-model innovators are just as important as the technologists building connected products and services. There is always a shortage of architects and developers to fuel the technology-driven business cycle, but Amazon also hires more MBAs, by far, than any other technology company.[39]

Product management, partner management, and business-model innovation are all roles filled by great business talent. If you choose to adopt an outcome-based business model, it will be essential to understand that, while the technology is difficult, it's the nontechnical parts that will actually make your business work. This is true for all business-model changes, including the next principle—making the IoT data the product.