GLOBAL PUBLIC PRIVATE PARTNERSHIP: AN ANALOGICAL REASONING MODEL

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Abstract:
This paper aims to introduce a new strategic direction for the multinational pharmaceutical companies in terms of the access to essential, life-saving medicines. The multinational pharmaceutical companies have been severely criticized by their various stakeholders because of their business models, particularly because of the stringent patent protection on the pharmaceutical products. The multinational pharmaceutical companies should find a new strategic direction to balance their R&D-intensive, expensive business with the access to essential, lifesaving medicines since favorable public relations are critical for the multinational pharmaceutical companies to maintain their profitable business. This paper adopts an Analogical Reasoning Model (ARM) to propose a new strategic direction for the multinational pharmaceutical companies in an effort to balance their expensive business with the enhanced social responsibility. In essence, the ARM helps the multinational pharmaceutical companies formulate viable strategies that can realize a win-win situation not only for their stakeholders but also for the pharmaceutical companies themselves. The ARM is constructed, analyzing the food and beverage industry as a source environment, and suggests a comprehensive, industry-wide, multi-stakeholder public-private partnership, led not by the public sector but by the multinational pharmaceutical companies.

Keywords: Access to Essential Life-Saving Medicines, Public Private Partnership, Analogical Reasoning Model, Multinational Pharmaceutical Companies, Multinational Food and Beverage Companies

1. Introduction: a new strategic direction for the multinational pharmaceutical companies

In connection with the access to essential, life-saving medicines, the multinational pharmaceutical companies, for the last two decades, have been severely criticized by their various stakeholders (e.g. NGOs, activist groups, intergovernmental organizations, national governments, etc.) and have confronted diverse social, regulatory, legislative, and judicial challenges. However, the companies have not responded to these challenges strategically. The critics argue that the multinational pharmaceutical companies have tried to manage these challenges with symbolic tactics, not with substantial measures, with an emphasis on the stringent patent protection on the pharmaceutical products to recover massive R&D investments.

Several strategic options have been proposed by scholars and practitioners In order to improve the access to essential, life-saving medicines, particularly in the developing world. These include: drug pricing

strategy using the stakeholder management model as a guide (Kennedy, Harris et al, 2004); differential pricing strategy (Danzon, 1997; Danzon and Towse, 2003); socially responsible drug pricing strategy (Vachani and Smith, 2004); compulsory licensing strategy (Ashcroft, 2001); free market-driven pricing strategy (Calfee and Bate, 2004); and the strategic option of voluntary licensing. Nevertheless, these strategic solutions are all ideological and very general, as Mascarenhas, Kesavan et al. (2005) comment. It is hard to find any realizable, practical solutions which can bring about an increase in the global distribution of essential, life-saving medicines.

In this view, the main objective of this paper is to introduce a new strategic direction for the multinational pharmaceutical companies in connection with the access to essential, life-saving medicines. In essence, the new strategic direction not only needs to improve the access to essential, life-saving medicines for those who need them most but also needs to help the multinational pharmaceutical companies manage their stakeholders effectively. This new strategic direction is formulated and introduced through an analogical reasoning model (ARM), aiming to realize a win-win situation for both the multinational pharmaceutical companies and their stakeholders.

An ARM solves "a 'target problem' by seeking and evaluating 'candidate solutions' from a 'source industry' that bears close resemblance to the target industry" (Mascarenhas, Kesayan et al, 2005, p. 404). In particular, Gavetti, Levinthal et al. (2005) introduced a way in which cases or analogies can be used in framing and implementing business strategies and this approach can facilitate companies to develop any realizable, effective strategies of their own based on the strategies of other industry sectors that have been under similar circumstances. Also, in an ARM, a previous solution may be transferred to solve a present problem. In other words, as Mascarenhas, Kesayan et al. (2005) assert, the value of applying the precedent to the present is fully recognized in an ARM.

An ARM also tries to find 'a bilateral case-by-case solution' to the target problem. Namely, an ARM is a bilateral, market-by-market, brand-by-brand, or even corporate-by-customer approach. In this view, an ARM can be an appropriate approach for the multinational pharmaceutical companies since the approaches taken by the previous studies to improve the access to essential, life-saving medicines have been multilateral, general, and ideological models and, thus, haven't produced any realizable, effective solutions.

Essentially, an ARM, a simple adaptation of a familiar experience to a new setting, can be a powerful source for the multinational pharmaceutical companies in discovering effective and competitive positions and in formulating their business strategies in connection with the access to essential, life-saving medicines.

Although an ARM is an effective tool to formulate strategies, it is extremely easy to reason poorly through analogies. Problems arise especially when strategists draw an analogy on the basis of superficial similarity, not deep causal traits. Since strategists use an ARM under unfamiliar, ambiguous circumstances where other methods of strategy formulation are unavailable, it must be very hard for strategists to distinguish deep traits from superficial similarity. Thus, it is often difficult to tell whether similarities between a familiar and an unfamiliar problem are deep or superficial.

To deal with this issue, Gavetti, Levinthal et al. (2005) propose the 'four straightforward steps' of the ARM through which strategists can avoid superficial analogies.

2. Four-steps of the ARM

This paper follows the four steps of the ARM presented by Gavetti, Levinthal et al. (2005) to formulate strategies for the multinational pharmaceutical companies in connection with the access to essential, life-saving medicines.

The first step is to articulate the analogy. That is, recognizing the analogy and identifying its purpose. In other words, to defend against flawed analogies, a strategist, first, must recognize the analogies he or she is using. Sometimes, the analogies are obvious, however, in other cases, the influential analogies remain hidden. Therefore, it is important to identify how a company is using any analogies it recognizes. Through this paper, an ARM is used as a tool for identifying possible solutions to the strategic problems the pharmaceutical companies face. But, an ARM can also be used for a variety of other purposes in other cases, including brainstorming, communicating complexity, and motivating employees.

The second step aims to identify and understand the source. The second step also examines how and why the source strategies worked in the source context. In other words, the second step explores the source industries and the source problems that might offer solutions to the target problems. Thus, the second step can be defined as a process in which the source is understood.

In short, during the second step, a strategist lay out a chain of cause and effect that explains why the original strategy worked in the source environment. Then, the strategist's goal should be to figure out whether the causal logic identified in the source environment is supported in the target environment.

The third step aims to assess the similarities and the differences between the source and the target setting, and, then, present feasible candidate solutions to the target problems. Gavetti, Levinthal et al. (2005) suggest that a strategist maps the similarities between the source and the target setting and, then, determines whether the resemblance between the two settings is more than superficial. The understanding of the source that a strategist has built up through the second step is crucial in this third step.

For the third step, rather than wrestling with the entire target problems, which are much less familiar with the source, the strategist needs to focus more on the key features of the causal logic. In other words, the basic question for the third step is whether the source and the target are similar or different along these key features. In essence, not only the similarities but also the differences between the source and the target setting should be considered. Therefore, the strategist must also search actively the differences between the source and the target setting, seeking evidence that each essential feature of the source problem is absent in the target setting.

The list of industry features that are not crucial in the causal logic is very useful in this step. If many of the similarities between the source and the target are on this list of not crucial in the causal logic rather than crucial correspondences, the analogy may be based on superficial similarity.

The last step aims to evaluate the target solutions. Namely, the last step aims to translate, decide, and adapt the original strategies to the new setting. In essence, the final step is to decide whether the original strategies, properly translated, will work for the target industry.

According to Gavetti, Levinthal et al. (2005), this step requires, first, that a strategist can say clearly what the strategy would look like in the new setting. This requires some adjustment because even the best analogies involve some differences between the source and the target setting.

A critical question to strategists is: how much should a company translate the candidate solution, based on the forethought alone, before launching it in the marketplace? It makes sense to adjust a candidate solution beforehand to account for the glaring differences between the source and the target. However, under the novel and uncertain environments, it might be wise for strategists to hold off on fine-tuning the solution until the market can give its guidance.

Although the majority of analogies are imperfect, they are useful in terms of strategy formulation. Gavetti, Levinthal et al. (2005) maintain that the analogies of an ARM lie on a spectrum. That is, at the one end of the spectrum, there are perfect analogies, where the source and target setting are truly alike on the dimensions that drive economic performance. In contrast, at the opposite end of the spectrum, there are profoundly problematic analogies that are based on superficial similarities because of underlying differences. The vast majority of the analogies of ARMs fall somewhere in between, thus, they are imperfect but useful. Gavetti et al. (2005) point out that "the challenge is to get the most out of them" (p. 13), and, to get the most out of them, "managers who wish to tap the great power of analogy and sidestep its pitfalls must master multiple modes of thoughts" (p. 13).

3. Applying the four-steps of the ARM to the multinational pharmaceutical companies

Among the four steps of the ARM described above, the third step tries to assess the similarities and the differences between the source and the target setting and, also, tries to present feasible 'candidate solutions' to the target problems. Then, the last step tries to evaluate the 'candidate solutions'. That is, the last step tries to translate, decide, and adapt the original strategies to the new setting.

Given the target problem of the multinational pharmaceutical companies (or the pharmaceutical industry in general), the ARM of this paper examines another comparable industry that tackled similar problem the pharmaceutical industry encounters. This source industry and source problem can offer candidate solutions to the target problem of the pharmaceutical industry. Then, the 'target solutions' for the pharmaceutical industry is developed and suggested. In other words, the lessons for the pharmaceutical industry, in relation to producing and marketing essential, life-saving medicines, from the candidate solutions are introduced.

3.1 Step One: Recognize the Analogy and Identify its Purpose

The first step of the ARM tries to recognize the analogy and identify its purpose. Thus, for the first step, it is important to identify the target problem of the multinational pharmaceutical companies. In a broad sense, the target problem of the pharmaceutical companies is how to deal with the risks/challenges posed by their various stakeholders in connection with the access to essential, life-saving medicines. The target problem can also be defined as how to balance the R&D-intensive, expensive business with the access to essential, life-saving medicines on the part of the multinational pharmaceutical companies.

The multinational pharmaceutical companies have been under severe pressure posed by their various stakeholders in connection with the access to essential, life-saving medicines. The companies have been criticized mainly because of the stringent patent protection on the pharmaceutical products and the strong patent protection has been considered to be a huge impediment to improving the access to essential, life-saving medicines.

The access to essential, life-saving medicines is a critical issue not only for the developing world but also for the developed world, although the specific circumstances of each world are different. The HIV/AIDS pandemic, especially in the least-developed countries, has been the major issue in connection with the access to essential, life-saving medicines, but, other diseases are also becoming more problematic. Under these circumstances, it is imperative for the multinational pharmaceutical companies to formulate strategies that can balance the access to essential, lifesaving medicines with the R&D-intensive, expensive business.

Although many diseases are in connection with the access to essential, life-saving medicines, the HIV/AIDS pandemic, as Mascarenhas, Kesayan et al. (2005) illustrate, has been the worst global public health crisis since the Black Plague in the fourteenth century. HIV/AIDS now kills more people worldwide than any other infectious diseases. The medicines that can suppress HIV/AIDS are called antiretrovirals (ARVs) and Burroughs Welcome introduced Retrovir (i.e. AZT), the first ARV drug, in 1987. However, since Burroughs Welcome introduced the first antiretroviral drug, there has been huge controversy over the prices of the HIV/AIDS medicines, and the multinational pharmaceutical companies have been on the center of the controversy.

In sum, the target problem of the ARM is how to improve the access to essential, life-saving medicines (i.e. how to rapidly produce and effectively distribute the essential, life-saving medicines) on the part of the pharmaceutical companies in order to deal with the risks/challenges posed by their various stakeholders. Particularly, how the pharmaceutical companies can produce and market the essential, life-saving medicines in the developing world that need them most at affordable prices is the main point of the target problem, although the developed world is also in connection with the issue of the access to essential, life-saving medicines.

3.2 Step Two: Understand the Source (The Food and Beverage Industry)

The second step tries to identify how and why the source strategies worked. In other words, the source industry and the source problems that might offer solutions for the multinational pharmaceutical companies are examined.

Based upon the target problem of the ARM, a source industry to examine source problems should be chosen among the industries which have effectively and profitably resolved the problems of marketing and distributing critically needed products or services, at affordable prices, especially in the developing world. Namely, the analysis of the source problems should show how a comparable industry has marketed and distributed vitally needed products or services particularly to the developing world that has needed them most.

For an ARM, a researcher borrows related choices from one industry (i.e. a source industry) and applies the system to a new industry (i.e. a target industry). In essence, a source industry should show similarities to some crucial dimensions of the representation of a target industry and the observable characteristics of a target industry may constitute the crucial dimensions of the representation of the target setting (Gavetti, Levinthal et al, 2005).

The following crucial dimensions of the representation of the multinational pharmaceutical companies were developed, reflecting the salient characteristics of the target setting. That is, to avoid a superficial analogy, a source industry must: (1) relate to marketing and distributing critically needed (i.e. life-saving) products or

services; (2) relate to the developing world in terms of the production, distribution, prices, and access; (3) relate to the issues of economic growth, productivity, and poverty reduction especially in the developing world; (4) relate to the lack of coherent leadership on the part of public sector that can help incentivize, monitor, and coordinate programs and policies in connection with private sector industry; (5) relate to political instability and social unrest; (6) relate to multiple stakeholders, such as consumers, national governments, NGOs, inter-governmental organizations, and shareholders; (7) relate to the uncertainty of the best practices to tackle problems; and (8) relate to R&D costs/IPRs protection.

For this paper, the source industry, the food and beverage industry, was selected based on these crucial dimensions of the representation of the target setting. In essence, the food and beverage industry satisfies all the dimensions of the target setting except the dimension of R&D costs/IPRs protection.

But, other industry sectors were also tested for a source industry for this paper. For instance, infrastructure industries such as energy/electricity, transportation, and high tech sectors (e.g. telecommunications) were examined for a source industry since, as Gasmi, Noumba et al. (2006) indicate, for the last two decades, worldwide reforms have significantly affected the infrastructure industries in terms of improving their function. However, on the dimensions of the target setting of the pharmaceutical companies, there is a significant difference between the target setting and the infrastructure industries. That is, the infrastructure industries relate to life-enhancing products or services, while the target industry is focused on life-saving products or services. In contrast, the food and beverage industry relates to life-saving products or services. In addition, the infrastructure industries have related to the issues of liberalization, privatization, and regulatory governance on performance (Cubbin and Stern, 2005), which are not in connection with the pharmaceutical industry. However, these differences do not necessarily bar an infrastructure industry from a source industry, because the energy/electricity and the transportation industry reveal significant similarities to the dimensions of the target setting of the pharmaceutical industry. Therefore, a careful adjustment through the process of an ARM might produce some useful solutions for the multinational pharmaceutical companies.

Although proper nutrition is a foundation for the overall health, global under-nutrition (or malnutrition) persists at unacceptable levels. Under-nutrition can be defined as “a diet that does not provide adequate calories and/or micronutrients for growth and maintenance (Bradley, 2008, p. 171). Under-nutrition remains one of the world’s most serious health problems. For example, malnutrition is the single, biggest contributor to child mortality, with over 50% of all the deaths of children under the age of five is attributed to underlying under-nutrition (Nelson, 2006). In addition, more than 2 billion people, about 30% of population in the developing world, suffer from the micronutrient deficiencies (Nelson, 2006). It is estimated that 32% of the global burden of disease would be removed by eliminating malnutrition, including micronutrient deficiency (Nelson, 2006).

Nelson (2006) points out that under-nutrition is “linked to the HIV/AIDS pandemic in that it makes adults more susceptible to the virus, inadequate infant feeding aggravates its transmission from mother to child, and there is evidence to suggest that it makes antiretroviral drugs less effective” (p. 4). Under-nutrition is also a serious problem in terms of economy, costing the developing countries

(especially, the least-developed countries) billions of dollars annually. That is, under-nutrition is an impediment to productivity, economic growth, and poverty reduction. The scale of the under-nutrition problem, in the economic terms, is large and extensive. If the problem is not significantly reduced, the under-nutrition could cost the global economy about $180-250 billion over the next ten years, and yet the total public investments to address the problem are estimated to be only about $4-5 billion (Nelson, 2006).

Today, with a challenge so significant, there is broad acceptance that the future success of the global public health depends, to a large extent, on sound nutrition. Nevertheless, as Bradley (2008) comments, still "obtaining food for survival far outweighs obtaining optimal nutrition in countries where the economic reality is harsh…in an unstable financial atmosphere, making sound and affordable nutritional decisions is a luxury many cannot afford" (p. 171).

The Center for Health and Aging at the National Bureau of Asian Research (NBR) addresses a few of the key challenges related to the global under-nutrition ("Food for Thought"). First, in the field of nutrition, there is lack of coherent leadership. The diversity of topics and corresponding organizations in the field of nutrition make it difficult to identify a clear leading body of organizations that can help incentivize, monitor, and coordinate the global nutrition programs and policies.

Second, despite renewed momentum in the nutrition field, under-nutrition (or malnutrition) is not perceived to be an urgent issue in comparison with infectious diseases such as HIV/AIDS. Although nutrition is related to the major health issues, it seems that nutrition still remains abstract, low-priority issue for many decision makers.

Third, in terms of nutrition, many developing countries face health inequities and a dual burden of disease. Namely, under-nutrition and obesity coexists at relatively high rates in countries such as Brazil, India, South Africa, and China where economic growth with large economic disparities between the rural and the urban populations exists. However, in the least developed world such as sub-Saharan African countries, still, obtaining food for survival far outweighs obtaining optimal nutrition.

Fourth, the prices for grains, sugars, and oils have doubled or tripled in recent years. This food crisis has caused political instability and social unrest.

Fifth, although some significant, proven, cost-efficient global nutrition intervention strategies have been developed and implemented, they still remain fragmented and miss out the opportunities to reach more people. In other words, there is uncertainty about the best practices in the nutrition interventions. Public policies that incentivize more positive private sector engagement in the nutrition field would motivate the private companies to tackle the issues related to nutrition, leveraging their distribution systems, and share their valuable knowledge about consumer behavior.

Sixth, at the state level, there is lack of nutrition-related strategies and policies which are clear, enforceable, and flexible.

Lastly, the private sector engagement in the nutrition field has been insufficient. While some companies have successfully developed and marketed fortified foods for lower-income groups, those initiatives have been limited and most have not yet been scaled up.

The problem of global malnutrition is extensive and growing in many countries. However, Nelson (2006) argues that "proven and cost-effective interventions exist – especially in the

areas of under-nutrition and micronutrient deficiencies" (p. 4). A report produced by the World Bank (2006) made a strong case that the investments in proven technologies and interventions to tackle under-nutrition (or malnutrition) offer potentially very high economic returns. The workable solutions to the under-nutrition problem, considering the proven, cost-effective interventions, are needed to be dramatically scaled up.

In essence, individual state governments should take the lead in tackling the under-nutrition problem. However, the international development community can help the individual countries do more on the problem. The international community of the development partners "must use their combined resources of analysis, advocacy, and capacity-building to encourage and influence governments to move nutrition higher on the agenda…This role can be fulfilled only if the development partners share a common view of malnutrition problem and broad strategies to address it, and if they speak with common voice" ("Repositioning nutrition", 2006, p. 14). Without the coordinated and focused action between the individual governments and international development partners, no significant progress in the nutrition field can be expected.

In terms of the coordinated and focused action between the individual governments and international development partners, how can the private sector, specifically the food and beverage industry, share their business resources and expertise in conjunction with the under-nutrition problem? In other words, how can the private and the public sector join forces to develop and implement programs that resolve the under-nutrition problem? As Nelson (2006) illustrates, the 'business case' for companies to engage in hunger-reduction efforts varies by industry and by company. Nevertheless, every step in the food production and consumption process is related to some type of private sector involvement.

In conclusion, the contribution that an industry (or a company) can make in overcoming the under-nutrition problem in connection with the public-private partnership may vary depending on the kind of industry sector and the type of intervention it pursues. Also, it would be influenced by the capacities and abilities of other actors related to the under-nutrition problem, such as national governments, NGOs, inter-governmental organizations, and the research institutions. In addition, whether companies act individually, or act on a collective industry-wide basis, or act in collaboration with other industry sectors can affect the results of the public-private partnership to address the under-nutrition problem.

Nevertheless, the under-nutrition and other forms of malnutrition problems cannot be solved without strong, effective partnerships, and the public-private interactions (or partnerships) are the most powerful untapped opportunities in connection with the under-nutrition.

3.3 Step Three: Access the Similarities between the Source and the Target

In this step, the similarities between the food and beverage industry and the pharmaceutical industry are mapped, and whether the resemblance is more than superficial is determined. Gavetti, Levinthal et al. (2005) emphasize that a strategist must search actively not only the similarities but also the differences between the source and the target setting, seeking evidence that each essential feature of the source problem is absent in the target setting. Therefore, whether the key features of the food and beverage industry exist or are absent in the pharmaceutical industry in conjunction with its target problem is investigated.

The similarities between the source and the target setting of the ARM are summarized as follows. Both the source (the food and beverage industry) and the target (the pharmaceutical industry) problems (1) relate to the issue of the global public health, that is, both industries supply the essential products/services for the overall public health; (2) relate to the developing world (particularly, the least-developed world) in terms of the production, distribution, prices, and access; (3) relate to the issues of economic growth, productivity, and poverty reduction; (4) relate to the lack of coherent leadership that can help incentivize, monitor, and coordinate the global public health programs and policies; (5) relate to political instability and social unrest; (6) relate to multiple stakeholders, such as consumers/patients, national governments, NGOs, inter-governmental organizations, and shareholders; and (7) relate to uncertainty in that the best practices to tackle the problems are still unclear. Lastly and the most importantly, for both the source and the target problems, the proven, effective, workable solutions have been found and scaled up dramatically through the partnerships between the public and the private sectors.

In contrast, the differences between the source and the target setting of the ARM can be summarized as follows. First, while the access to essential, life-saving medicines has been perceived to be the most urgent issue, the under-nutrition (or malnutrition) has not been perceived as urgent as the access to essential, life-saving medicines. In other words, although the under-nutrition problem is related to the other major health issues, infectious diseases such as HIV/AIDS have attracted the majority of policy attention and funding.

Second, by the same token, the food and beverage industry has not been pressed as severely as the pharmaceutical industry by its multiple stakeholders. The under-nutrition problem still remains low-priority issue for many decision makers in comparison with the issue of the access to essential, life-saving medicines.

Third, in case of the access to essential, life-saving medicines, the R&D cost incurred by the pharmaceutical industry is one of the major issues in explaining the conflicts between the industry and its stakeholders. That is, the pharmaceutical companies have emphasized the stringent patent protection on the pharmaceutical products to recoup the expensive R&D costs, and, in contrast, the critics have criticized the companies on the ground that the strong patent protection impedes the access to essential, life-saving medicines, particularly, in the developing world. However, in case of the under-nutrition problem, the R&D cost incurred by the food and beverage industry (and related patent protection on the food and beverage products) is not as important as in case of the access to essential, life-saving medicines.

Lastly, there has been lack of clear, enforceable, and flexible policies to address the under-nutrition problem at the state level. In contrast, as witnessed in Brazil, Thailand, and South Africa, there have been effective policies at the state level to address the access to essential, life-saving medicines, forcing the pharmaceutical companies make concessions.

The original strategy of the food and beverage industry for the source problem of the under-nutrition is the public private partnership. Yach (2008) argues that the most powerful untapped opportunities for partnerships involve public-corporate interaction and any significant supports for change will not come from traditional sources of health development finance such as government development agencies or

the major private foundations. Therefore, these partnerships needed to be embedded in new business models. They would promote better health and, also, would be profitable.

3.4 Step Four: Translate, Decide, and Adapt the Original Strategy

The last step of the ARM is to evaluate whether the original strategy of the public-private partnership adopted by the food and beverage industry to address the global under-nutrition problem would work, when it is translated properly, for the target problem of the pharmaceutical industry.

Since even the best analogies involve some differences between the source and the target setting, in order to translate the original strategy properly, adjustments that deal with the differences between the source and the target setting should be made. Additionally, if the analogy is chosen to be pursued for the target setting, another round of adjustment – adapting in the marketplace in response to the feedback from customers, rivals, suppliers, and others – should be made (Gavetti, Levinthal et al., 2005). Therefore, to decide whether the public-private partnership strategy adopted by the food and beverage industry to deal with the global under-nutrition problem would work for the pharmaceutical industry in terms of the access to essential, life-saving medicines, the original strategy of the food and beverage industry needs to be translated properly as much as possible, adjusting the differences between the two industry settings.

Private sector (i.e. the food and beverage industry) can play a vital role in the systems that sustain healthy communities, reduce poverty, and prevent hunger. A report produced by the World Economic Forum (2006) points out the following: “It is no coincidence that areas with widespread chronic hunger often have little private sector activity” (p. 11). The food and beverage companies can play innovative roles in tackling the global under-nutrition problem on the individual firm basis. Several food and beverage companies, such as Heinz, Nestlé, Group DANONE, Coca-Cola, Unilever, and PepsiCo Inc., have undertaken initiatives that could harness their core competences, products, services, and business networks to help overcome the global under-nutrition problem.

However, one of the most important contributions to tackling the global under-nutrition problem by the food and beverage companies, as the World Bank report describes (2006), has been implemented on a collective basis, not on the individual firm basis, particularly through the partnerships with the public sector.

Although the public sector is fundamentally responsible for addressing the essential, underlying issues of the under-nutrition problem, it often has neither the capacity nor the resources to deal with the problem effectively (“Harnessing private sector”, 2006). Therefore, there is a need for the private sector to take part in the partnerships with the public sector, applying its core competences to strengthen the public institutions. Today, in addition to working with the private sector, the public sector (i.e. national governments), is also increasingly working through the partnerships with NGOs for growth promotion as well as for micronutrient programs, using their institutional capacities (World Bank, “Repositioning nutrition”, 2006).

The public-private partnerships in conjunction with the under-nutrition problem are collaborative capacity building efforts among private sector companies, national governments or public agencies, and NGOs. It is noted that “the application of private sector technical and managerial skills to strengthen the capacity of public agencies and NGOs can often bring greater long-term value than cash or in-

kind donations" (World Economic Forum, "Harnessing private sector", 2006, p. 19).

The Global Alliance for Improved Nutrition (GAIN) presents a proven, effective model of the public-private partnership for the under-nutrition problem. GAIN was founded in 2002 at the United Nations General Assembly's Special Session on Children as a public-private network to reduce malnutrition through the use of food fortification and other strategies, aiming to improve the health and nutrition of populations at risk (Ameringen, Magarinos et al, 2008). In specific, GAIN was launched as "a multi-sector alliance, grant-giving and technical assistance body, and advocacy network with a core purpose to tackle micronutrient deficiency primarily through food fortification" (Nelson, 2006, p. 11). That is, GAIN is a public-private partnership launched to help create cost-effective food fortification programs in a bid to improve health, cognitive development, and productivity in the developing world ("GAIN to improve", 2002). GAIN has set clear, measurable targets for itself. The major targets of GAIN include: (1) Reduce the prevalence of vitamins and mineral deficiencies by 30% in the areas where GAIN supports projects; (2) Reach 1 billion people with food that has been fortified with vitamins and minerals; (3) Ensure that 500 million of the people most in need, such as children and the pregnant women, who regularly consume the fortified foods; and (4) Achieve these results at a cost of less than 25 U.S. cents per person, per year (Nelson, 2006).

Although GAIN is a Swiss Foundation funded by the Bill and Melinda Gates Foundation, the United States Agency for International Development (USAID) and the Canadian International Development Agency (CIDA), it builds the partnerships between the public and the private sector. Namely, GAIN is composed of diverse groups including the U.N., developing country governments, private sector companies, NGOs, and academic institutions ("GAIN to improve", 2002). Also, the supporters of GAIN include UNICEF, THE World Bank, WHO, the World Food Programme, the Helen Keller International, the U.S. Center for Disease Control and Prevention, A2Z (the USAID Micronutrient Program), and the Micronutrient Initiative. Particularly, GAIN is partnering with the private sector companies such as Group DANONE, Unilever, and Cargill.

GAIN delivers its funding and technical assistance through the multi-sector National Fortification Alliances in about 17 countries, and each has its own targets. At the global level, GAIN has a multi-sector Board of Directors and a multi-sector Reference Group (Nelson, 2006). GAIN advocates for better nutrition worldwide as a cost-effective way to make people and economies stronger, healthier, and more productive (Ameringen, Magarinos et al, 2008). GAIN has tried to enable innovative solutions to improve nutrition at a large scale by providing financial and technical support, setting the target of reaching 1 billion people vulnerable to under-nutrition (Ameringen, Magarinos et al, 2008).

In essence, the most distinctive feature of GAIN is its partnership with the private sector companies to use the companies' know-how in product development, marketing, and distribution. This feature enabled GAIN to launch a business alliance. That is, GAIN established the GAIN Business Alliance for Improved Nutrition in Beijing in 2005. Specifically, the GAIN Business Alliance is a jointly funded initiative of GAIN and the World Bank Institute to bring together the global food companies committed to furthering food fortification around the world ("Business action"). Namely, the GAIN Business Alliance was launched to support the GAIN's commitment to finding the

market-based solutions through spearheading active business-led initiatives in a number of regions around the world (Ameringen, Magarinos et al, 2008).

GAIN has made a strategic commitment to systematically increase its dialogue and engagement with the business community, increasing the number of companies with which it has significant interaction (Nelson, 2006). The establishment of the GAIN Business Alliance has been central to this strategic commitment. The GAIN Business Alliance "operates globally, regionally, and nationally in countries such as China and India, as well as through regional networks in the Americas and in Africa" (Nelson, 2006, p. 11). The GAIN Business Alliance is chaired by Unilever and it focuses on: (1) Mobilizing companies in developing countries to promote the food fortification through providing technical assistance, recognition, and other support; (2) Creating media attention and visibility for the food fortification; and (3) Creating a clear and rigorous progress for engaging the private sector in a manner that makes clear business sense to the companies and offers clear development benefits in terms of results (Nelson, 2006). The private sector companies involved in the GAIN Business Alliance include Unilever, Heinz, Group DANONE, Cargill, DSM, BASF, Tetra Pak, and Coca-Cola.

In conclusion, the GAIN's global partnership model is an innovative one between the public and the private sector, building programs together. The GAIN Business Alliance is the key part of the GAIN's strategy and it was launched "as a platform to extend the production and distribution of affordable fortified foods around the world, in particular to poor and at-risk populations" ("Memorandum", 2006). Both GAIN and the GAIN Business Alliance aim to change the existing ineffective regulatory environments to improve diets, working with national governments, consumers, and the private sector companies. In particular, the GAIN Business Alliance's mission is to develop innovative approaches for dealing with the barriers that have traditionally kept affordable fortified products outside of the market place ("Business Action"). In essence, the GAIN's global partnership model is an innovative example of how to make markets work better for the poor people by facilitating more active partnerships between the public and the private sector in the area of health and nutrition.

Another example of the public-private partnership, particularly a business-led alliance like the GAIN Business Alliance, to tackle the under-nutrition problem is the Business Alliance Against Chronic Hunger (BAACH). "In 2006, the World Economic Forum and some of its member companies jointly launched an innovative new initiative with the mission to form a network of businesses committed to taking action to reduce chronic hunger in Africa, in cooperation with the public sector, civil society and community partners" (Nelson, 2006, p. 12). Namely, BAACH is a cross-industry, multi-stakeholder initiative working with a broad array of companies to promote business models that contribute to sustainable food production and raise incomes in poor regions (United Nations Global Compact, 2008). BAACH, particularly, enables businesses leverage their expertise and capabilities to improve value chains from production, processing, and packaging to retailing and marketing to increase food supply, nutrition, and incomes in hungry regions.

For instance, BAACH works to reduce hunger in Africa by strengthening specific food value chains through business development and market linkages. The private sector companies implement the solutions in partnerships with national governments,

NGOs, inter-governmental organizations, and communities (United Nations Global Compact, 2008). In essence, BAACH is looking at the partnership opportunities between the public and the private at the every stage of the value chain. That is, the strategy of BAACH is "to take an integrated approach to solving hunger by focusing on using business expertise and market power to strengthen food value chains and build more sustainable and equitable market systems through multi-stakeholder partnership, testing these new approaches in a specific region, and disseminating lessons globally" (Nelson, 2006, p. 12). BAACH strengthens, globally, the commitment to action on hunger by promoting effective business models to reduce hunger, facilitating dialogue and engaging in the global partnerships (United Nations Global Compact, 2008).

Each of the possible partners in the public-private initiatives (i.e. the private sector companies, NGOs, national governments, inter-governmental organizations, and academia) can provide specific and unique expertise of its own, working together to tackle global issues such as the under-nutrition and the access to essential, life-saving medicines. These partnerships can be the most effective way to produce the highest rate of success.

But, Bradley (2008) argues that "creating trust and building relationships are at the heart of good business…Partnerships built on a foundation of trust, shared values and common aspirations seem to be the most productive way to reach realistic, measurable goals" (p. 171). In other words, a successful public-private partnership is based on a strong understanding, among the partners, of the challenges to be overcome in the target community. Thus, facilitating dialogue, concerning the capabilities and the shared values, among the partners can maximize the potential of a public-private partnership, enabling a strong understanding to be formed.

In terms of the public-private partnership, both the public and the private sector must discard the traditional way of thinking and try to invent strategies or programs that can effectively tackle global issues such as the under-nutrition and the access to essential, life-saving medicines. To deal effectively with the pressure posed by their various stakeholders, the private sector industries (e.g. the food and beverage industry, the pharmaceutical industry) should actively incorporate the public-private partnership approach into their business model - preferably on an industry-wide, collective business basis. Also, they should develop innovative strategies in order to utilize and share their business know-how with public sector partners, such as national governments, NGOs, international agencies, and academia.

4. Discussion and conclusion: a public-private partnership as an analogical target solution for the multinational pharmaceutical companies

In the third step of the ARM, whether the key features of the food and beverage industry exist or are absent in the pharmaceutical industry, in connection with its target problem, was examined. In essence, the similarities between the two industries suggest the application of the proven, cost-effective candidate solution to the source problem of the food and beverage industry to the target problem of the pharmaceutical industry.

Moreover, the first two differences between the two industries even reinforce the potential for applying the candidate solution to the target problem. That is, although the under-nutrition has not been perceived as urgent as the access to essential, life-saving medicines and, thus, the food and beverage industry has not been pressed

as severely as the pharmaceutical industry by its various stakeholders, the food and beverage industry has developed a proven, cost-effective strategy to deal with the global under-nutrition problem. Therefore, the pharmaceutical industry, which has been severely pressed by its diverse stakeholders in connection with the access to essential, life-saving medicines (because the access to essential, life-saving medicines has been considered to be the most urgent issue in the global public health), must also develop an effective strategy to deal with the problem. Although it should be adjusted for the target setting, the proven, cost-effective solution to the source problem of the food and beverage industry (i.e. the public-private partnership led by the private sector companies) can be an effective target solution to the target problem of the pharmaceutical industry.

However, before applying this candidate solution to the target problem, the third difference between the two industries (i.e. whether or not companies put the stringent patent protection on their products to recoup the R&D cost) identified through the third step of the ARM should be evaluated again. In other words, this difference requires some adjustment in order to adapt the original strategy (i.e. the candidate solution) of the food and beverage industry to the target problem of the pharmaceutical industry.

Specifically, in case of the access to essential, life-saving medicines, the R&D cost incurred by the pharmaceutical industry is one of the major issues in explaining the conflicts between the industry and its stakeholders. In contrast, in case of the under-nutrition problem, the R&D cost and related patent protection are not as important as in case of the access to essential, life-saving medicines. Therefore, the pharmaceutical industry needs to formulate strategies to balance the access to essential, life-saving medicines with its expensive, R&D-intensive business. However, there is no need for the candidate solution of the food and beverage industry to be significantly adjusted to the target problem of the pharmaceutical industry. That is, without making any significant adjustment, the candidate solution can be applied to the target problem of the pharmaceutical industry, because the public-private partnership strategy helps not only stakeholders in terms of the access to essential life-saving medicines but also the pharmaceutical companies in terms of balancing socially responsible business with expensive, R&D-intensive business.

Therefore, the suggested analogical target solution or target strategy for the pharmaceutical industry in connection with the access to essential, life-saving medicines is implementing the candidate solution of the food and beverage industry. That is, the public-private partnership, specifically, the comprehensive, industry-wide, multi-stakeholder, business-led public-private partnership, can help the pharmaceutical industry deal with the pressure posed by its various stakeholders in connection with the access to essential, life-saving medicines, balancing its R&D-intensive, expensive business with the enlarged corporate social responsibility.

Although the multinational pharmaceutical companies have engaged in several public-private initiatives in conjunction with the access to essential, life-saving medicines, there has been no comprehensive, industry-wide, multi-stakeholder public-private partnership. Moreover, except the Merck's Mectizan Donation Program, the public-private initiatives in connection with the access to essential, life-saving medicines have always been initiated by the public sector institutions, not by the private sector pharmaceutical companies. Thus, to develop an effective and efficient public-private partnership strategy for the

pharmaceutical industry, the partnership should be formulated considering the proven, cost-effective public-private partnerships, such as the GAIN Business Alliance and the Business Alliance Against Chronic Hunger (BAACH), developed between the public sector institutions and the food and beverage companies.

GAIN (particularly, the GAIN Business Alliance) and BAACH have important implications for the multinational pharmaceutical companies in terms of the public-private partnership. That is, the GAIN Business Alliance and BAACH present how the multinational pharmaceutical companies, especially the pharmaceutical industry as a whole, can form a comprehensive, industry-wide, multi-stakeholder, cost-effective public-private partnership in relation to the access to essential, life-saving medicines. The GAIN's global partnership model is an innovative example of how to make markets work better for the poor people by facilitating a more active partnership between the public and the private sector in the area of the global public health. Namely, the GAIN's global partnership model is an innovative one in that it builds programs with the private sector and, also, provides partnership between the public and the private sector. In particular, the GAIN Business Alliance is the key part of the GAIN's strategy and the business alliance has formed the business-led public-private partnerships.

The GAIN's global partnership model can be applied to the pharmaceutical industry in terms of the access to essential, life-saving medicines. In essence, the GAIN Business Alliance presents how the public-private partnership can be led by the private sector companies, not by the public sector institutions, benefiting both the public and the private sector. BAACH is another proven, effective model of the public-private partnership (a business-led alliance) in the field of the global public health, taking an integrated approach to hunger through the multi-stakeholder partnership.

The pharmaceutical industry should do something to deal with the risks posed by its diverse stakeholders in connection with the access to essential, life-saving medicines. However, the pharmaceutical industry (the private sector) alone cannot resolve the problem in the long-term perspective. with regard to the access to essential, life-saving medicines, the pharmaceutical industry needs a comprehensive, industry-wide, multi-stakeholder public-private partnership to secure the cooperation from its various stakeholders. One of the most important contributions to tackling the global under-nutrition problem by the food and beverage industry has been implemented on a collective basis particularly through the partnership with the public sector. The public-private partnership strategy must be a useful measure to improve the access to essential, life-saving medicines on the part of the pharmaceutical industry, particularly in overcoming the obstacle of a lack of infrastructure in connection with marketing and distributing medicines and related products in the developing world.

In addition, the pharmaceutical industry should initiate (or lead) the public-private partnership, promoting effective business models and facilitating dialogue between the industry and its stakeholders. In other words, the pharmaceutical industry should actively incorporate the public-private partnership into its business model - preferably on an industry-wide, collective business basis – and should develop innovative strategies that utilize and share business know-how with its partners such as national governments, NGOs, international agencies, and academia.

As describes earlier, a successful public-private partnership is based on a strong understanding of the challenges

to be overcome among the partners in the target community. This strong understanding among the partners in relation to the global public health enables a comprehensive, cost-effective, multi-stakeholder public-private partnership in terms of the access to essential, life-saving medicines. Facilitating dialogue among the partners concerning the capabilities and the shared values can maximize the potential of a public-private partnership, enabling a strong understanding to be formed. Therefore, to formulate an effective public-private partnership, both the public and the private sector must discard the traditional way of thinking and try to invent strategies or programs that can effectively tackle the issue of the access to essential, life-saving medicines.

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