

# Ambidextrous Innovation

*A literature study on Ambidexterity and Innovation*

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## 1. Introduction

Porter (1998) states: “Competitive advantage grows fundamentally out of value an organization can create for its buyers that exceeds the organizations cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price”. Competitive advantage is important for organizations due to increased competition and fast-changing market forces. With the increasingly volatile and uncertain market environment, most organizations have put their strategic emphasis on how to do new things which places innovation as one of the strategic priorities in the organization.

To flourish in the long run, organizations need to maintain a variety of innovation efforts to drive the growth of productivity for further competitiveness of the organization. In this sense, organizations need to implement ‘innovation ambidexterity’ to maintain long-term competitive advantages. Innovation ambidexterity refers to organizations pursuing both exploratory and exploitative innovation simultaneously (He and Wong, 2004) Although the inherent characteristics of exploratory and exploitative innovations are contradictory, Atuahene-Gima (2005) argues that pursuing both are closely linked to new product performance.

Reflecting the importance, research has focused on identifying the means to enhance ambidexterity. In this pursuit, many researchers have paid attention to a variety of perspectives, but literature on ambidexterity in the light of product strategy and innovation is limited. Especially considering the context of the current digital economy. The critical question on how an organization should balance exploitative and explorative product strategy is difficult to answer. Therefore, I posit the

following research question for this literature review paper:

*What does it mean for an organization to decide when and how to balance different forms of innovation?*

This literature review explores different theories of ambidexterity and innovation and uses logical argumentation to combine theories into a framework. The framework can help organizations to analyze and substantiate how and when an opportunity for innovation arise for their organization.

## 2 Ambidextrous innovation

The concept of “ambidexterity” was introduced in 1976 by Robert Duncan. The research field has grown broader as the phenomenon has been studied in several contexts such as organizational learning, strategy, management, and technological innovation. The term ambidexterity has been used in many ways.

Research on ambidexterity tells us the difficulty to cope with balancing the tension between exploration and exploitation (Tushman & O'Reilly 1996; Raisch & Birkinshaw 2008). This can be explained by the fact that exploration reduces the speed of improvements in organizations, and exploitation makes experimentation less attractive (Levitt & March, 1988). Most organizations tend to focus more on exploitation that largely can be explained by the need for short-term success where the return is positive and predictable. Exploration in contrast, is uncertain and distant and often more ineffective as the pursuit of discontinuous innovation has longer time horizons and more diffuse effects. Exploitation has a tradeoff relation with exploration, as most organizations tend to focus more on one of them. Extant research illustrates this tendency, also called myopia, that organizations

overestimate exploitation and underestimate exploration (Levinthal & March, 1993).

If organizations do not manage to balance the two inherent tensions and overemphasise one of them, they will be insufficient in the long run. Subsequently, exploration and exploitation function as a paradox, “a situation where two seemingly conflicting or mutually exclusive factors seem to be true at the same time” (De Wit, 2017, p.14). Hence, several researchers have stressed the importance of balancing exploration and exploitation to secure both short-term and long-term success (He & Wong, 2004; Andriopoulos & Lewis, 2009; O'Reilly & Tushman, 2013; March, 1991; Teece, Pisano, & Shuen, 1997).

Different arguments on the need for both exploration and exploitation are well accepted. Gupta et al. (2006) argues that exploitation and exploration require fundamentally different architectures and capabilities, and both compete for scarce resources. Exploitation involves refinement and extension of existing knowledge, skills, and technologies, whereas exploration involves the experimentation with new alternatives and acquisition of new knowledge, skills, and technologies (Katila & Ahuja, 2002; March, 1991). Many research focusses on the paradox between the two. Some argues about the different tradeoffs, others about the simultaneous pursuit and integration within an organization.

This paper uses the definition of Birkinshaw, J., Gibson, C., 2004 as they describe ambidexterity as the capacity to simultaneously achieve necessary alignment (exploitation – excellence in daily operations) and adaptability (exploration - referring to the organization's ability to innovate and change in response to the changing demands in the environment). To ensure long-term success, an organization needs to be able to master both adaptability and alignment. Focusing too much on alignment can often make an organization lose long-term vision, while emphasizing adaptability over alignment means building tomorrow's business at the cost of today's.

## 2.1 Innovation

Ambidextrous innovation represents an organization's ability to resolve the paradox by simultaneously balancing both exploration (adaptability) and exploitation (alignment). Although there are differences between the patterns of ambidextrous innovation, both exploratory (adaptability) and exploitative (alignment) innovation are closely linked with new product performance (Atuahene-Gima 2005; Li et al. 2008), so it stands to reason that ambidextrous innovation can help organizations to develop new products and thereby raise their market competitiveness.

Exploratory innovation help organizations to adapt to dynamic market environments, explore opportunities, expand share of market, and facilitate firm growth (March 1991). Exploitative innovation, which is related to incremental change and the improvement of innovative actions (March 1991), denotes technological innovation activities aimed at improving existing product market positions. Exploitative innovation enables organizations to broaden their technological capabilities and existing knowledge and expand existing products for current markets.

Although the inherent characteristics of exploratory and exploitative innovation are contradictory, research indicated that leveraging both types of ambidextrous innovation have a positive impact on the sustainable performance of firms (He and Wong 2004). A high level of exploratory innovation facilitates organizations engagement in exploitative innovation and help organizations in the application of exploitative innovation. Next to that, a high level of exploitative innovation improves organizations effectiveness in exploring developing resources and knowledge to support new products.

In contrast, focusing on only one type of ambidextrous innovation, at the expense of the other, may pose threats to firm performance and growth (March 1991; Gibson and Birkinshaw 2004).

## 2.2 Growth through innovation

Innovation has always been a key driver for growth. To survive and stay competitive, continuous innovation efforts are imperative. Executives from global companies stress the importance of continuous innovation for new products and services for their customers. But 94 percent expressed dissatisfaction with their innovation performance (Christiansen, Hall, Dillon & Duncan, 2016).

As organizations mature over time, growth is often declining as innovation gives way to inertia. To achieve consistent levels of growth throughout an organization's lifetime, organizations must attend to existing businesses while considering areas of growth in the future. Exploration- and exploitation innovation initiatives can be assigned to three strategic horizons. The three horizons framework featured in *The Alchemy of Growth* (Baghai, Coley, White, 1999), provides a structure for organizations to visualize what an ambidextrous organization would look like and helped to prioritize innovation products and services. The horizons address different proximities to the core business regarding business model or technological capabilities – and therefore indirectly with time.

### 2.2.1 Three horizons of innovation

The horizon model helps organizations to manage the varying growth visions and guide conversations by showing innovation plans and the goals for these plans over time.

The horizons of growth strategic objectives can be put in a nutshell: Horizon 1, optimize the core, corresponds to managing the current fiscal-reporting period, optimization of existing business models and technologies and addressing the existing markets with all its short-term concerns, Horizon 2, reshape the core, to onboarding the next generation of high-growth opportunities in the pipeline by acceleration and scaling of new business models and technologies which means adaptation of existing markets, and Horizon 3, create the new core, to incubating the germs of new businesses that will sustain the franchise far into the future which requires discovery and validation of new business models and technologies, shaping of future or new

markets. See in table below some examples of the three-horizon theory.

	Microsoft	Coca-Cola	Amazon	Google
H1	Microsoft was born with the goal of offering Operating Systems	Become a profitable 'Soda' company	Become a profitable online bookstore.	Become a successful Search Engine
H2	Microsoft had to offer new Tools and Solutions, in order to help their users as much as they could	Increase market share as much as possible	Amazon started to diversify their Business (logistic services, web services etc.)	Offering new and successful services (maps, drive etc.)
H3	Offer a complete Microsoft environment with all productivity needs met.	Coca-Cola associated to the deepest and strongest value of all: Happiness.	Improve the profitability in all those new economic activities	Become a "solution environment" where people can solve virtually all their information related problems

Table 1. Three-horizon examples

Where horizon 1 represents the realm exploitation and horizon 3 the domain of exploration-oriented innovation initiatives, horizon 2 is seen as interface between both. The main issues are the integration between exploitation and exploration as well as the exchange of knowledge, capabilities and resources between operational units and exploration unit for mutual benefit. Horizon 2 relies on an ambidextrous organization at the intersection of horizon 1 and 3.

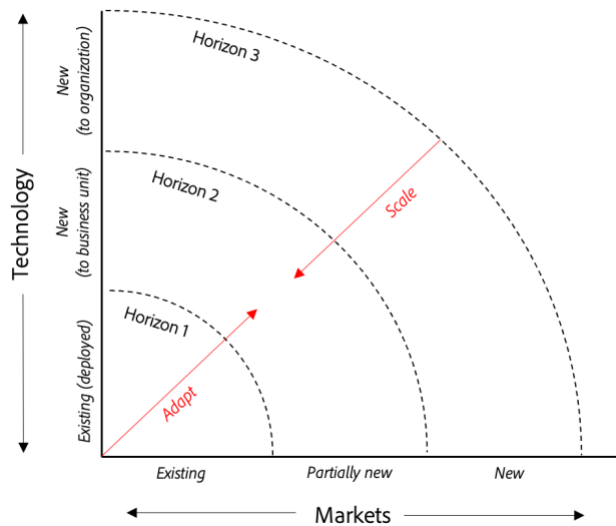


Figure 1. Three horizons of innovation

Horizon 2 is fed from two directions, existing horizon 1 businesses that are to be adapted and extended by partially renewing the existing markets or applying new technological capabilities. And horizon 3 initiatives that have been validated in terms of their success potential and are supposed to be scaled up. Scaling initiatives are intended to either end up as new horizon 1 core businesses (see Amazon example).

Incumbents manage well in Horizon 1 as they figured out how to hit their targets in each fiscal. Many of them also have innovations and experiments going on in Horizon 3 but can't take advantage of them. Why? Because of Horizon 2 and it not being a research and development challenge but rather a Go-To-Market problem due to constraint resources and other priorities from Horizon 1. Moore (2015) introduced the four-zone framework where the time horizon of each is different, as well as their objectives. The differences among zones in terms of investment horizon, performance metrics, and operating cadence are so great that each warrants its own local playbook, with no zone being permitted to impose its local playbook onto any of the other three. At the same time, however, all four zones do need to interoperate with each other fluidly if the overall enterprise is to win its game.

Three of the four zones in the zone framework are defined by outcomes achieved within a given time horizon. The Performance zone is accountable for Horizon 1 outcomes in the current fiscal year. These include product launches and releases of updates and

line extensions and bookings and revenues by quarter and are results-oriented metrics that must be achieved within the pre-established timeframe. The Incubation zone is accountable for Horizon 3 outcomes and are measured by intermediate milestones within the current year such as releasing a minimal viable product or an anchor use case that is both repeatable and in high demand. The aim is a winning dominant share in a target market segment. The Transformation zone is accountable for a singular Horizon 2 outcome. The introduction of a net new product line, a highly disruptive business model, or a radically innovative operating model, something that will require organizations across all four zones to prioritize success here above all other objectives. The success metric is to reach a tipping point within the time horizon's limits. This is the sort of thing that is hard to define, but we know it when we see it.

We can learn a lot from the past two decades in the technology sector, where managing the long-term has a faster cycle time than in other industries. An exemplary example who lost his way during that period is Kodak. Kodak invested for the long term, but the trouble was, Kodak could not bring their long-term investments to fruition. They could not successfully move their businesses from Horizon 3 through Horizon 2 to Horizon 1. It is Horizon 2 that is the point of concern. Horizon 2 is often in a no man's land in the organization. Budgeting, reporting, and management processes all focus on the current fiscal year. Investors forces an even more myopic concentration on the current quarter, which make Horizon 1 takes major claims on time, talent, and management attention. Meanwhile, some managers contemplate their long-range strategic options by drawing on the data of research analysts and the different frameworks to draft multiyear plans and make long-term investments. All this leaves not much time and attention for goals that are neither short of long-term, horizon 2.

Large organizations excel in Horizon 1 and perform effectively in Horizon 3, but they fail when it comes to Horizon 2. This is largely because the market development and organizational management demands of fledgling organizations don't match up with established corporate norms.

Depending on the type of environment an organization or business unit operates in, either Horizon 1, Horizon 2 or Horizon 3 tend to be pronounced. If the environment is highly stable, malleable, and deliberate, opportunities from Horizon 3 will eventually enter Horizon 2. In case the environment is unpredictable and difficult to shape, innovation should be operationally embedded and driven out of the core business towards Horizon 2, where in general experimentation within the existing business is leveraged to adapt to the changing market conditions. When the environment is more in between these two ‘extremes, feeding from both directions should be more in balance.

Traditional analysis suggests that Horizon 3 is about disruptive innovations and Horizon 1 on incremental innovations. In today’s world the horizons do blend more, and Horizon 2 can be seen as an accelerator for both. While the three horizon model addresses how to manage growth, it does not say anything about the timing of innovation. When incremental innovation is appropriate, or when organizations need to accelerate on other forms of innovation. Chapter 2.4 explain how an organization can determine when a certain innovation is needed, the following paragraph will elaborate on the different types of exploratory and exploitative innovation.

### 2.2.2 Four types of innovation

Innovations are analyzed in terms of dichotomies. Incremental and radical (Freeman 1994), disruptive and sustaining (Christensen 1997), non-linear and discontinuous, paradigm-shifting and revolutionary (Thomond & Lettice, 2002). This classification of types of innovation is used to distinguish between new and existing innovations, or small and big dimensions of an innovation. The challenge is that there is no clear delineation. What is disruptive for one organization, is not for another. It depends much on the ‘question that is being asked and the perspective or lens’ which is considered. Literature is not consistent and disagreement among researchers is large.

For this paper, innovation is taken from the lens of the newness factor of product development:

*Product innovativeness is a measure of the potential discontinuity a product can generate in the marketing and/or technological process. From a macro perspective ‘innovativeness’ is a capacity of a new innovation to create a paradigm-shift in the technology and/or market structure in an industry. From a micro perspective. ‘innovativeness’ is the capacity of a new innovation to influence the organizations resources, technological resources, knowledge, capabilities or strategy.*

The following technology-market matrix provides a conceptualization of the underlying transformation processes through innovation and leads to the four squares identified in the figure below. Different technology market matrixes are defined by scholars and business consultancy companies. Putting the different matrixes together and putting this in the context, this research defines the following four types of innovation Incremental Innovation (exploitative), Architectural innovation (explorative), disruptive innovation (explorative) and radical innovation (explorative).

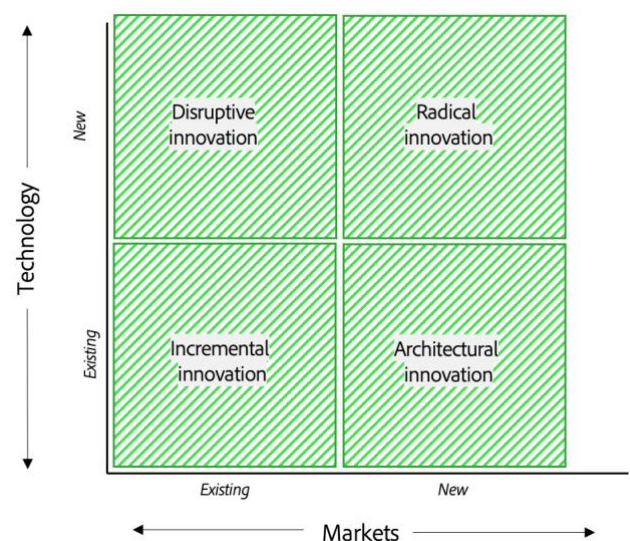


Figure 2. Innovation matrix with incremental, architectural, disruptive, and radical innovation

#### Incremental innovation

Incremental innovation means investing in incremental improvements in either (or both) existing and/or technologies. The incremental path is largely influenced by tight interlinks between competitive actions and is only to a minor extent focused on consumer needs. The activities of the organizations are typically quite reactive, and involve gradual, step-by-step

developments of technology. The development processes are often so subtle and incremental that they are difficult to distinguish in the short term. Studies have shown that the majority of innovations are incremental but contribute less than one-third of total profits. That means organizations cannot sustain their competitiveness by focusing primarily on incremental innovations.

A great example of incremental innovation is the Gillette. Gillette increased the number of blades, now up to six blades, after they had single and double blades for a long time. In this innovation, no new technology is involved.

#### *Architectural innovation*

Architectural innovation occurs when new products use existing technology to create new markets and/or new consumers that did not purchase the product before. Typically, organizations alter the architecture of the product to create a new product that opens sales to new markets.

An example of architectural innovation are copiers from Canon. Canon reconfigured copiers to be small and usable on desktops, creating a whole new market of people buying personal copier/printers while before copiers were expensive and only used in large offices.

#### *Disruptive innovation*

With disruptive innovations, organizations introduce offerings that are so superior and unique that they threaten to replace traditional approaches. Existing markets are disrupted by new technology.

Disruptive innovation involves exploration of the unknown. This type of innovation usually takes a long period of time, experiments, and/or market acceptance. Disruptive innovation may be initiated for the existing market. However, the ultimate purpose of such innovation is to become the first mover in a newly created 'blue ocean market' which provides new values to the customer and generates new profits (Kim & Mauborgne, 2005). Literature is full of disruptive innovation, but notice that there is a huge difference between innovation with same technology or with new technology.

The tablet- and handheld computers disrupted the computer and laptop market due to their versatility and portability. Reading books can be awkward on traditional computers, but user-friendly devices such as the iPad, and Kindle are popular platforms for textbook publishers.

#### *Radical innovation*

Innovation that uses new technology to reach new markets and consumers (or create new markets) is a form of radical innovation. Organizations who are successful with a new product or service using radical innovation may then employ a strategy of incremental innovation to continually improve the product or service and generate more sales. These game-changing or 'new to the world' innovations move organizations into uncharted technological waters. This square is all about uncertainty, ambiguity, and a lack of proper sensemaking. Organizations aiming for radical innovation must break away from existing technological assumptions and normal sensemaking and create new models of how to approach the market while at the same time reinventing existing technological solutions.

The MRI (Magnetic Resonance Imaging) machine are a good example of a radical innovation. The MRI machines use electro-magnetic forces instead of X-rays to produce images of the body. This new technology generated a brand-new market for new diagnostic capabilities.

### 2.3 Determine when to adopt innovation

The three-horizons model as described in the previous chapter is a useful framework to manage growth with innovation. The three-horizon model, however, does not say anything about the timing of the innovation. Organizations can use the S curve of business to determine *when* to adopt innovations. Upon analyzing data from several industries, Fisher (1971) was the first to come up with the concept of the S-curve theory in explaining the dynamics of technological innovations. Despite variations of innovations' evolution, the innovation S-curve is still a very valuable reference model.

The S-shape represents growth over time, starting out slowly, picking up speed during rapid growth, then tapering off as growth slows. Like the S-curve of business, the same mechanism applies for technological innovations. The S-curve forms the centerpiece of thinking about innovation strategy. The theory posits that in the early stages of a technology, the rate of progress in performance will be relatively slow. As the technology becomes better understood, controlled, and diffused, the rate of technological improvement. But in its mature stages, the technology will asymptotically approach a natural or physical limit such that ever-greater periods of time or inputs of engineering effort will be required to achieve improvements.

Scholars have asserted that the essence is to identify when the point of inflection (stalled points) on the present S-curve has been passed, and to identify and develop a successor technology rising from below will eventually supplant the present approach. Inflection points, or stall points, downturns, turning points, are inevitability for organizations that experience growth. Failure to recognize and act on an inflection point can be detrimental to the life cycle of a company. Floundering in the face of an inflection point not only squanders the opportunity to promote strategic developments, but it also fails to resolve a significant need.

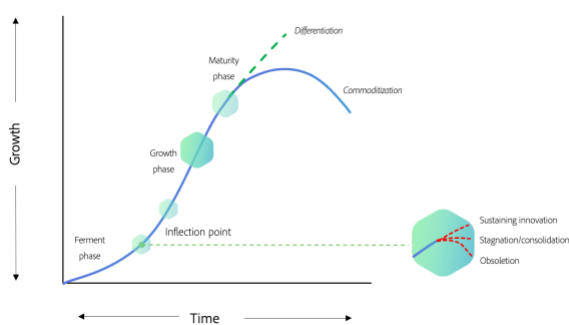


Figure 3. S-curve of business with inflection points

When a technology is first developed, progress is quite slow, and the slope of the S-curve is gradual. After a while, the slope steepens as improved understanding of the market and customers bring rapid progress. Finally, the slope nearly plateaus as technology has been improved and refined so much that progress slows significantly. Some room of growth is still possible when organizations differentiate their offering, but

often when the plateau is reached, the product or technology will move to commonization.

When facing an inflection point, there are three ways an organization can respond. This response determines whether growth returns (sustaining innovation), the business stagnates (consolidation), or losses occur (obsolescence). Successfully navigating the S-curve is difficult to master for any leading innovator, incumbent or start-up because somewhere along the business lifecycle, there will always be someone smarter, more tapped into the current market and more creative than your organization.

When Apple entered the scene in 1984 with their Macintosh computer, it was an invention that completely changed the way people used a computer. And for some time, Apple enjoyed growth that might easily have mistaken for hockey stick growth. But then growth tapered off, and the company began the first of what would be many downward spirals. Apple came back, each time, again and again, and created multiple billion-dollar business units. The iPod wasn't the first portable MP3 player on the scene, but the invention of the iTunes software combined with the scroll wheel transformed the way how people listened to and purchased digital music. The later innovation of the iPod touch and the iPhone paved the way for the App Store, which also paved the way for an entire new industry of app developers. Apple is the poster child for turning inflection (stall) points into strategic activities and choices along the S-curve of business growth.

The difficulty is not so much that it is coming, because organizations have learned from the S-curve that a new one will follow at the end. The problem is that the new innovation that will become the industry standard can come from any direction, meaning above (high performing) and below (disruptive), from incumbents as well as newcomers, and at a fast or slow pace (Cooper & Schendel, 1976). This process is called 'swarming' (Hill & Jones, 2004). This 'swarming' is represented in the figure below.

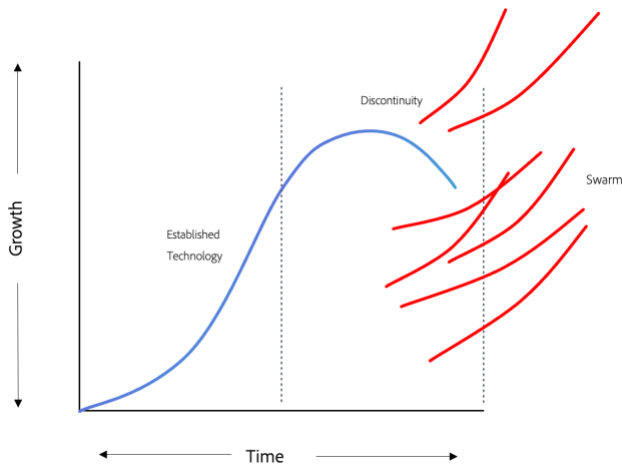


Figure 4. Swarm of successor technologies

The next chapter addresses the process of the technological transition (innovation), also known as the technological paradigm shift. Different models are explained that refers to as ‘revolution’ in technology, the point where a new technology takes over, changing the landscape dramatically. The fact that this process of S-curves succeeding one another will happen is inevitable (Christensen, 1995; Hill & Jones, 2004), but which innovation will take over and when and for which market, that is the million-dollar question.

#### 2.4 How and when to sustain innovation

Each organization strive to be resilient, agile, and ambidextrous (O’Reilly & Tushman, 2013). Organizations strive to build capabilities in such a way that their innovation strategies are congruous with the changing market environment. These organizations attempt to proactively strategize the different and continuous innovation S-curves.

History is full of examples where at each discontinuity, many dominant organizations disappeared due to their thinking that the upcoming technology was too much behind. By the time the reinvention of new technology core becomes comparable in performance and cost – the incumbents of the older S- curves remain far behind. The underlying cause has been the weak understanding of the evolution of innovation as successive S-curves. Despite having enormous technology capabilities, money, and many other resources, they in the end face the ‘Kodak-moment’. On the other hand, this moment is a massive opportunity for new entrants. As already mentioned in the previous chapter, organizations need

to simultaneous pursuit exploitation and exploration to derive value from technology possibilities in advancing the innovations (Cao et al., 2009; Gibson & Birkinshaw, 2004; Jansen et al., 2009; Raisch & Birkinshaw, 2008). At the maturity of S-curve, reinvention creates discontinuity. This gives birth to different forms of innovation. Organizations try to start new S-curves from the peak of the previous S-curves or organizations or create entire new markets. Christensen (1997) added another lens when to develop and adopt new technologies, the value network. Christensen (1997) defines a value network as "the context within which a firm identifies and responds to customers' needs, solves problems, procures input, reacts to competitors, and strives for profit." Organizations see demand for continuous innovations to sustain the value of their product in the value network, while radical innovations, which are not part of the value network are most often in a different market, does not always receive attention.

The relation between the S-curves and the value network is twofold. Within a single value network, S-curves represent the needed sustaining technology change (incremental innovation) demanded by that value network's specific boundary conditions of value perception. While the architectural, disruptive, and radical S-curve cannot be displayed in a single graph. See the figures below for the different types of S-curve innovations within the relation of value networks (existing or new). The red S-curve represents the ‘reinvention’ while the red arrow visualizes the value network change. Notice that in the new markets, the red arrow is next to the blue arrow.

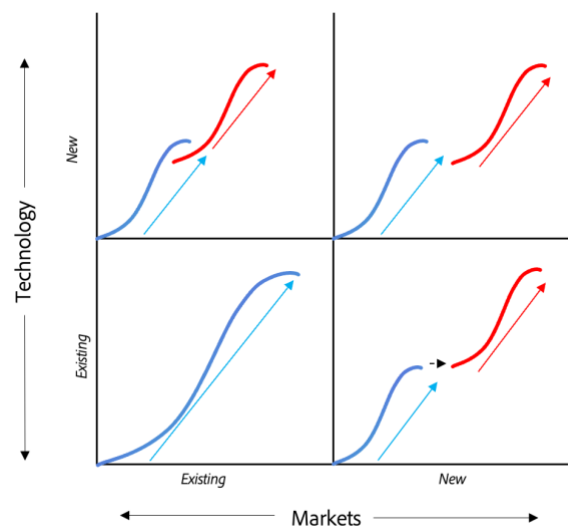


Figure 5. 4 types of innovation S-curves



To summarize the different elements of how to sustain growth and when to innovate, the following figure is compiled. The figure combines the different S-curves with the 4 patterns of innovation and the three horizons model as explained in the previous chapters.

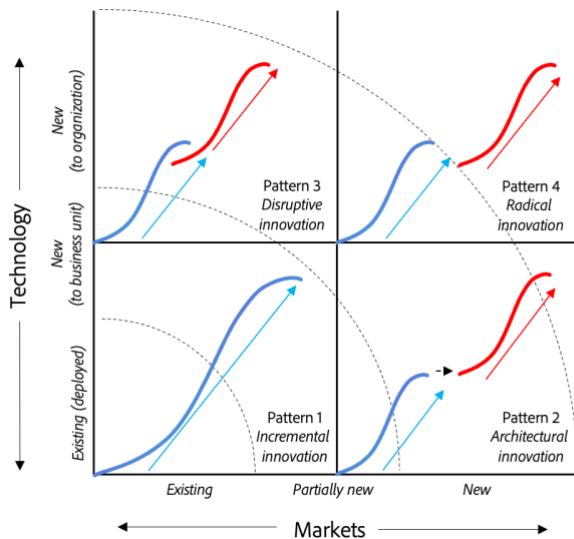


Figure 6. S-curves in the context of innovation patterns and three horizons

Within an existing market, or an existing value network, each organizations competitive strategy, cost structure and customers to serve determines the organizations perceptions of the economic value of an innovation. These perceptions shape the rewards, and threats, organizations expect to experience through different forms of innovation. The inflection points in the S-curve, as described in the previous chapter, are defining moments for an organization where the portion of the S-curve that separates growth from negative growth, meaning the business' growth slows, and it may eventually stop or decrease.

New markets, or different value networks, can emerge at different distances from the original. Christensen (1997) defines this type of innovation, that create a new value network, a new-market disruption. New-market disruptions initially compete against non-consumption in their own new value network, but as their performance increases, the innovation will pull customers out of the original framework into the new one. This is represented in the architectural (pattern 2) and radical innovation (pattern 4) in Figure 6.

The three-horizon model, patterns of innovation and S-curve provide structure on how to manage growth and when to innovation. History have shown great examples of organizations who disrupted the entire market, or incrementally innovated their way through turbulent times.

## 2.5 Innovation patterns and Ambidextrous product strategy

Innovation has different patterns as described before. Sawaguchi (2011) suggests two predictive paths for innovation evolution.

*Predictive pattern of innovation 1; from incremental innovation to disruptive innovation to radical innovation and pattern and back from disruptive to incremental innovation*

*Predictive pattern of innovation 2; from incremental innovation to architectural innovation and back to incremental innovation.*

Although there are not many cases in theory available where an organization undergo the complete innovation pattern 1, the market has had multiple. One example is the innovation path of the reel-to-reel-recorder to the appearance of the iPod. The initial appearance of the reel-to-reel recorder underwent different improvements which led to the radio cassette player. The introduction of the Walkman was an example of a radical innovation where a new market was created with new technology. After the disruptive innovation from Walkman to CD/MD Walkman, the iPod introduced an entire new market and business model or other said, destroyed an existing market.

An example of the predictive innovation pattern 2 is the propelled engine versus the jet-engine. Back in the days that jet engines did not yet exist, the technological paradigm was focused on propelled engines, resulting in innovations improving specifically this technology. Nowadays, the jet-engine causes propelled engine improvement to cease, as the technology is superseded. In that way, the architectural technology of the jet-engine determines the direction of innovation.

Whatever innovation pattern is used, an organization need to continuously mobilize, integrate, and reconfigure activities to meet the changing demands in the environment. According to Gupta et al (2006), an ambidextrous product strategy provides the basis for both incremental innovation (exploitation) and other innovations (exploration). Although the attributes of an ambidextrous product strategy in the face of technological change bring conflicting and paradoxical challenges, research emphasizes on the simultaneous pursuit and integration of both exploitation and exploration within an organization (Cao et al., 2009; Gibson & Birkinshaw, 2004; Jansen et al., 2009; Raisch & Birkinshaw, 2008).

### 3. Conclusion

This literature review purpose is to help the reader understand the different aspects of ambidexterity and innovation in the context of product strategy and give insights on what it means for an organization to decide when and how to balance short-term and long-term innovations.

It is clear from research reviewed that there is no blueprint for organizations to decide when and how to find the optimal product strategy from an ambidexterity perspective. As Christensen (1997) describes the failure to achieve disruptive innovations while also making incremental improvements to an existing product or business is commonplace, but also fascinating that it has become a battleground of management thought.

This literature review goal was to explore the different theories of ambidexterity and innovation by using logical argumentation. Different theories were combined into a framework which can help organizations to analyze and substantiate how and when an opportunity for innovation arises.

### 3. References

- Atuahene-Gima, K. (2005). "Resolving the Capability-Rigidity Paradox in New Product Innovation." *Journal of Marketing* 69 (4): 61–83.
- Cao, Q., Gedajlovic, E., & Zhang, H. (2009). Unpacking organizational ambidexterity: Dimensions, contingencies, and synergistic effects. *Organization science*, 20(4), 781-796.
- Charles W. L. Hill, Gareth R. Jones (2004). *Strategic Management Theory: An Integrated Approach*
- Christiansen, C. M., Hall, D., Dillon, K., & Duncan, D. S. (2016). Know your customers' "job to be done". *Harvard Business Review*, 94(9), 54–62.
- Christensen, C. M. (1997). *The innovators dilemma: When new technologies cause great firms to fail*. Boston: Harvard Business School Press.
- Cooper, A.C. & Schendel, D. (1976). Strategic Responses to Technological Threats. *Business Horizons* 19, (1), 61-69.
- De Wit, B. (2017). *Strategy: An International Perspective* (6th ed.). Cengage Learning EMEA.
- Fisher, J.C. & Pry, R.H. (1971). A Simple Substitution Model of Technological Change. *Technological Forecasting & Social Change* 3, 75-88.
- Gibson, C.B. & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, 47: 209-226.
- Gupta, A. K., Smith, K. G., & Shalley, C. E. (2006). The interplay between exploration and exploitation. *Academy of Management Journal*, 49(4), 693–706.
- Hannan, M. T., and J. Freeman. 1984. Structural inertia and organizational change. *American Sociological Review* 49 (2): 149–64.
- He, Z.-L. and Wong, P.-K. (2004). "Exploration vs. Exploitation: An Empirical Test of the Ambidexterity Hypothesis," *Organization Science*, 15 (4), pp. 375-497.
- He, Z. L., & Wong, P. K. (2004). Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. *Organization Science*, 15(4), 481–494.
- Li, C., Lin, C., & Chu, C. (2008). The nature of market orientation and the ambidexterity of innovations. *Management Decision*, 46, 1002–1026.
- Katila, R., & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behavior and new product introduction. *Academy of Management Journal*, 45(6), 1183–1194.
- Kim, W. C., & Mauborgne, R. (2005). *Blue ocean strategy*. Cambridge, MA: Harvard Business School Press.
- Levinthal, D. A. and March, J. G. (1993). "The Myopia of Learning," *Strategic Management Journal*, 14 (S2), pp. 95-112.
- March, J. G. (1991). "Exploration and Exploitation in Organizational Learning." *Organization Science* 2 (1): 71–87.
- Mehrdad Baghai, Stephen Coley, and David White, *The Alchemy of Growth*, New York: Perseus Publishing, 1999.
- Moore, G. A. (2015). *Zone to win: Organizing to compete in an age of disruption*. Diversion Books.
- Porter, M. E. (1998). *The Competitive Advantage: Creating and Sustaining Superior Performance*. NY: Free Press, 1985. (Republished with a new introduction, 1998.)
- Sawaguchi, M. (2011). Innovation activities based on s-curve analysis and patterns of technical evolution-

“From the standpoint of engineers, what is innovation?”, *Procedia Engineering*, Volume 9, 2011, Pages 596-610.

Teece, David J., Pisano, Gary and Shuen, Amy (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18: 509-533.

Thomond, P. and Lettice, F. (2002), "Disruptive Innovation Explored", 9th IPSE International Conference on Concurrent Engineering: Research and Applications. Cranfield University, Cranfield, UK.

Tushman, M. L., & O'Reilly, C. A., III (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review*, 38, 8-30.

Tushman, M. L. and O'Reilly, C. A. (1996). “The Ambidextrous Organization: Managing Evolutionary and Revolutionary Change,” *California Management Review*, 38 (4), pp. 1-23.