

Dynamic Strategy on Biotechnology: a Case Study for Merck Biopharma

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ABSTRACT

Background: Whether the manager develops a strategy focused on the viewpoint of one type of approach, although each approach has an abundance of copious paths to elaborate, but discussing each type of viewpoint is as if all have suitable differences. We expect that from the adoption of commonness in resource-based view (RBV) and efficiency-based view (EBV), or in ready conformity, the viewpoint of mutual support, to construct a multiple-strategy viewpoint concept.

Methods and findings: This research selects a case study, focusing on the pioneer in global Merck Biopharma. In-depth interview method, focus groups, literature analysis and other methods are carried out; and within the research process there is the collection of correlation data, and secondary analysis inspection is to be carried out on the strategic document.

Results: We developed a commonality, the ready conformity to mutual support viewpoint, to construct a "dynamic", "resources", "capability" many types of strategic viewpoint construct, in the dynamic environment all the biotechnology's unique resources and capabilities, can be bestowed for future use, to establish the biotechnology's competitive advantage.

Conclusions: In the past traditionally strategic experts all elaborate and examine on the single point of strategy, but strategy's single orientation can create the product providing serious gaps or weaknesses, neglecting important customer needs, easily suffering from the competitor's counter-attack, as well as causing the organization to lose elasticity and narrow changes in the long-term. Aside from these majority of discussions regarding capability separately views the internal and external environments of the biotechnology, in reality the two must be mutually bound and are inseparable functions/internal path and external path's mutual bundling, in order to achieve an increase in synthetic effect.

Keywords: Dynamic capabilities, biotechnology, resource-based view (RBV), efficiency-based view (EBV)

INTRODUCTION

Competition's essence is the unceasing change and evolution (Jacobides, 2005; Kor and Mahoney, 2005; Darnall and Edward, 2006; Adner and Zemsky, 2006). The early competitive forces framework (Porter, 1980) in the industry competition's evolution, offers a robust and systematic approach to analyzing these threats and opportunities, and thus explaining why some arenas have better profit prospects than others. Its greatest virtue is that it demands thinking about the future of the arena, as a consequence of shifts, disruptions, and trends in the underlying factors. Although the competitive forces framework is quite robust, and capable of being applied to diverse settings, there are some weak spots and limitations that require caution. First, competitive forces often

there is little guidance on where to place the boundary. This is especially troublesome when boundaries are fuzzy, or arenas are converging because of changes in technology and functionality. A second problem with the standard formulation of the five forces framework isn't begin to capture the complexity of emerging industries in which the distinctions between customers, suppliers, and competitors are increasingly blurred, and the rules of engagement keep changing. Rivals may actively collaborate, may reduce the intensity of rivalry in any single arena and buyer-seller relationships are being recast as collaborations or partnerships with a positive-sum outcomes. Weakening the competitive forces framework presents the interaction of customers and suppliers as a zero-sum game – evoking images of the exercise of uncompromising bargaining

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power (Wright, 1986, 1990; Day and Reibstein, 1997; Yamin and Mavondo, 1999).

Consequently, the rightness or wrongness of a strategy depends on the situation. There is no optimal strategy across all strategic situations. Because of this contingency dependency, strategic development is an evolving process. Therefore because of the above approach viewpoint's limitations, the pendulum angle sways towards the "resources" as the basic viewpoint, included within this are the RBV and EBV approaches, recognizing the importance of the resource viewpoint.

LITERATURE REVIEW

Efficiency-based view (EBV) is useful in precisely describing strategic situations (Brandenburger and Nalebuff, 1995). The most commonly used equilibrium concept is the Nash equilibrium, an array of strategies (or action choices) such that each player believes he or she is doing the best he or she possibly can, given the actions of others. The theory uses visual representations and a unique set of terms to describe situations. Thus, game theory provides a consistent framework for structuring competitive decision problems. This structuring process, in turn, focuses managerial attention on relevant competitive factors and helps configure a firm's resource base for strategic advantage. Like any planning tool, game theory has its limitations, in the competition site's balanced basic supposition is established on fair competitive stage of stability, optimality, rationality, as an industry mired in chaos may, it turned out to be a set of firms rationally responding to mutual uncertainty about each other's rationality, thus appears some limitations. In particular, the prescriptions game theory offers for "optimal play" now depend on the conjectures firm make about the knowledge and rationality of their opponents – beliefs that may not and need not follow from standard economic textbooks. As Day points out, this is a half-truth, and like many half-truths its use will produce suboptimal results (Day and Reibstein, 1997).

Resource-based view (RBV) approach focuses on the enterprise's internal advantages sufficient to be used in any different situation, but still has its strategic blind spot. The knowledge resource exchange discussion (Parise and Henderson, 2001) explains the resource domain as divided into explicitness and tacitness. The former such as the company, resource, factory etc can attain the ability to shift in the market, the latter like experience, culture, brand etc cannot shift and is

difficult to imitate, is because the enterprise in the scale of economics and scope of resource, can form value creation and product development resources exchange, but the inability to shift and the difficulty to imitate, can present the valuable creation of competitive advantage. But RBV meant, the firm if not already possessed, acquire or otherwise obtain the requisite assets to compete in the market. From this perspective, the process of identifying and developing the requisite assets is not particular problematic. If assets are not already owned, they can be bought. The resource-based perspective is strongly at odds with this conceptualization. Thus accumulating valuable technology assets, often guarded by an aggressive intellectual property stance. However, this strategy is often not enough to support a significant competitive advantage. Although companies can accumulate a large stock of valuable technology assets and still not have many useful capabilities. Therefore the resources viewpoint obtained through the market appears to have some limitations. As Barney point out, unless a firm is lucky, possesses superior information, or both, the price it pays in a competitive factor market will fully capitalize the rents from the asset (Barney, 1986).

RESEARCH DESIGN

This research selects a case study, focusing on the pioneer in global Merck Biopharma (Biomedical Engineering Research Laboratories, 2018). On the reliability aspect, this research target is introduced by an industry expert as well as an academic professor (Babbie, 1994), and can be presented in observation, test, interview, transcripts and intersubjective – these five stratification planes (Fetterman, 1989: 29); there are many approaches to having resource reliability, with replication logic's research reliability's reproduction and representation and revisiting, with the demand for consistency (Graebner, 2004:753). On the validity part, this research does not discuss internal validity (causal relations) and external validity (conciseness), but construct validity as well as external expert review – these two are use to guarantee this research's validity; in studying the document situation, in-depth interview method, focus groups, literature analysis and other methods are carried out; and within the research process there is the collection of correlation data, and secondary analysis inspection is to be carried out on the strategic document, including company history description, organization construction, 2003-2006 Asia

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Pacific Regional Marketing Plan Book and Public Relations Activities Plan etc, using the multiple resources accumulation plan to achieve positive construction effects (Yin, 1994).

Next select an external expert as the industrial high level manager (20 years and above) as well as a field expert to carry out the investigation of this research's accuracy (Hammersely and Atkinson, 1983: 1-2). The interviewees – high level managers – were separately interviewed via phone: world's number one, Pfizer Pharmaceutical Ltd. Taiwan's general manager Mr. L; world's fifth, Schering-Plough Corporation, Taiwan regional general manager Mr. W; as well as Eli Lilly and Co. Taiwan Inc.'s Academic Director Mr. C; using the Cross Triangular Method to re-examine the authenticity and accuracy of the research object's interview content, as well as moderately stating the situation issue, thereby able to accurately respond to real significance desired by the research institute (Babbie, 1994).

RESEARCH FINDING

If it is desired to understand the essence of the enterprise's unique characteristic of competence /capability, it is necessary to understand the enterprise's face the several dynamic veins of internal and external environments, in accordance to the created conformity, creating the organization's internal and external departments' dynamic resources and capabilities, responding with the enterprise's intention and innovation's competitive advantage. Regardless if faced with internal resource origin and capability as well as the suitable paths of the external environment, management process, market stability as well as competition signal, by itself models the evolved path's Strategic Specific Assets process, describing the real significance of the enterprise's dynamics and competitive advantage. This research uses the enterprise's external environment and internal core ability divided into the external path and internal path's two-track elaboration, the affiliated literature materials, in-depth interviews, focused discussion and the external expert's inspection of the content's conformity, the company proposes a correlation propositions.

DISTINCTIVE RESOURCE

Long-term superiority's only foundation, obviously is the ability to continuously innovate (Sarkar and Sen, 2006; Gvindarajan and Kopalle, 2006), in the situation of a cross-

century challenge, not only needs an exuberant business center with the initiative to attack, utilizing innovation management, on one hand makes the first move and accelerates production and develops the innovation of activities, on the other hand within the industrial structure, striving for the product's dominant position, at the same time expanding market sales scope, accumulating brand awareness (Garund and Kumaraswamy, 1995), gradually molding the core leadership position and future industrial structure operation model (Gvindarajan and Kopalle, 2006). Regional Sales Manager for Asia pointed out:

“...the innovated products' success in the global market received esteem because the product is more effective than its competitors, moreover regardless of product combination, prevention and treatment medicine all have outstanding performances, for example: the antibiotic, pain control and disease treatment etc four main domains are all outstanding...”.

Therefore innovative research and development of strategies is one of the important strategies in dynamic environment enterprises, innovative research and development strategy has a large influence on the enterprise's achievements and rise (Barney, 2002), but Merial in medicine as well as vaccine innovation research and development, is globally the apex in the first step of each animal medical healthcare industry (Biomedical Engineering Research Laboratories, 2006). Merck Research and Development Manager for Asia said:

“...whether it is in research and development or product all conforming to USDA, EPA, FDA and EMEA's international standards, in each production level it is insisted each process and step be carried out strictly, conforming to health, security, environmental protection, quality control, guarantees as well as legal standards, persisting in global factories, production conforms to international highest product quality and safety standards, as well as persisting on the validity of related products, whether it is used on medicine or vaccine.”

But to maintain competitive advantage's effects from core competence, the enterprise uses the distinctive resources and idiosyncratic capability to achieve the fastest opportunity for change (Prahala and Hamel, 1990; Foss and Foss,

2005). But innovating research and development itself is also a special technical characteristic, the research and development department manager said:

“...our research and development technology is a series of complex flow technologies, especially some diffusing barriers, and it is difficult to use simple formulas, charts, or usually used terms for study, completely blocked and impossible to investigate.”

Based on the above elaboration, we may posit, that in order for the enterprise to maintain long-term advantage, it certainly needs distinct resources, and must use these resources unceasingly in innovative research and development, allowing the products' validity to lengthen, accumulating core competences that are suitable to itself, but innovating technology early in the production levels, can generally slow down the propagation rate, because innovative technology comparatively cannot adapt to the traditional conception and some imitation merchant styles. But according to the above results from inferences, the following proposition can be proposed:

Proposition1: The biotechnology innovativeness makes it difficult to make innovation concrete.

Proposition2: The biotechnology innovativeness with some certain diffusive barriers as well as blocks that make it impossible to investigate, allowing the innovator to be more advantageous than the imitator.

IDIOSYNCRATIC CAPABILITY

Using the core capabilities produced by the core resources, if it is possible to make imitation difficult, this capability can be said to be the enterprise's unique intangible asset, such as the transaction of secret data, specific production equipment, experience in project technology etc; some assets are difficult to bring out, because transaction cost and transfer cost, these have tacit knowledge (Teece, 1997). Merck's Regional Inspector General for Asia said:

“...presently Merck's management strategy in medicine as well as vaccine research and development's speed and costs are more advantageous compared to other competitors...”

Specific Resource

The internal department of the enterprise always has distinctive resources and idiosyncratic

capability, and must establish an isolating mechanism to obstruct the competitor's invasion. Among these there is the specific resource, such as the trademark, patent, and channel business relations etc, able to establish for the product an unattainable barriers to entry mechanism. Merck's Regional Product Research and Development for Asia pointed out:

“...under intense industry competition, with products with the same functions, but because the product ingredient research and development technology is in the lead, obtained global patent protection, the product then has uniqueness...”

These assets are not easy to imitate, causing the enterprise's resource and the competitor's resource to have differences, effectively blocking the competitor's invasion and gaining customer loyalty (Cho and Pucik, 2005; Foss and Foss, 2005; Darnall and Edward, 2006).

Although knowledge has an emerging market, but a lot of technologies have not yet entered the market, this maybe because the enterprise unwilling to sell this type of knowledge, or maybe this is because of the difficulty in bringing this knowledge into the changes of the market, the enterprise's technological asset can receive the protection of knowledge property rights, and can also not be protected. Regardless of the method, it is clear to see that all of technological assets' right to protection and usage, forms the enterprise's essential form of difference (Teece, 1997; Foss and Foss, 2005). If the trademark, it can prevent the competitor from using similar name, packaging, or mark, to confuse the customer; but the patent can prevent any direct competition with any merchant; related to the brand's past achievements, causing the channel to be controlled by the brand (Aaker, 1991; Cho and Pucik, 2005). Darnall and Edward think that, the enterprise produces hindrances to imitation to prevent competitor's from immediately catch up with their advantageous position, in order to establish an unshakeable competitive advantage (Hansen and Perry, 2004; Foss and Foss, 2005; Darnall and Edward, 2006).

Through the literature on idiosyncratic capabilities and specific resources, as well as external path's joint venture strategy; we may posit that whether or not the enterprise's innovation is easily made complex is related to co-specific assets; but the merchant hopes to block other products from entering the market,

if these products' overlapping elasticity becomes higher, the co-specific assets value becomes higher as well, in order to protect its present core resources and capabilities, it is necessary to use the internal department's specific resources, establishing an entry-blocking mechanism that is impossible to substitute, preventing the competitor from invading the industry, but the core abilities produced by core resources can be difficult to imitate, this can be said to be the enterprise's unique intangible asset, but this produces idiosyncratic capability that are not similar to those of the competitor, therefore the pursuit of innovative ability's idiosyncratic capabilities is the roadblock to imitation, its key lies in the privacy of the co-specific resources' ingredients, tacit knowledge and dealer's resource bundled together etc, these rights can eliminate imitation; therefore the idiosyncratic capability is an effective plan in controlling the merchant's entry into the market, and is affiliated to technical innovation establishing continuous competitive advantage. Therefore, according to the above inferences, the following proposition is proposed:

Proposition3: The pursuit of innovative ability's idiosyncratic capabilities is the roadblock to imitation.

Proposition4: Its key lies in the privacy of the specific resources' ingredients, internal knowledge and dealer's knowledge bundled together etc, these rights can eliminate imitation.

Proposition5: Idiosyncratic capabilities is an effective plan in controlling the merchant's entry into the market.

Because the pursuit of innovative ability suits the idiosyncratic capability of the internal path, present specific resources' assets in development advantage and cost advantage, and capability includes the external path's joint-venture path strategy's reorganization effect, in order to achieve global competitive effect and the effect of dealer resource-bundling effect, as well as coming from knowledge assets, customer value and perception service quality's unique asset; therefore using the potentially obvious internal path's idiosyncratic capability, distinct resources, and specific resources, and with the external path these two high level dynamic paths shall have mutually reliant interactive relations.

But focusing on the external path's signal overflow effect, lies in identifying the direction

that the competitor or the market is taking. In order to effectively take this action, the enterprise must know the possibility of this type of action, and may guide the enterprise's reasonable next step; apart from this, some signals come from the competitor's signal or behavior pattern, producing the overflow effect, and can present the enterprise with not a few threads to follow and investigate the competitor's possible actions. Merck's Regional Advertising Manager for Asia pointed out:

“...Merck in large-scale exposition participates in industrial propaganda or duplicate media, reporting the print products and new products research and development in a press conference, the main goal of which is to effectively harness the power of advertising and propaganda, using this method to form competitive action.”

Therefore understanding the market's potential move can allow the enterprise to effectively grasp the future market; understanding the competitor's potential actions, they can eliminate the competition from the market. We posit the discussion, when in the external path, joint-venture path strategy, resource-bundling effect, as well as specific assets and the internal path's idiosyncratic capability, distinctive resources, and specific resources as high-level dynamic paths dependence reliant in interactive relations. But the external path's signal overflow effect, focus on understanding the future market's potential move forward as well as understanding the competitor's future actions; the main goal of which is to harness the signal's strength to form the competitor's action; the main influence in the dynamic and uncertain environment's external path is influence on relations. Therefore, we may propose the following proposition:

Proposition 6: Signal overflowing effect, mainly judges the direction that the competitor or market is taking, the dynamic and uncertain environment's external path's influences effects.

Proposition 7: The key to the competitor's actions is in controlling the power of the signal.

CONCLUSION

Based on the discussion of the above viewpoint, the disposition may be picked up for strategic construction, on one hand the “outside-in” inspection external path/environment's strategy situation, on the other hand there is the “inside-

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out” inspection enterprise internal path’s core ability. Therefore we developed a commonality, the ready conformity to mutual support viewpoint, to construct a “dynamic”, “resources”, “capability” many types of strategic viewpoint construct, in the dynamic environment all the company’s unique resources and capabilities, can be bestow for future use, to establish the biotec’s competitive advantage.

Further, they are often specific to a single firm or to a particular industry. This idiosyncrasy makes them difficult to imitate, especially if their development time cannot be easily compressed, as when building a strong R&D team. Consider, for example, distinct resources as well as idiosyncratic capability, always have the lowest cost advantage of the product as well as joint-venture enterprise Merk medicine’s research and development ability, some types of assets develop superiority, causing the company to be able to become the world’s top research and development initiator, many companies have tried to copy it, but few have succeeded.

Therefore when the more firm-specific, durable, and scarce strategic assets are, the more valuable they may be. The more firm-specific they are, the harder they are for competitors to imitate. The more durable the assets are, the smaller the investment required to offset their depreciation. Finally, the asset must return surplus profit or “rent” to the firm.

Strategic Implication

In the past traditionally strategic experts all elaborate and examine on the single point of strategy, but strategy’s single orientation can create the product providing serious gaps or weaknesses, neglecting important customer needs, easily suffering from the competitor’s counter-attack, as well as causing the organization to lose elasticity and narrow changes in the long-term. Aside form these majority of discussions regarding capability separately views the internal and external environments of the enterprise, in reality the two must be mutually bound and are inseparable functions/internal path and external path’s mutual bundling, in order to achieve an increase in synthetic effect.

Future Researches and Recommendations

In future researches, it will be able to sufficiently use this research’s proposed proposition to carry out quantity testing, therefore, even more able to construct the relationship between strength and weakness in

each change, causing the construct to be able to sufficiently use each different industrial domain.

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