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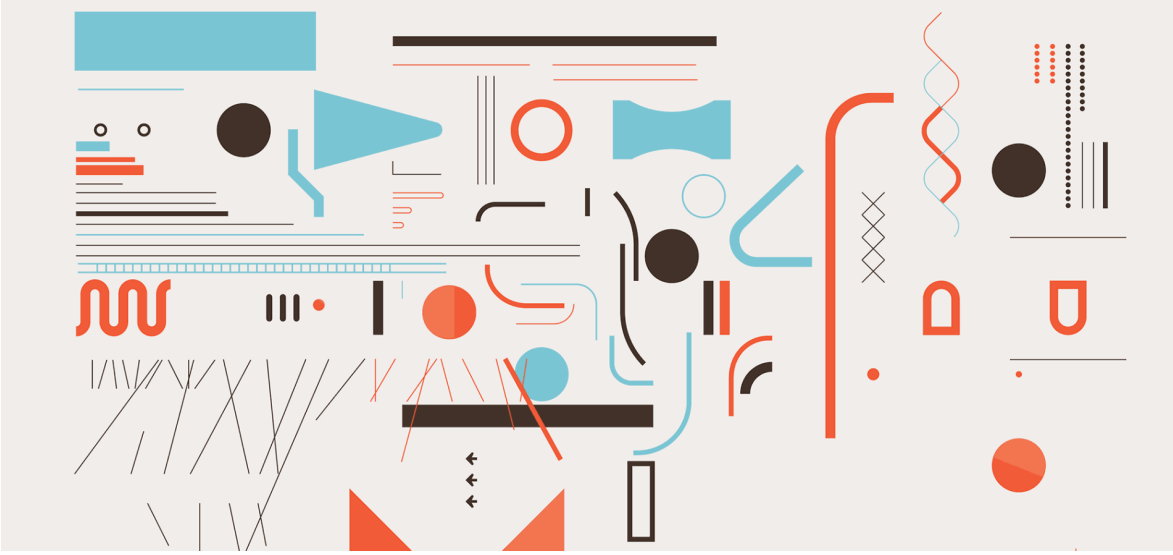


STRATEGY

The Transformative Business Model

by Stelios Kavadias, Kostas Ladas, and Christoph Loch

FROM THE OCTOBER 2016 ISSUE

We usually associate an industry's transformation with the adoption of a new technology. But although new technologies are often major factors, they have never transformed an industry on their own. What does achieve such a transformation is a business model that can link a new technology to an emerging market need.

MP3 technology is a classic case in point. Early MP3 devices represented an order-of-magnitude increase in capacity over magnetic tapes and CDs: Users could carry thousands of songs on a small device. But MP3 players revolutionized the audio devices market only after Apple coupled the iPod with iTunes in a new business model, swiftly moving music-recording sales from the physical to the virtual world.

What, exactly, enables a business model to deliver on a technology's potential? To answer that question, we embarked on an in-depth analysis of 40 companies that had launched new business models in a variety of industries. Some succeeded in radically altering their industries; others looked promising but ultimately did not succeed. In this article we present the key takeaways from our research and suggest how they can help innovators transform industries.

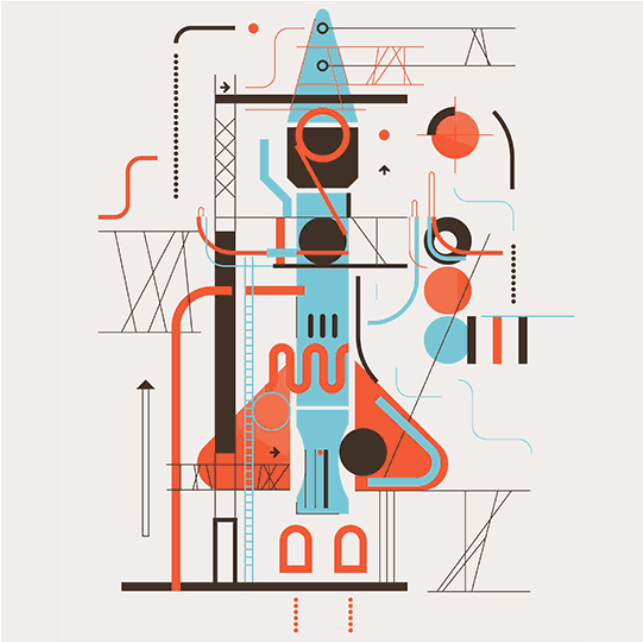
How Business Models Work

Definitions of "business model" vary, but most people would agree that it describes how a company creates and captures value. The features of the model define the customer value proposition and the pricing mechanism, indicate how the company will organize itself and whom it will partner with to produce value, and specify how it will structure its supply chain. Basically, a business model is a system whose various features interact, often in complex ways, to determine the company's success.

In any given industry, a dominant business model tends to emerge over time. In the absence of market distortions, the model will reflect the most efficient way to allocate and organize resources. Most attempts to introduce a new model fail—but occasionally one succeeds in overturning the dominant model, usually by leveraging a new technology. If new entrants use the model to displace incumbents, or if competitors adopt it, then the industry has been transformed.

Consider Airbnb, which upended the hotel industry. Founded in 2008, the company has experienced phenomenal growth: It now has more rooms than either InterContinental Hotels or Hilton Worldwide. As of this writing, Airbnb represents 19.5% of the hotel room supply in New York and operates in 192 countries, in which it accounts for 5.4% of room supply (up from 3.6% in 2015).

The founders of Airbnb realized that platform technology made it feasible to craft an entirely new business model that would challenge the traditional economics of the hotel business. Unlike conventional hotel chains, Airbnb does not own or manage property—it allows users to rent any livable space (from a sofa to a mansion) through an online platform that matches individuals looking for accommodations with home owners willing to share a room or a house. Airbnb manages the platform and takes a percentage of the rent.



Because its income does not depend on owning or managing physical assets, Airbnb needs no large investments to scale up and thus can charge lower prices (usually 30% lower than hotels charge). Moreover, since the home owners are responsible for managing and maintaining the property and any services they may offer, Airbnb's risks (not to mention operational costs) are much lower than those of traditional hotels. On the customer side, Airbnb's model redefines the value proposition by offering a more personal service—and a cheaper one.

Before platform technology existed, there was no reason to change the hotel business in any meaningful way. But after its introduction, the dominant business model became vulnerable to attack from anyone who could leverage that technology to create a more compelling value proposition for customers. The new business model serves as the interface between *what technology enables* and *what the marketplace wants*.

Let's look now at what features make a business model transformative.

The Six Keys to Success

We selected the 40 new business models we analyzed on the basis of how many mentions they received in the high-quality, high-circulation business press. All of them seemed to have the *potential* to transform their industries, but only a subset had succeeded in doing so. We looked for recurring features in the models and found six. No company displayed all of them, but as we shall see, a higher number of these features usually correlated with a higher chance of success at transformation.

1. A more personalized product or service.

Many new models offer products or services that are better tailored than the dominant models to customers' individual and immediate needs. Companies often leverage technology to achieve this at competitive prices.

2. A closed-loop process.

Many models replace a linear consumption process (in which products are made, used, and then disposed of) with a closed loop, in which used products are recycled. This shift reduces overall resource costs.

3. Asset sharing.

Some innovations succeed because they enable the sharing of costly assets—Airbnb allows home owners to share them with travelers, and Uber shares assets with car owners. Sometimes assets may be shared across a supply chain. The sharing typically happens by means of two-sided online marketplaces that unlock value for both sides: I get money from renting my spare room, and you get a cheaper and perhaps nicer place to stay. Sharing also reduces entry barriers to many industries, because an entrant need not own the assets in question; it can merely act as an intermediary.

4. Usage-based pricing.

Some models charge customers when they use the product or service, rather than requiring them to buy something outright. The customers benefit because they incur costs only as offerings generate value; the company benefits because the number of customers is likely to grow.

5. A more collaborative ecosystem.

Some innovations are successful because a new technology improves collaboration with supply chain partners and helps allocate business risks more appropriately, making cost reductions possible.

6. An agile and adaptive organization.

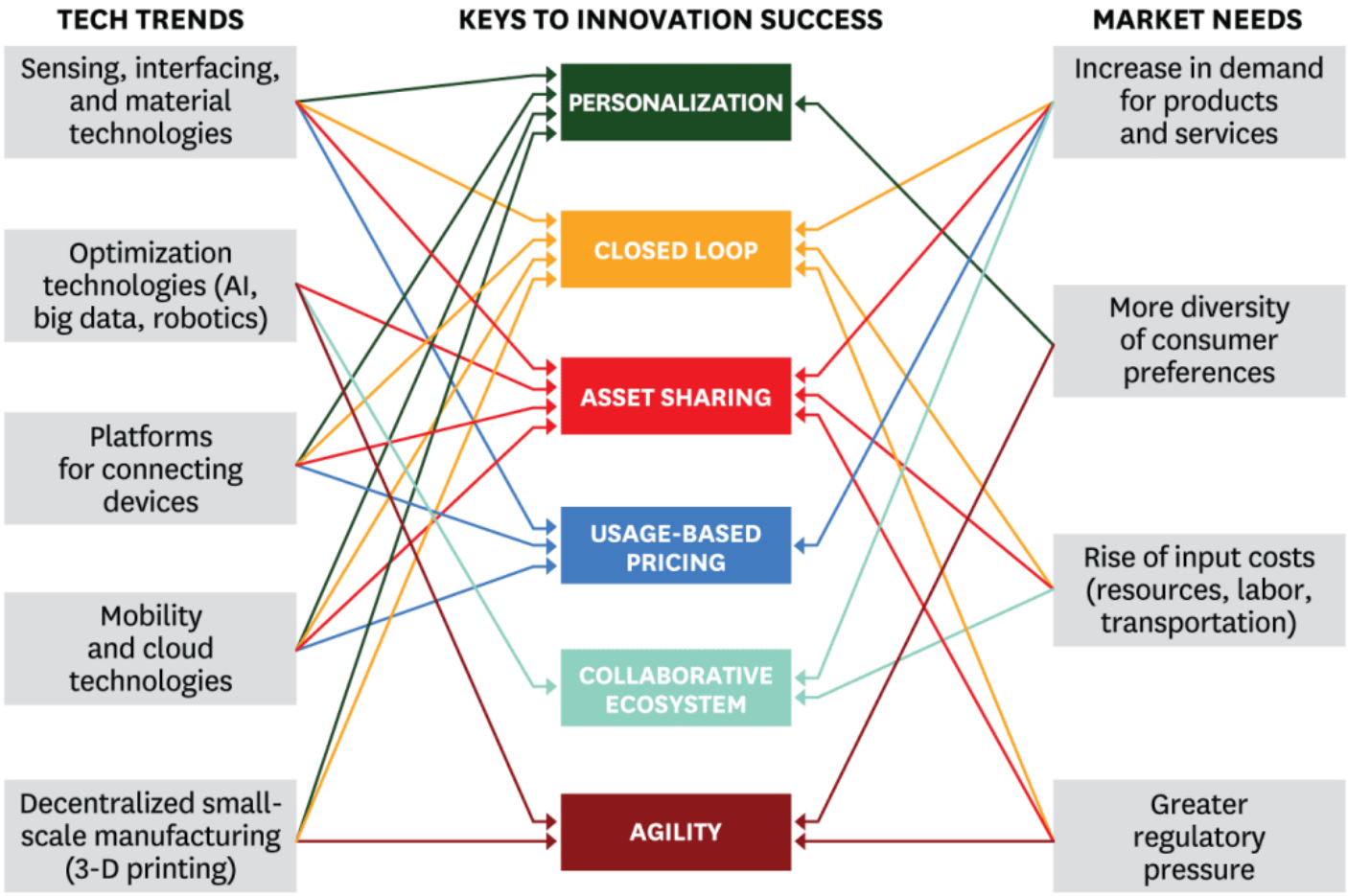
Innovators sometimes use technology to move away from traditional hierarchical models of decision making in order to make decisions that better reflect market needs and allow real-time adaptation to changes in those needs. The result is often greater value for the customer at less cost to the company.

Each feature on this list is tied to long-term trends in both technology and demand. On the tech side, one trend is the development of sensors that allow cheaper and broader data capture. Another is that big data, artificial intelligence, and machine learning are enabling companies to turn enormous amounts of unstructured data into rules and decisions. A third is that connected devices (the internet of things) and cloud technology are permitting decentralized and widespread data

manipulation and analysis. And a fourth is that developments in manufacturing (think nanotechnology and 3-D printing) are creating more possibilities for distributed and small-scale production.

Linking Technology and the Market

The six features that characterize successful innovation all link a recognized technology trend and a recognized market need. Trends were identified by an analysis of regularly published industry reports from think tanks and consulting companies such as the McKinsey Global Institute, PwC, and the Economist Intelligence Unit.



SOURCE STELIOS KAVADIAS, KOSTAS LADAS, AND CHRISTOPH LOCH
FROM "THE TRANSFORMATIVE BUSINESS MODEL," OCTOBER 2016

On the market side, although the steady progress of developing countries has led to a stable increase in demand worldwide, it is complicated by a greater diversity in customer preferences (both across and within countries). Higher factor prices (despite the commodity price reductions of 2015) and

heightened regulation (notably on environmental effects and business conduct) further increase the challenges for companies looking to gain market share.

All six features represent potential solutions for linking market demand and technological capability. For example, greater personalization in the value proposition responds to the fragmentation of consumer preferences and the resultant demand for more-diverse offerings. That personalization has been made possible by sensors that collect data from connected devices via the cloud; the data is analyzed by big data solutions and turned into services—such as recommendations and alerts—that are different for each user.

From Innovation to Transformation

In theory, the more of the six features a new business model has, the greater its potential to transform a given industry should be. We tested that hypothesis by analyzing how many features each of the 40 new models displayed and comparing the results with its actual performance.

How Many Boxes Should a Model Tick?

Our research suggests that to transform an industry, a business model must display at least three of the six key features. Here's how the 40 new models we examined stacked up.

Airbnb | 4/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Alibaba | 3/6

PERSONALIZATION ✓	CLOSED LOOP

We gave each model one point for each feature on which it outperformed the incumbent business model. We then assessed its transformative success according to the degree to which the model had attracted market share (displacing incumbents) and the extent to which other companies had copied it. Our results strongly suggest (that's the best one can get from statistical analyses) that business models with transformative potential tend to have three or more of the six features.

The taxi service company Uber ticks no fewer than five boxes. Its business model is built on *asset sharing*—the drivers use their own cars. Uber has developed a *collaborative ecosystem* in which the driver assumes the risk of winning rides, while the platform helps minimize that risk

ASSET SHARING	**USAGE-BASED PRICING** ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Amazon | 4/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING	**USAGE-BASED PRICING** ✓
COLLABORATIVE ECOSYSTEM ✓	**AGILITY** ✓

Appear Here (renting space) | 2/6

PERSONALIZATION	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Apple iPod | 3/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING	**USAGE-BASED PRICING** ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY

ARM | 3/6

through the application of big data. The platform also creates *agility* through an internal decision-making system that responds to market changes in real time. This lets Uber apply *usage-based pricing* and direct drivers to locations where the probability of finding a fare is high.

Finally, Uber uses a scheme whereby customers rate drivers. Via the big data platform, a would-be customer can see on his or her mobile device the closest drivers and their ratings. The rating system pushes drivers to offer clean cars and quality service, and it also provides at least a bit of *personalization*. Allowing the customer to decide between the closest car and the one (maybe a bit farther out) with the highest rating may not sound like much, but it is still far ahead of traditional taxi services.

The implication of our finding is straightforward: If you are thinking about changing your business model or entering an industry with a new model, you can rate yourself on how well your model performs on the six features. If you don't beat the competition on any of them, your chances of success are low. But if your model significantly outdoes the current model on three or more features, you are well positioned to succeed.

Uber has five key features of a potentially

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Canon | **3**/6

PERSONALIZATION	CLOSED LOOP
	✓
ASSET SHARING	USAGE-BASED PRICING
	✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Coursera | **2**/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Dell | **4**/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
	✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY
	✓

transformative business model.

To rate yourself on a feature, you must first define what it actually means in your industry. For example, in financial services *personalization* may mean tailored loan terms (including interest rates, monthly payments, and loan duration), whereas in retail it may mean customized T-shirt designs or one-off dresses. In education it may mean that the support provided to students changes according to their individual strengths and weaknesses, and in health care it may mean data-enabled, targeted medicine. Only when performance is expressed in such industry-specific ways can a company develop metrics to evaluate and compare its model on the key features and begin to think about how to differentiate itself by using new technologies.

Healx: A Case Study

Informed by our business model framework, we advised (and Cambridge Judge Business School's business accelerator supported) the tech venture Healx, which focuses on the treatment of patients with rare diseases in the emerging field of personalized medicine. A big challenge for pharmaceutical companies in this domain is that rare-disease markets are very small, so companies usually have to charge astronomical prices. (One drug, Soliris, used in the treatment of paroxysmal nocturnal hemoglobinuria, costs about $500,000 per patient-year.) Some potential treatments are,

edX | **2**/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Etsy | **1**/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM	AGILITY

Google AdWords | **4**/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Handy | **2**/6

PERSONALIZATION	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY

however, being used for more-common diseases with large patient markets. They could be repurposed to suit the needs of rare-disease sufferers, but they typically work only for people with specific genetic profiles.

Enter Healx, with a platform that leverages big data technology and analytics across multiple databases owned by various organizations within global life sciences and health care to efficiently match treatments to rare-disease patients. Its initial business model hit three of our six key features. First, Healx's value proposition was about *asset sharing* (for example, making available clinical-trial databases that record the effectiveness of most drugs across therapeutic areas and diseases, including rare ones). Second, the business promised more *personalization* by revealing drugs with high potential for treating the rare diseases covered. Finally, Healx's model would, in theory, create a *collaborative ecosystem* by bringing together big pharma (which has the treatment and trial data) and health care providers (which have data about effectiveness and incompatibility reactions and also personal genome descriptions).

Healx's latest business model brings personalization to the highest level.

IKEA | **4**/6

PERSONALIZATION ✓	CLOSED LOOP ✓
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Interface | **2**/6

PERSONALIZATION	CLOSED LOOP ✓
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY

JustPark | **3**/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY

Lego Factory | **4**/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY ✓

How did we measure performance along those features? To assess *personalization,* we compared the amount of drug data currently provided to sufferers of rare diseases with the amount that Healx could provide, which initially covered 1,000 of the 7,000 rare diseases that have formal advocacy groups worldwide. These groups represent some 350 million people, 95% of whom currently get no even reasonably relevant drug recommendations. We measured *asset sharing* by looking at the proportion of known data on rare-disease-relevant drugs that Healx could access—about 20% in its start-up phase. Finally, we assessed its *collaborative ecosystem* by looking at how many of the main data-holding institutions participated—about a quarter.

At first Healx struggled to get pharma companies to join the platform; they were concerned that their treatment data would leak to competitors. But the Healx team spotted an opportunity to give companies an incentive. In 2014 the United Kingdom's National Health Service introduced a new rule for pharmaceutical companies: If an expensive treatment doesn't work for a patient, the company responsible can be forced to reimburse NHS providers for its cost. The reimbursement amounts were disease-specific and counted in the thousands of British pounds.

Treatment failure is often caused by specificities in individual genomes, and Healx's managers realized that their technology could help

✓

Lending Club | 2/6

PERSONALIZATION	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY ✓

LiveOps | 3/6

PERSONALIZATION	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Lyft | 4/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY

M-Pesa | 3/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING

companies predict such failures with high accuracy, potentially saving millions of pounds a year.

More recently, Healx has developed a machine-learning algorithm that can use a patient's biological information not only to match drugs to disease symptoms but also to predict exactly which drug will achieve what level of effectiveness for that particular patient. The latest version of its business model brings *personalization* to the maximum possible level and adds *agility,* because the treating clinician—armed with the biological data and the algorithm—can make better treatment decisions directly with the patient and doesn't have to rely on fixed rules of thumb about which of the few available off-label drugs to use. In this way, Healx is able to support decentralized, real-time, accurate decision making.

This version of the Healx model has even more transformation potential—it exhibits four of the six features; it has already generated revenue from customers; and in the long term it could empower patients by giving them much more information before they consult a medical practitioner. Although it is still too early to tell whether that potential will be realized, Healx is clearly a venture to watch. It has earned a number of prizes (including the 2015 Life Science

COLLABORATIVE ECOSYSTEM ✓	AGILITY

Medicast | 3/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Natura | 2/6

PERSONALIZATION	**CLOSED LOOP** ✓
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY

NIKEiD | 2/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM	**AGILITY** ✓

Philips (pay per lux) | 4/6

PERSONALIZATION	**CLOSED LOOP** ✓
ASSET SHARING ✓	**USAGE-BASED PRICING** ✓

Business of the Year and the 2016 Graduate Business of the Year in the Cambridge cluster) and sizable investments from several global funds.

You cannot guarantee the success of an innovation (unless you choose a market niche so small as to be insignificant). But you can load the dice by ensuring that your business model links market needs with emerging technologies. The more such links you can make, the more likely you are to transform your industry.

A version of this article appeared in the October 2016 issue (pp.90–98) of *Harvard Business Review*.

COLLABORATIVE ECOSYSTEM ✓	AGILITY

Ricoh (pay per page) | 3/6

PERSONALIZATION	CLOSED LOOP ✓
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Rolls-Royce (Power-by-the-Hour) | 4/6

PERSONALIZATION	CLOSED LOOP ✓
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Ryanair | 3/6

PERSONALIZATION	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Salesforce.com | 3/6

PERSONALIZATION ✓	CLOSED LOOP

ASSET SHARING ✓	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY

Shyp (shipping services) | 3/6

PERSONALIZATION ✓	CLOSED LOOP ✓
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY

TaskRabbit | 2/6

PERSONALIZATION	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY

Tencent QQ | 3/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM ✓	AGILITY

Uber | 5/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
✓	✓
COLLABORATIVE ECOSYSTEM	AGILITY
✓	✓

Udacity | 2/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM	AGILITY
✓	

Washio | 3/6

PERSONALIZATION	CLOSED LOOP
✓	
ASSET SHARING	USAGE-BASED PRICING
✓	✓
COLLABORATIVE ECOSYSTEM	AGILITY

Wayfair (Home Store) | 3/6

PERSONALIZATION	CLOSED LOOP
	✓
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM	AGILITY
✓	✓

Xerox | 2/6

PERSONALIZATION	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY ✓

Zara | 3/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING	USAGE-BASED PRICING
COLLABORATIVE ECOSYSTEM ✓	AGILITY ✓

Zipcar | 4/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY ✓

Zopa | 4/6

PERSONALIZATION ✓	CLOSED LOOP
ASSET SHARING ✓	USAGE-BASED PRICING ✓
COLLABORATIVE ECOSYSTEM	AGILITY ✓

FROM "THE TRANSFORMATIVE BUSINESS MODEL," OCTOBER 2016

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This article is about STRATEGY

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Carl Scooby 5 months ago

Great article. I really wish you had elaborated on what your complex match chart meant, how you came up with it, and what are some examples of closed-loop success practices. (The term is referenced exactly once in the article).

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