SESSION 3 – VALUE CREATION WITH IS

2020-2021

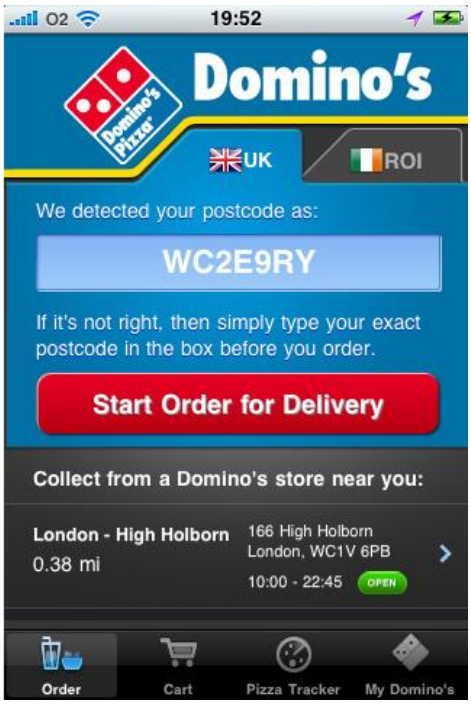
In this file, you will find the 1) a mini-case, 2) the articles to analyse.

Be ready to share your work during the discussion session. You may support your analysis by preparing a slide, a word document, visuals, or a short text. The choice is yours, but be sure to put your own original thoughts. If you want, you can refer to a document you found online as long as you also provide your own interpretation. In that case, please properly reference the source!

1. MINI-CASE: SMATWATCH ORDERING AT DOMINO'S

On Thursday, April 23, 2015, *Mike Lawton CFO* of Domino's, the international pizza delivery chain, was announcing another positive quarter and "fantastic same store sales in both our domestic and international businesses "[1] The tone was enthusiastic. Domino's was outperforming competitors and growing its market share. There were many reasons for this success, but Patrick Doyle CEO, President and Director of Domino's Pizza, Inc. was absolutely clear. The "catalysts" of their continued positive performance were their business strength and brand equity. He firmly believed that Domino's technology and innovation leaderships were central in evolving the brand through a revolutionary customer experience. The results seemed to prove him right. 50% of domestic U.S. sales were generated via digital ordering channels.

The role of online ordering, and innovation has always been central Domino's strategy. Doyle already said that he believed digital ordering offered by major pizza chains would help take away business from independent and smaller regional players, fostering growth. Domino's stuck to its words. The company was first in introducing their iPhone app for the UK market in September 2010.



The iPhone app automatically detected the Domino's location closest to the customer (Figure 1). Once logged into the application they could either select from the standard menu or from an available list of specials from the chosen location.

Figure 2. Customers have playful ways to choose their toppings

They could also request a custom order by selecting pie size, crust type, toppings (Figure 8.2) and any other possible personalization (e.g., extra sauce).

One of the advantages of the iPhone ordering application is that it did not require the customer to talk to a restaurant employee on duty. As a consequence the app enabled customers to place orders, even during store closing times, and schedule delivery for a specific date/ time.

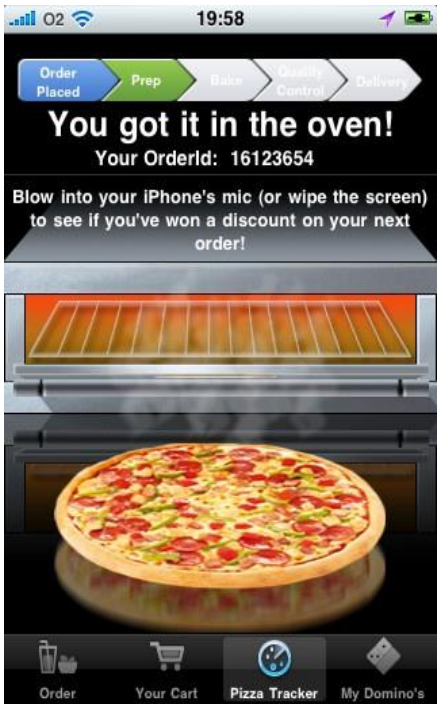


Figure 3. Domino's order tracking feature

Upon completing their order, customers would pay and then could track the progress of their pizza up to the delivery stage, through the preparation, backing, and quality assurance steps (Figure 3).

The app was later improved and made seamlessly available on Android platform. In October 2014, Domino's included an additional voice ordering feature. Similar to Apple's Siri, Microsoft's Cortana or Google Now "Dom" takes orders, suggests additions and guides customers through the purchasing process (Figure 4).

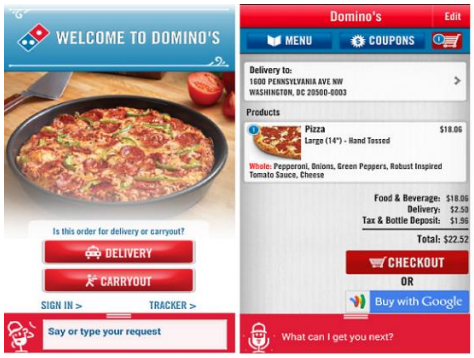


Figure 4. Domino's new interface and "Dom" integration

As Dennis Maloney, head of multimedia marketing said "He's fun, but very focused on the pizza ordering experience."[2]

In 2015 Domino's extended their mobile application to support Peeble and Android Wear smartwatches to ease even more the ordering process and monitor its progress. Their strategy was clear; the company was aiming at being ubiquitous in customers' regards "We are constantly looking for ways to use technology to enhance our customers' experience and provide them with more convenience." - Kevin Vasconi, Domino's Pizza Chief Information Officer.

Discussion Questions

1. Do you believe that Domino's smartwatch ordering is an example of an IT-dependent strategic initiative? Explain.
2. Do you believe that this initiative has the potential to create added value? Explain how you define added-value and justify your answer.
3. Do you believe that the Domino's smartwatch ordering initiative improves customer service? How?

2. NEWS ANALYSIS – IS AND INNOVATION

In this corpus, you will find a series of texts describing ways IS can lead to innovation, value creation or competitive advantage. Have a look at the powerpoint and key definitions to be clear on the use of these words and dive in! Text 1 talks about how one can use data to create competitive advantage. Text 2 shows how Domino's pizza has historically been launching digital innovations – think of whether these seem to generate competitive advantage! (If you love pizza so much, you can also have a look at the case study of this session!). As you will have seen in the class material, there can be disruptive or sustaining innovation: text 3 explains what a disruption is! Texts 4 and 5 describe combinatorial innovation, which is the must to know according to Gartner to succeed in the new digital era!

As you read, analyse how/why/in which conditions IS can be used to create value. You can come up with your own examples to illustrate the texts too!

Remember, you are free to look for additional resources!

TEXT 1- HOW DATA CAPITAL CREATES COMPETITIVE ADVANTAGE

MIT Technology Review Insights and Oracle (2016, May 3). How data capital creates competitive advantage. *MIT Techncology Review*

Data-capital tools are available to established companies and startups alike. The real trick: Determining which business activities generate the most valuable data.

Competitive strategy means creating unique value in a unique way, economist Michael Porter, Bishop William Lawrence University Professor at Harvard Business School, has said. It's not enough to provide products or services that your customers can only get from your company. Your company also has to create those offerings in a way your rivals can't easily copy.

In his classic 1996 *Harvard Business Review* article "What Is Strategy?," Porter described this hard-to-copy way of creating value as a company's "activity system." Activities are the processes a company carries out every day—the way it runs marketing campaigns, designs products, bundles offerings, provides support, manages risk, and protects patents. Every activity uses a combination of financial, skill-related, technology, information, or process resources.

Because information is the only resource both used and produced by every activity in a company, the digitization and datafication of more and more daily activities has a big impact on competitive strategy.

The Rise of Data Capital

The good news for incumbents: The tools of data capital are available to all companies, not just to startups. In fact, enterprises have a distinct advantage in amassing stocks of data capital because of the volume of their interactions with customers, suppliers, and partners. Three principles show how to exploit this advantage:

- Principle #1: Data comes from activity.
- Principle #2: Data tends to make more data.
- Principle #3: Platforms tend to win.

The Data-Activity Connection

To drill down into Principle #1: From a data-production perspective, activities are like lands waiting to be discovered. Whoever gets there first and holds them gets their resources—in this case, their data riches. But not all that glitters is data gold; some activities are more valuable than others.

It's imperative to digitize key activities before the competition does. The reason: If you're not party to an activity when it happens, your chance to capture its data is lost forever.

All activities produce information, but they don't produce digital data unless they involve an application, device, or sensor. Companies that have been able to see and pursue this foregone data—the information rising off activities, places, and things like so much evaporating steam—have profited greatly from it. When Google deployed fleets of cars onto the world's roads to capture imagery, distances, and wireless network IDs, and to associate all that information with GPS coordinates, few understood that the cars were amassing data capital that could be used to create search, navigation, and ad-placement services. Utilities installing smart meters, brokerages creating mobile advisory apps, travel sites recording all the offers visitors *don't* click on—all of these are colonizing new data lands.

It's difficult to know which activities will yield the most valuable data. The answer will vary from industry to industry and company to company. Naturally, a company should focus on activities that reinforce its competitive advantage, the things that make it unique. However, to make educated guesses, a company should look first to its biggest revenue and cost drivers, especially where it interacts with the outside world. Interactions with customers, suppliers, and partners are particularly crucial because rivals are probably looking at them, too. It's imperative to digitize these activities before the competition does.

The reason: If you're not party to an activity when it happens, your chance to capture its data is lost forever.

For example, the Australian supermarket chain Coles is experimenting with a palm-sized kitchen device for making grocery lists. Scan a barcode or just tell it you want milk, and it adds the item to an online list. Through the device, Coles can gather data not just about the items customers want, but also about how and when customers make their shopping lists, opening new possibilities for targeted ads and improved service.

Digitizing activities means involving sensors or mobile apps in the activities in some way. *Datafying* activities means expanding the observations you capture about them. "Datification"—a term introduced by Kenneth Cukier and Viktor Mayer-Schönberger in *Big Data: A Revolution That Will Transform How We Live, Work, and Think* (Eamon Dolan/Mariner Books, 2014)—runs contrary to data-management orthodoxy, which tries to settle on the minimum dataset necessary.

For instance, an airplane manufacturer captures tens of millions of data points from every test flight of its latest passenger plane. Engineers use this data to speed up the delivery of safe planes, but what else will they do with all those observations of such a variety of flight characteristics? Not even the manufacturer knows yet. But the option value on potential uses of that data is likely greater than the cost to capture, store, and experiment with it.

TEXT 2- DOMINO'S WILL NOT REST UNTIL IT FIGURES OUT EVERY POSSIBLE WAY TO IMPROVE PIZZA DELIVERY

Beer, J. (2019, February 19). Domino's will not rest until it figures out every possible way to improve pizza delivery. *Fast Company*

Domino's 45-year history of picking up the pace in pizza ordering and delivery innovation

Last year, Domino's tallied more than 60% of its U.S. sales via digital orders, achieved its 30th straight quarter of same-store sales growth, and saw its stock rise 22% in a tumultuous market. These milestones were driven by the company's efforts to get its pies into people's hands as quickly as possible, including geofencing public parks to enable outdoor delivery and challenging cities to improve their roads in a cheeky, faux-PSA campaign. "The Grubhubs and Uber Eats of the world will [challenge] us," says Art D'Elia, Domino's chief brand and innovation officer. "We need to keep pushing ourselves to maintain our advantage." Here's a look at the company's 45-year history of deploying product, tech, and marketing to pioneer advances in ordering and delivery.

1973, THE 30-MINUTE GUARANTEE

The promise that customers would get their pizza within 30 minutes of ordering (or it's free) finally ends in 1993 in the U.S., thanks to delivery runs that began to resemble a Fast & Furious prequel. But it did establish the brand's commitment to speed.

2008, THE PIZZA TRACKER

Domino's introduces the online real-time progress bar to answer the age-old question: "Hey man, when's the pizza gonna be here?" "Consumers love the transparency it provides," says D'Elia. "We're continuously looking for ways to bring new benefits to the tracker."

JUNE 2014, STEADY PIZZA

Ever get a pie where all the toppings have slid to one side? In Brazil, Domino's creates a storage box containing a gyroscope that keeps a pizza even-keeled while strapped to a motorbike rider's back. Alas, it's just a short-lived marketing stunt.

OCTOBER 2014, VOICE ORDERING

Dom, a Siri-esque voice assistant built to talk you through your order, is officially rolled out in Domino's mobile app. "It allows our employees to focus on making pizzas instead of spending time on the phone," says D'Elia.

MAY 2015, DOMINO'S ANYWARE

This tech platform brings ordering into the 21st century, transforming any two-way communicator into a pizza-summoning machine. AnyWare enables customers to order via texting a pizza emoji, messaging Twitter or Facebook Messenger, or using a smartwatch or speaker.

OCTOBER 2015, DOMINO'S DXP

The pizza chain outfits a customized Chevrolet Spark with a 140-degree warming oven that can carry up to 80 pizzas. Today, about 100 DXPs are deployed in Detroit, Boston, San Diego, Houston, New Orleans, and Seattle.

2016, SELF-DRIVING DELIVERY

Domino's rolls out experimental self-driving robots in a few German and Dutch cities, and it teams with Ford to test autonomous-vehicle delivery in Miami and its hometown of Ann Arbor, Michigan. "The biggest challenge with autonomous vehicles," says D'Elia, "is that last 50 feet."

APRIL 2018, HOT SPOTS

Domino's, with the help of nearly 800 franchisees and thousands of delivery drivers, incorporates geofencing into its digital ordering process, which means that it can bring pizza to more than 200,000 outdoor locations, such as your favorite park bench.

JUNE 2018, "PAVING FOR PIZZA"

The company asks Americans to nominate their town for pothole repairs, because smoother roads mean safer pizza. In what might be the first brand success that's also a scathing indictment of infrastructure funding, users submit more than 137,000 requests. Domino's paves one community in each state.

SEPTEMBER 2018, DINNER BELL

The Pizza Tracker now lets people create groups in the Domino's app to share their Pizza Tracker alerts with friends and family. What a time to be alive.

TEXT 3- WHAT IS DISRUPTIVE INNOVATION? (EXCERPT)

Christensen, C.M; Raynor, M.E; McDonald, R. (2015). What is Disruptive Innovation?. *Harvard Business Review*, pp.44-53

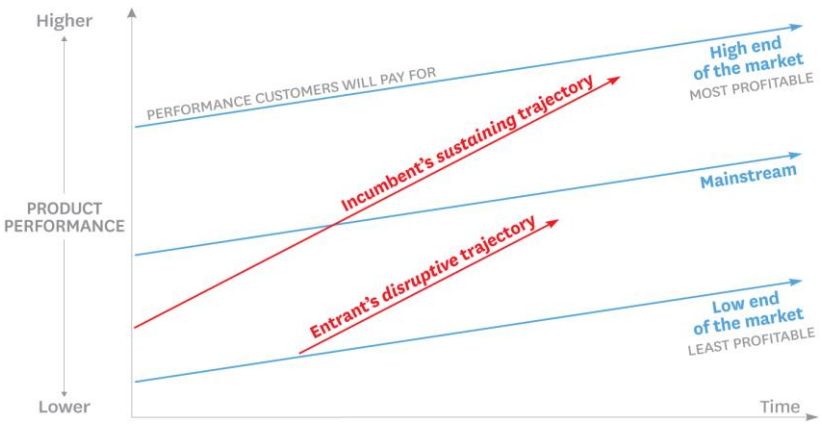
(…) There's another troubling concern: In our experience, too many people who speak of "disruption" have not read a serious book or article on the subject. Too frequently, they use the term loosely to invoke the concept of innovation in support of whatever it is they wish to do. Many researchers, writers, and consultants use "disruptive innovation" to describe *any* situation in which an industry is shaken up and previously successful incumbents stumble. But that's much too broad a usage.

The problem with conflating a disruptive innovation with any breakthrough that changes an industry's competitive patterns is that different types of innovation require different strategic approaches. To put it another way, the lessons we've learned about succeeding as a disruptive innovator (or defending against a disruptive challenger) will not apply to every company in a shifting market. If we get sloppy with our labels or fail to integrate insights from subsequent research and experience into the original theory, then managers may end up using the wrong tools for their context, reducing their chances of success. Over time, the theory's usefulness will be undermined.

This article is part of an effort to capture the state of the art. We begin by exploring the basic tenets of disruptive innovation and examining whether they apply to Uber. (…)

The Disruptive Innovation Model

This diagram contrasts *product performance trajectories* (the red lines showing how products or services improve over time) with *customer demand trajectories* (the blue lines showing customers' willingness to pay for performance). As incumbent companies introduce higher-quality products or services (upper red line) to satisfy the high end of the market (where profitability is highest), they overshoot the needs of low-end customers and many mainstream customers. This leaves an opening for entrants to find footholds in the less-profitable segments that incumbents are neglecting. Entrants on a disruptive trajectory (lower red line) improve the performance of their offerings and move upmarket (where profitability is highest for them, too) and challenge the dominance of the incumbents.



SOURCE CLAYTON M. CHRISTENSEN, MICHAEL RAYNOR, AND RORY MCDONALD
FROM "WHAT IS DISRUPTIVE INNOVATION?" DECEMBER 2015

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First, a quick recap of the idea: "Disruption" describes a process whereby a smaller company with fewer resources is able to successfully challenge established incumbent businesses. Specifically, as incumbents focus on improving their products and services for their most demanding (and usually most profitable) customers, they exceed the needs of some segments and ignore the needs of others. Entrants that prove disruptive begin by successfully targeting those overlooked segments, gaining a foothold by delivering more-suitable functionality—frequently at a lower price. Incumbents, chasing higher profitability in more-demanding segments, tend not to respond vigorously. Entrants then move upmarket, delivering the performance that incumbents' mainstream customers require, while preserving the advantages that drove their early success. When mainstream customers start adopting the entrants' offerings in volume, disruption has occurred.

Is Uber a Disruptive Innovation?

Let's consider Uber, the much-feted transportation company whose mobile application connects consumers who need rides with drivers who are willing to provide them. Founded in 2009, the company has enjoyed fantastic growth (it operates in hundreds of cities in 60 countries and is still expanding). It has reported tremendous financial success (the most recent funding round implies an enterprise value in the vicinity of $50 billion). And it has spawned a slew of imitators (other start-ups are trying to emulate its "market-making" business model). Uber is clearly transforming the taxi business in the United States. But is it *disrupting* the taxi business?

According to the theory, the answer is no. Uber's financial and strategic achievements do not qualify the company as genuinely disruptive—although the company is almost always described that way. Here are two reasons why the label doesn't fit.

Disruptive innovations originate in low-end or new-market footholds.

Disruptive innovations are made possible because they get started in two types of markets that incumbents overlook. *Low-end footholds* exist because incumbents typically try to provide their most profitable and demanding customers with ever-improving products and services, and they pay less attention to less-demanding customers. In fact, incumbents' offerings often overshoot the performance requirements of the latter. This opens the door to a disrupter focused (at first) on providing those low-end customers with a "good enough" product.

In the case of *new-market footholds*, disrupters create a market where none existed. Put simply, they find a way to turn nonconsumers into consumers. For example, in the early days of photocopying technology, Xerox targeted large corporations and charged high prices in order to provide the performance that those customers required. School librarians, bowling-league operators, and other small customers, priced out of the market, made do with carbon paper or mimeograph machines. Then in the late 1970s, new challengers introduced personal copiers, offering an affordable solution to individuals and small organizations—and a new market was created. From this relatively modest beginning, personal photocopier makers gradually built a major position in the mainstream photocopier market that Xerox valued.

A disruptive innovation, by definition, starts from one of those two footholds. But Uber did not originate in either one. It is difficult to claim that the company found a low-end opportunity: That would have meant taxi service providers had overshot the needs of a material number of customers by making cabs too plentiful, too easy to use, and too clean. Neither did Uber primarily target nonconsumers—people who found the existing alternatives so expensive or inconvenient that they took public transit or drove themselves instead: Uber was launched in San Francisco (a well-served taxi market), and Uber's customers were generally people already in the habit of hiring rides.

Uber has quite arguably been increasing total demand—that's what happens when you develop a better, less-expensive solution to a widespread customer need. But disrupters *start* by appealing to low-end or unserved consumers and then migrate to the mainstream market. Uber has gone in exactly the opposite direction: building a position in the mainstream market first and subsequently appealing to historically overlooked segments.

Disruptive innovations don't catch on with mainstream customers until quality catches up to their standards.

Disruption theory differentiates disruptive innovations from what are called "sustaining innovations." The latter make good products better in the eyes of an incumbent's existing customers: the fifth blade in a razor,

the clearer TV picture, better mobile phone reception. These improvements can be incremental advances or major breakthroughs, but they all enable firms to sell more products to their most profitable customers.

Disruptive innovations, on the other hand, are initially considered inferior by most of an incumbent's customers. Typically, customers are not willing to switch to the new offering merely because it is less expensive. Instead, they wait until its quality rises enough to satisfy them. Once that's happened, they adopt the new product and happily accept its lower price. (This is how disruption drives prices down in a market.)

Most of the elements of Uber's strategy seem to be sustaining innovations. Uber's service has rarely been described as inferior to existing taxis; in fact, many would say it is *better*. Booking a ride requires just a few taps on a smartphone; payment is cashless and convenient; and passengers can rate their rides afterward, which helps ensure high standards. Furthermore, Uber delivers service reliably and punctually, and its pricing is usually competitive with (or lower than) that of established taxi services. And as is typical when incumbents face threats from sustaining innovations, many of the taxi companies are motivated to respond. They are deploying competitive technologies, such as hailing apps, and contesting the legality of some of Uber's services.

Why Getting It Right Matters

Readers may still be wondering, Why does it matter what words we use to describe Uber? The company has certainly thrown the taxi industry into disarray: Isn't that "disruptive" enough? No. Applying the theory correctly is essential to realizing its benefits. For example, small competitors that nibble away at the periphery of your business very likely should be ignored—unless they are on a disruptive trajectory, in which case they are a potentially mortal threat. And both of these challenges are fundamentally different from efforts by competitors to woo your bread-and-butter customers.

As the example of Uber shows, identifying true disruptive innovation is tricky. Yet even executives with a good understanding of disruption theory tend to forget some of its subtler aspects when making strategic decisions. We've observed four important points that get overlooked or misunderstood:

1. Disruption is a process.

The term "disruptive innovation" is misleading when it is used to refer to a product or service at one fixed point, rather than to the evolution of that product or service over time. The first minicomputers were disruptive not merely because they were low-end upstarts when they appeared on the scene, nor because they were later heralded as superior to mainframes in many markets; they were disruptive by virtue of the path they followed from the fringe to the mainstream.

Most every innovation—disruptive or not—begins life as a small-scale experiment. Disrupters tend to focus on getting the business model, rather than merely the product, just right. When they succeed, their movement from the fringe (the low end of the market or a new market) to the mainstream erodes first the incumbents' market share and then their profitability. This process can take time, and incumbents can get quite creative in the defense of their established franchises. For example, more than 50 years after the first discount department store was opened, mainstream retail companies still operate their traditional department-store formats. Complete substitution, if it comes at all, may take decades, because the incremental profit from staying with the old model for one more year trumps proposals to write off the assets in one stroke.

The fact that disruption can take time helps to explain why incumbents frequently overlook disrupters. For example, when Netflix launched, in 1997, its initial service wasn't appealing to most of Blockbuster's customers, who rented movies (typically new releases) on impulse. Netflix had an exclusively online interface and a large inventory of movies, but delivery through the U.S. mail meant selections took several days to arrive. The service appealed to only a few customer groups—movie buffs who didn't care about new releases, early adopters of DVD players, and online shoppers. If Netflix had not eventually begun to serve a broader segment of the market, Blockbuster's decision to ignore this competitor would not have been a strategic blunder: The two companies filled very different needs for their (different) customers.

Because disruption can take time, incumbents frequently overlook disrupters.

However, as new technologies allowed Netflix to shift to streaming video over the internet, the company did eventually become appealing to Blockbuster's core customers, offering a wider selection of content with an all-you-can-watch, on-demand, low-price, high-quality, highly convenient approach. And it got there via a classically disruptive path. If Netflix (like Uber) had begun by launching a service targeted at a larger competitor's core market, Blockbuster's response would very likely have been a vigorous and perhaps successful counterattack. But failing to respond effectively to the trajectory that Netflix was on led Blockbuster to collapse.

2. Disrupters often build business models that are very different from those of incumbents.

Consider the health care industry. General practitioners operating out of their offices often rely on their years of experience and on test results to interpret patients' symptoms, make diagnoses, and prescribe treatment. We call this a "solution shop" business model. In contrast, a number of convenient care clinics are taking a disruptive path by using what we call a "process" business model: They follow standardized protocols to diagnose and treat a small but increasing number of disorders.

ne high-profile example of using an innovative business model to effect a disruption is Apple's iPhone. The product that Apple debuted in 2007 was a sustaining innovation in the smartphone market: It targeted

the same customers coveted by incumbents, and its initial success is likely explained by product superiority. The iPhone's subsequent growth is better explained by disruption—not of other smartphones but of the laptop as the primary access point to the internet. This was achieved not merely through product improvements but also through the introduction of a new business model. By building a facilitated network connecting application developers with phone users, Apple changed the game. The iPhone created a new market for internet access and eventually was able to challenge laptops as mainstream users' device of choice for going online.

3. Some disruptive innovations succeed; some don't.

A third common mistake is to focus on the results achieved—to claim that a company is disruptive by virtue of its success. But success is not built into the definition of disruption: Not every disruptive path leads to a triumph, and not every triumphant newcomer follows a disruptive path.

For example, any number of internet-based retailers pursued disruptive paths in the late 1990s, but only a small number prospered. The failures are not evidence of the deficiencies of disruption theory; they are simply boundary markers for the theory's application. The theory says very little about how to win in the foothold market, other than to play the odds and avoid head-on competition with better-resourced incumbents.

If we call every business success a "disruption," then companies that rise to the top in very different ways will be seen as sources of insight into a common strategy for succeeding. This creates a danger: Managers may mix and match behaviors that are very likely inconsistent with one another and thus unlikely to yield the hoped-for result. For example, both Uber and Apple's iPhone owe their success to a platform-based model: Uber digitally connects riders with drivers; the iPhone connects app developers with phone users. But Uber, true to its nature as a sustaining innovation, has focused on expanding its network and functionality in ways that make it better than traditional taxis. Apple, on the other hand, has followed a disruptive path by building its ecosystem of app developers so as to make the iPhone more like a personal computer.

4. The mantra "Disrupt or be disrupted" can misguide us.

Incumbent companies do need to respond to disruption if it's occurring, but they should not overreact by dismantling a still-profitable business. Instead, they should continue to strengthen relationships with core customers by investing in sustaining innovations. In addition, they can create a new division focused solely on the growth opportunities that arise from the disruption. Our research suggests that the success of this new enterprise depends in large part on keeping it separate from the core business. That means that for some time, incumbents will find themselves managing two very different operations.

Of course, as the disruptive stand-alone business grows, it may eventually steal customers from the core. But corporate leaders should not try to solve this problem before it *is* a problem.

What a Disruptive Innovation Lens Can Reveal

It is rare that a technology or product is inherently sustaining or disruptive. And when new technology is developed, disruption theory does not dictate what managers should do. Instead it helps them make a strategic choice between taking a sustaining path and taking a disruptive one.

The theory of disruption predicts that when an entrant tackles incumbent competitors head-on, offering better products or services, the incumbents will accelerate their innovations to defend their business. Either they will beat back the entrant by offering even better services or products at comparable prices, or one of them will acquire the entrant. The data supports the theory's prediction that entrants pursuing a sustaining strategy for a stand-alone business will face steep odds: In Christensen's seminal study of the disk drive industry, only 6% of sustaining entrants managed to succeed.

When new technology arises, disruption theory can guide strategic choices.

Uber's strong performance therefore warrants explanation. According to disruption theory, Uber is an outlier, and we do not have a universal way to account for such atypical outcomes. In Uber's case, we believe that the regulated nature of the taxi business is a large part of the answer. Market entry and prices are closely controlled in many jurisdictions. Consequently, taxi companies have rarely innovated. Individual drivers have few ways to innovate, except to defect to Uber. So Uber is in a unique situation relative to taxis: It can offer better quality and the competition will find it hard to respond, at least in the short term.

To this point, we've addressed only whether or not Uber is disruptive to the taxi business. The limousine or "black car" business is a different story, and here Uber is far more likely to be on a disruptive path. The company's UberSELECT option provides more-luxurious cars and is typically more expensive than its standard service—but typically less expensive than hiring a traditional limousine. This lower price imposes some compromises, as UberSELECT currently does not include one defining feature of the leading incumbents in this market: acceptance of advance reservations. Consequently, this offering from Uber appeals to the low end of the limousine service market: customers willing to sacrifice a measure of convenience for monetary savings. Should Uber find ways to match or exceed incumbents' performance levels without compromising its cost and price advantage, the company appears to be well positioned to move into the mainstream of the limo business—and it will have done so in classically disruptive fashion.

(…)

TEXT 4- COMBINATORIAL INNOVATION

Yildizn M. (2020, March). Combinatorial innovation. *Medium*

How combinatorial innovation can augment current business capabilities for new insights in the digital world

In this article, I want to introduce the concept of combinatorial innovation with examples, the reasons for growing focus in digitally transforming business organizations, and the primary business use cases.

Combinatorial innovation is rapidly developing and receiving attention in many transformational business organizations and startup companies. Business executives and entrepreneurs embrace this concept. Some advocates even call this the age of "combinatorial innovation" and propose it to address societal challenges.

What is combinatorial innovation?

Combinatorial innovation is an industry term. In a nutshell, combinatorial innovation refers to use of multiple technology functions, rather than a single technology stack, and creating new business capabilities by intelligently and creatively integrating them. The key premise of combinatorial innovation is bespoke integration of technology functions.

Combinatorial innovation is partially related to the invention process. The difference between pure invention and combinatorial innovation is about the approach to the final product or services. To add clarity, let me explain the difference from end product or service requirements perspective.

In the invention process, the novelty prevails. The idea of the invention must be original. For example, the final product of an invention is a patent. The legal claims must be original and non-disclosed items. The patent can be considered as the first of a kind usable technology, tool, process, or a method.

For the combinatorial innovation, the new product or service can consist of multiple old ideas. The end result is combining these proven ideas in a creative, functional, practical, and agile way to address pre-determined use cases.

From a conceptual perspective, a prime example for combinatorial innovation is a smartphone. A smartphone itself is not an invention. It is made up of multiple inventions including previously invented

technology components such as central processors, memory, communications, navigation, messaging, applications, transistors, the Internet technologies and so on.

The focus of combinatorial innovation is - rather than creating new technology stacks, tools, processes, and methods - combining the current best of the approaches for specific business functions, and creating new business capabilities for customer and market demands.

Business Purpose & Use Cases of Combinatorial Innovation

The business purpose of combinatorial innovation is to gain business advantage using multiple emerging technologies and integrating them to solve business problems in an agile way.

Agile is one of the attributes to distinguish traditional invention and combinatorial innovation. The invention process is time consuming hence not ideal to meet the urgent market demands. Whereas in combinatorial innovation practice the timeframes can be shortened dramatically.

One of the prominent enabling technology for combinatorial innovation for digital transformation is use of APIs (Application Programming Interface). By using APIs and agile development methods, talented software development teams can integrate multiple services easily in a single user application as a customer solution in a very short time, such as a few days. Meeting this type of demand by using classical invention and innovation methods can take months or even years depending on the complexity of solution requirements and use cases.

Combinatorial innovation is vital for digital strategy of products and services for modernising and transforming business organisation. Transforming business organisations leverage emerging technology stacks to create the underlying support platforms by using various Cloud Computing service delivery models. They leverage IoT (Internet of Things) to collect data from objects. They use the Big Data Analytics, machine learning, and natural language processing techniques to gain insights from data coming from smart objects.

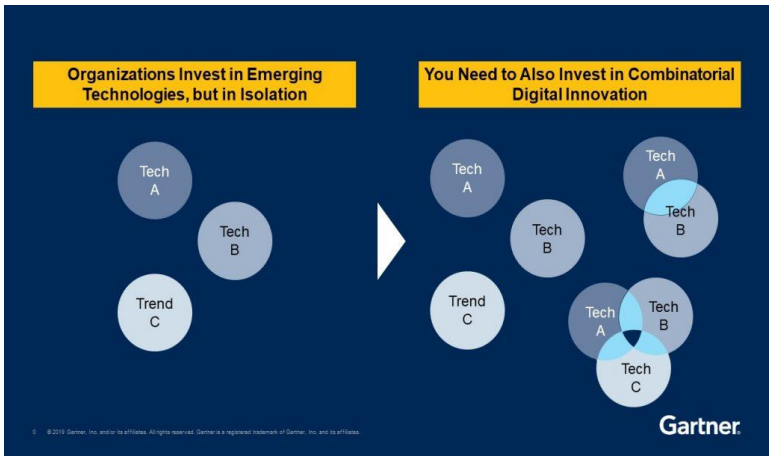
They use artificial intelligence, cognitive computing, virtual and augmented reality technologies to add remarkable intelligence to products and services to make them appealing to consumers. (…) There is a remarkable progress to include the combinatorial innovation in the digital transformation strategy. Industry trends are optimistic in the growth of combinatorial innovation in digital space. For example, the Gartner informs that *combinatorial digital innovation will become vital to take the most of digital in the next decade*.

The critical success factors for combinatorial innovation are **diversity, fusion, technical excellence, and innovative collaboration.**

TEXT 5- Combinatorial Digital Innovation Will Become Vital To Make the Most of Digital In the Next Decade (excerpt)

Kandaswamy, R. (2019, November). Combinatorial Digital Innovation Will Become Vital To Make the Most of Digital In the Next Decade. Blogs.gartner

Digital is more than an overarching phenomenon that transforms the economic and social fabric of society. It also forms the underlying foundation for new technologies to emerge and flourish – technologies that assume a digital societal infrastructure for the technology to be useful and fulfill its potential. This infrastructure combines digital data, ubiquitous connectivity, inexpensive computing, and ample storage to provide a rich framework for technologies to emerge. Further, since technologies are built on prior ones, a larger bin of available technologies will only accelerate the emergence of more technologies. In this case, since digital technologies work on a common foundation and a set of common principles, we can expect technologies that are born with the capability to work easily with its other new digital technology siblings. We already see emerging technologies that all thrive on digital emerge and grow at the same time – blockchain and AI are cases in point.



In such a world of numerous emerging technologies that feed off each other, isolated investments in specific technologies will not maximize their potential. Organizations that can combine different emerging technologies and trends to unlock new value will benefit the most. Gartner sees startups that do not have the baggage of the legacy systems and processes combine multiple technologies and trends already.