Disruptive and Value Innovation:

An Examination of Umicore’s Sustainability Transformation

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Introduction

Disruptive and Value innovation are sometimes seen as competing theories. *Disruptive Innovation* focuses on making low cost alternatives available to a mass audience that previously faced high barriers to access. *Value Innovation* focuses on reshaping industry dynamics in order to serve the needs of existing customers in new ways. Both approaches have a convergence point when the innovation begins to mature. Affordability and quality are tenants of both strategies. As a result, Disruptive Innovations begin to attract incumbent players and the traditional audience in addition to the previously underserved new market. Value Innovations begin to attract new customers and markets through the economies of scale that are leveraged as the innovation spreads. Umicore Group is an interesting business case study because it shows how both strategies can be combined. Umicore was forced to innovate through unexpected government action (nationalization of its assets). This disruption led to a series of failed attempts and significant losses. The company was finally able to re-brand and re-emerge by shunning its past of environmental and social devastation and focusing on creating ecological and social value through sustainability practices and products.

**Disruptive versus Value Innovation**

Disruptive Innovation (Wessel & Christensen, 2012) focuses on competitive strategy. Disruptive Innovation is not technology specific but rather represents a novel approach that opens up new markets by making a product or service affordable to a large population were unable to access it. Disruptive Innovation is quality sensitive despite the focus on low-cost. The aim is to provide greater affordability and/or faster accessibility without degrading quality or experience. Streamlining the features of a full-product offering enables quality and affordable
alternatives that can still be leveraged back into a more complete offering (*upmarket* sales).

Examples include cars/trucks/planes as disruptors to railroad transportation; cellphone GPS as disruptors to handheld GPS; car sharing services such as Zipcar as disruptors to auto sales; online stores as disruptors to bricks and mortar retail stores. Whether a company is a new entrant (introducing a disruptive innovation) or an incumbent (responding to a disruptive innovation), the objective is to gain competitive advantage through low pricing and capturing volume in underserved or unserved market spaces; it hinges on finding new customers. Value Innovation may have disruptive effects but is focused on optimal delivery and maximizing satisfaction for existing customers; creating affordable options for new customers is not the primary motivation.

The two approaches can be combined. Kim and Mauborgne (2004) illustrate how Belgian movie company Bert Claeys created a new paradigm by making seating plusher, improving viewing angles for all seats, enhancing sound quality and guaranteeing free parking. Locating out of the city allowed substantial savings on construction and novelty guaranteed free word-of-mouth marketing. This combined offering is so unique that Bert Claeys has no competitors.

Interestingly, in order to achieve this, Bert Claeys leadership had to adopt the mindset of a new entrant which meant being cost effective while doing something radically different. This is a Disruptive Innovation approach only the focus is on existing not new customers. Hence, Value Innovation answers a weakness of the Disruptive Innovation model by showing how incumbents can use their existing customers and capacity to alter or re-shape industry dynamics (incumbent disruptive strategies).

Kim and Mauborgne (2004, p.174) also explain that Value Innovation does not segment customers; instead it focuses on customer commonalities and generating “quantum leap[s] in
value” by offering total solutions which delight the largest number of customers. Value innovators think of industry conditions as something to be shaped, not as a constraint. The Value Innovation approach runs counter to mass customization because it is based on the philosophy that, when affordability is a factor, high levels of customization do not yield significantly different or enhanced experiences. As a result, it is better to think beyond industry conventions of product or service delivery and to create value based on servicing all of a customer’s needs. The authors note that Value Innovation works well in industries that are stable. However, in industries characterized by frequent and consistently high innovation, the Value Innovation approach will be easily replicated and a company must also turn to innovation in order to maintain its market share. Virgin Atlantic is an example of the combined approach. The company revolutionized the airline industry by eliminating first class service and focusing on needs of the business class market segment. Other airlines were quick to replicate once the success of the model had been proved. This forced Virgin Atlantic to innovate by offering pre-flight services such as transportation, in-airport laundry and personal care.

Mauborgne (2012) elaborates on Value Innovation by introducing the concept of Blue Ocean versus Red Ocean strategy. Red Ocean focuses on either/or propositions where companies must pursue unique positioning or low cost. Red Ocean can lead to fierce and intense competition as is the case with the video game industry. Blue Ocean focuses on the integration of unique positioning and low cost in a manner that alters industry dynamics. Industry dynamics are psychological parameters not fixed constructs. She points out that Blue Ocean strategy is difficulty to replicate. Cirque du Solei redefined the concept of circus and created a new paradigm that transformed the circus industry; Cirque has had no competitors in 20 years.
because they continually innovate. Blue Ocean strategy brings value proposition, profit proposition and people’s motivation into singular alignment. She highlights this concept by showing how JCDecaux has revolutionized the outdoor advertising industry by replacing billboards with “outdoor furniture.” JCDecaux’s (2014) company website calls this concept “street furniture” and has a digital “Play table,” designed for urban park spaces, as one of the products.

Barwise and Meehan (2012) argue that, while conceptually useful, the reality is there is no clear cut distinction between Red Ocean and Blue Ocean environments. They say the real environment is more akin to Purple Oceans and it is impossible to make competition irrelevant. Purple Ocean focuses on “innovation beyond the familiar.” The authors explain how Nokia, once a disruptive entrant to Motorola, is now being displaced by Samsung and Apple. They argue that unique positioning and low cost do not yield sustainable growth advantages. This is accomplished through: 1. clear communication (“customer promise”); 2. ensuring trust (“reliable delivery”); 3. guaranteeing satisfaction (“continually improving the promise”); 4. “innovating beyond the familiar;” and 5. rapid adaptation which is driven by changing strategy and product based on customer feedback (“open organization”). They laud the benefits of Value Innovation in Blue Ocean markets but alert there is scant evidence to support the notion of “pioneer advantage” in any circumstance. For this reason, they use Purple Oceans as a metaphor to remind companies there are no clear distinctions. When products or services are so radically new they are first of their kind, first mover positions are risky. Companies must also focus on clear brand promises, keeping the brand promise relevant, and, avidly improving the brand promise on a continuous basis.
**Sustainable Innovation**

The concept of sustainability started as an environmental definition. Gobble (2012) explains that, since 1970, sustainability has evolved to include social responsibility and is gaining legitimacy as a business model. Using Nike’s 20 year transformation as a case study, she argues that “true sustainability requires…fundamental, disruptive, system-wide innovation” (p. 65). Companies that are successful at sustainability (success includes profitable), have a culture of innovation. Bottom line changes include cutting waste, streamlining supply chains, safer processes, greener products, stringent labor oversight and business re-engineering. Top line changes necessitate the creation of positive impacts for all stakeholders. In order to create positive impacts and increase revenues, companies must focus on value creation strategies. Hence, sustainability requires both disruptive and blue ocean strategies.

Goble’s arguments are supported in other research. By comparing the results of a 2010 and 2011 annual global survey of over 2,600 executives, managers and thought leaders, Kiron, Kruschwitz, Reeves, & Goh uncovered that the 37% of companies who reported profitable sustainable activities had changed their business models in order to accomplish this. Of the 37% with profitable sustainable business models, 59% changed 3-4 elements of their business model by focusing on “target segments” and “value chain processes” (p. 71). They also found these companies had increased the number of stakeholders with whom they collaborate; 74% collaborate with 9-10 stakeholders. Kiron et al. identify three tenants of successful sustainable business models: (1) business model change – multiyear sustainability goals require innovation and the addition of new capabilities; (2) understand what your customers want and value – companies must go beyond understanding preferences, they must also understand how much of a
premium customers are willing to pay for sustainable practices; (3) increase collaboration beyond the boundaries of your organization – companies must reach out to customers, individuals, groups and even other businesses.

These findings support Buisson and Silberzahn’s (2010) assertions that market domination cannot be achieved only through Blue Ocean or Fast Second (waiting for pioneers to open a market then rapidly adapting based on lessons learned) strategies. They propose a “four breakthrough framework” which can be summarized as breakthrough innovation. Breakthrough Innovation requires: (1) technological breakthrough that dominates incumbent models; (2) business model breakthrough using value innovation; (3) design breakthrough that creates new products without radical alterations; (4) process breakthrough which brings about new ways of doing things. However, it is important to note that when material substitution or component redesign is not enough, sustainability can require a radical transformation of products. The WWF & Verdantix (2012) Green Game Changers report showcases a collaborative partnership in Mozambique between biotech Novozymes and Clean Star Ventures that replaces charcoal fuel with ethanol created from surplus cassava crops.

**Umicore’s Sustainable Transformation**

Belgian materials company Umicore SA is a posterchild for radical transformation driven by sustainability. The negative social and environmental impact of the company’s sordid 200 year history as a primary metals mining company under the name Union Minière du Haut Katanga has been documented in art (Matulu, 1975) and environmental watch groups (Meynen, 2013). Meynen notes, since 2004, just in the area surrounding its factory in Hoboken (Antwerp, Belgium), Umicore is paying the government €77 million (US $104.19 million) for contaminated
soil remediation and has an estimated additional €310 million (US $419.5 million) of ecological
debt covering issues that include cancer, cancer mortality, lead poisoning in infants and
vegetable crop failures. Mining operations focused on copper, tin, cobalt and precious metals
came to an abrupt halt in 1968 when the Zairian government nationalized the company’s assets
(Balch, 2013; Umicore, 2012, History). The adage, “necessity is the mother of invention,” holds
ture for Umicore. CEO Marc Gynberg joined Umicore in 1996 and began his reign in 2008
(Balch, 2013). It was clear the company’s smelting operations were neither profitable nor
sustainable. He wanted to transform the company into one that did not leave negative
environmental legacies but rather operated as a profitable sustainable business.

Umicore was in an incumbent position facing major disruption due to government
regulation and activist action. The company divested its loss-leading operations in copper and
zinc smelting in 2005 and 2007 (Balch, 2013). In addition to divesting mining and refining
activities, new capabilities were needed. WWF-UK and Verdantix (2012) explain this was
achieved by (1) acquiring cleantech and catalysis businesses; (2) consistently high research and
development (R&D) expenditures focused on recycling and materials for clean technologies. As
of 2007, Umicore has four divisions: recycling, energy materials, catalysis, and performance
materials. Despite these changes, when Gynberg took over in 2008 there was a lot of work still
needed; the company needed to align its new capabilities with market demand. He states, "[w]e
had a number of competencies that we had accumulated over the years in material science,
chemistry, metallurgy etc, and we decided to make use of these to address a certain number of
market opportunities that we had identified" (Balch, 2013). Umicore changed its operations from
earth mining to urban mining which focuses on closed loop production that reclaims and recycles
scrap and surplus metals from customers (Umicore, 2014, Strategy). The company bases its business strategy decisions on four “megatrends”: resource scarcity, renewable energy, cleaner air, and electrified modes of transport. Responsibility for sustainable operations is embedded throughout the company and there is no centralized entity in charge of sustainability (WWF-UK & Verdantix, 2012).

Umicore Group is traded on the Brussels Exchange as UMI and the change was a tough sell to investors. Gynberg explains, "[e]arly in the game, we were not able to say how and when these opportunities would materialize" (Balch, 2013). Complete transformations are risky and take time. Umicore followed the sustaining innovation model depicted by Raynor (2011). In order to accomplish this, they had to transform their organizational capability as defined by Christensen & Overdorf (2000). Gynberg highlights the difficulty: “[y]ou cannot just hire overnight a number of scientists and engineers and instruct them to change the profile of the company. Change on this kind of scale happens gradually and takes long-term effort" (Balch, 2013). A clear message needed to be communicated. Gynberg focused on leveraging foresight and emerging trends in both technology and consumer preferences. He states, "[t]he majority of our customers are moving in a direction that requires cleaner solutions and closed loop solutions, which we are prepared for" (Balch, 2013).

Umicore’s innovation strategy fits within the Blue Ocean framework. In 2012 the company spent over 6% of revenues (€180 million, US $243.6 million ) on R&D (Balch, 2013). Value creation is the basis for the company’s strategy (Umicore, 2014, Innovation). Umicore pursues the simultaneous growth of existing business and entry into new markets. Recognized for its “Open Innovation,” Umicore uses an open loop to reclaim production scrap resulting from
the use of Umicore materials. The company fosters research outside Umicore through its Umicore Scientific Award. It transforms internal and external knowledge into innovation through a formalized knowledge management process called Umagine. Umicore now recovers over 20 different metals through from scrap or end of life solutions to customers. The company has discovered this generates significant cost savings over mining (it is cheaper to reclaim materials than dig for them) as well as significantly lower CO2 emissions (less heavy equipment is used in addition to pollution preventing technology). Efforts have paid off. Metal emissions on air have been reduced by 37% and metal emissions on water by 44% (Balch, 2013). It had near top rankings in the Global 100 survey with respect to energy, Green House Gas (GHG), water and waste productivity (Balch, 2013). As an example of new markets, Umicore now services the automotive industry as a global leader in automotive emission abatement systems for both light-duty and heavy-duty vehicles (Umicore, 2014, Business Units). It also produces zinc based animal feed and pharmaceuticals such as cosmetics and vitamins (Umicore, 2014, Zinc Chemicals). It is important to note Umicore kept a zinc mine established in 1805 (Balch, 2013).

Conclusion

Umicore has emerged as a global materials technology and recycling group with over 14,000 employees and annual revenue of €12.5 billion (US $17.02 billion) as of December 31, 2012 (Umicore, 2012, History). With a 116 hectare corporate headquarter facility in Brussels, it operates 77 industrial sites, 15 R&D and technical centers in 34 countries including the United States and South Africa (Gunther, 2013). In 2013 it was recognized by Corporate Knights’ (2013) Global 100 index as the most sustainable company in the world. Gynberg told Corporate Knights, “[s]ustainability has been and remains an all-pervasive driver of our strategy and day-
to-day actions….We don’t see sustainability as an add-on. It’s really a part of everything we do.”

This approach fits with Barwise and Meehan’s (2012) model of Purple Oceans. Umicore communicates a clear promise of sustainability, ensures trust through quality and remediation for past damages, investing in R&D for continuous sustainability improvement, creating new products from reclaimed primary metals, and, using an open innovation to elicit feedback and new ideas from customers, scientific researchers and the community. Kim and Mauborgne’s (2004) assertion that Blue Ocean companies shape the industry by seeing conditions as opportunities not constraints is exemplified in the following quote from Gynberg: "[i]f there is one lesson we've learned it's that sustainability should be seen as a source of differentiation and competitive advantage rather than as a burden….Of course, it comes at a cost. You need to incur quite significant efforts to work in this manner, but in the end there are more opportunities than if you see sustainability as a series of constraints placed on you by silly regulations" (Balch, 2013).
References


