THE AGREEMENT BETWEEN BMW AND SOLID POWER

Introduction:

This agreement was made between the Bayerische Motoren Werke (BMW group) luxury car manufacturing company and Solid Power developer of all solid-state rechargeable battery cells on effective date of 21 December 2022. These both firms made an agreement to work together and develop a new product with set of legal contracts among them. This type of agreement is formally known as "Joint Development Agreement (JDA)". The use of joint development agreement concept is in real estate and construction projects. JDA have been used for many years, and their use has evolved over time as the needs of the industry have changed.

Background:

The relationship between the firms was started in 2016 for conducting research and development in all solid-state rechargeable battery cells. Later on, BMW announced partnership with Solid Power to jointly develop all-solid-state battery technology in 2017. A forward step was taken expand their partnership with Solid Power in 2021 with Series B investment and joint development agreement for full-scale 100 Ah cells for testing and vehicle integration.

Whereas Bayerische Motoren Werke (BMW) is a German multinational corporation which produces luxury vehicles and motorcycles. The company was founded in 1916. In 2015, BMW was the worlds 12^{th} largest producer of motor vehicles, with 2,279,503 vehicles produced. Headquartered in Munich and production plants were all over the world. The company also owns and produce the Mini marque and is the parent company of Rolls-Royce motor cars with a market capitalization of 64.13 billion USD.

Whereas Solid Power is a leading developer and producer of next generation solid-state batteries for use in electric vehicles (EVs) and other energy storage application. The company was founded in 2012 and is based in Colorado, USA. In 2021, Solid Power raised over $130 million in funding from investors, including BMW, Ford, and A123 systems, demonstrating the growing in solid-state battery technology. Solid Power will play a major role in shaping the future of energy storage and electric transportation.

Purpose:

BMW is actively involved in the development and production of electric vehicles (EVs). The company has been working to integrate electric powertrains into its line-up of vehicles and has introduced several all-electric and hybrid models in recent years. BMW's focus on EVs is part of its larger strategy to reduce its carbon footprint and meet increasingly stringent emissions regulations around the world. So, BMW desire to establish a cooperative relationship to design and develop the next generation solid-state batteries for high volume EVs. With the first focus being emerging in the future EVs market. The commercial relationship at the outset will be one of joint development, but it is expected to evolve to a larger more complementary strategic alliance as the efforts provide a return on investment and as each party becomes more familiar with the competencies of the other.

Agreement commitments:

This agreement shall be performed in phases. BMW will provide developmental funding and other appropriate resources to Solid Power in support of the cell design and manufacturing processes. i). The agreement gives significant benefits to both companies, both firms have authority in conducting complementary cell development and manufacturing activities to further advance the capability of Solid Power’s technology. ii). The BMW Group have to facilitate duplicate Solid Power’s pilot production lines at its own facility in Germany and

produce prototype cells based on Solid Power's proprietary technology. iii). Prior to the installation of the BMW Group's prototype line, the BMW Group's personnel will work hand-in-hand at Solid Power's facilities to optimize cell manufacturing processes.

At this agreement announcement Dr. Derek Johnson, Chief Operating Officer of Solid Power addressed "We could not be more excited about growing our relationship with BMW, a company that has demonstrated a strong commitment to Solid Power's technology for the past seven years, we believe this expanded partnership and increased collaboration is an added vote of confidence in Solid Power's technology development."

Also, Frank Weber, Member of the Board of Management BMW AG Development stated "BMW remains committed to the pursuit of all-solid-state batteries, a technology which we believe has significant potential for the future,"

Value of the agreement:

BMW already an investor in Solid Power from 2016 in R&D of solid power. Any firm need a legal authority on product for efficient use. For this reason, solid power agreed to license the cell design and manufacturing processes to BMW for a worth of $20 million. BMW agreed to pay by June 2024, with certain commitments mentioned in the above.

Product Development Framework, Milestones:

The phases of the project will follow Solid Power new product development process, they mentioned their futuristics development with BMW. As per commitment development of internal production of prototype 100ah cells by 2022. Following pre-launch, the external and internal production of 100ah EV cells by 2024 and production of external production of 100ah cells will start in the same year.

Critical Analysis:

Transaction Cost Economy (TCE):

If a transaction happened between two different interface firms for a product or service, there must be transaction which involves an exchange of values. In this scenario to complete the transaction with solid power, BMW go through three stages whereas first stage R&D cost (The costs related to the research phase) tier one investment of BMW on solid power in 2016 to collect information on products and the supplier itself., tier two investment in 2022 by doing joint development agreement to acquire license on cell design and manufacturing process. Second stage is contract cost (the negotiations of transactions) in this step solid power made a smart move to expand their market in the world. As a result, BMW Group agreed to facilitate duplicate Solid Power's pilot production lines facility in Germany. Third stage control and enforcement costs (control of the implementation of the agreement) to maintain healthy relationship between two firms solid power agreed to prior the installation of the BMW Group's prototype line, as well as BMW Group personnel will work hand-in-hand at Solid Power's facilities in manufacturing processes. Total cost of a transaction was defined as summation of production cost and transaction cost, here the transaction cost was minimised within the firms' by seeing considerable advantages for both businesses in the future.

Both the firms act wisely to minimise the transaction cost. Even though both the firms have high number of competitors, none of them influenced by market. To decrease transport cost solid power negotiated to facilitate a manufacturing unit in Germany and BMW agreed because it will be near to the headquarters. Both firms have equality of the negotiation conditions and the negotiating capacity.

Resource based view (RBV):

In the case of BMW Group and solid power, the resource was tangible. BMW wants a strategy to forfeit their competitors in the EVs market and must build a barrier to entry into the market. By this agreement BMW set an example for innovative approach in the market. In the history of EVs, BMW will have more valuable in the markets around the world. All solid-state rechargeable battery cells product is unique and rare resource. The prototype was succeeded and imperfectly imitable. It is non substitutable because its uniqueness and working principles. We can see the resource characteristic was imperfect imitability and resource type was knowledge based. Where in RBV, knowledge-based resources are less protectable, but the two firms have hierarchal relationship from last 7 years collaboration. This creates the best opportunity to collaborate and working transparently by sharing resources without any afraid.

Property right theory (PRT):

Any product or service or resources that we are using and will be used in future have an owner. For him/her have a theoretical and legal ownership on their product how they can be used to drive benefits. They have full authority for transferring or exchanging their resources to make profits from them. Solid power was parent to cell design, exchanged their property rights with BMW. According to PRT to efficient use of resources BMW have to own the license. So, BMW took full rights of the cell design and manufacturing unit from solid power. Then it will make the use of resources efficient, provide an economic incentive and control the residual right. By this way BMW have a right to control the result of collaborative effort.

When a product has duo partnership, the benefits from the product will split. If any one in the team does not perform well means, it will affect the efforts. The impact will be on partnership

not on the individual. For this reason, the firm BMW was residual claimants. BMW will invest and control the production and take the benefits from the product.

According to the PRT, if a company own the resource from other company, the collaboration may bring the moral hazard and opportunism. So, owner will transfer the control rights of their resources to the third parties to organise the result. Here, in this agreement its quite opposite because of the hierarchical relationship between the firms. But the output is not just 1+1=2, but 3, in different forms for the both the firms. This joint development agreement was in line with new property theory (GHM model).

Real option theory (ROT):

To win in a race player have to build strategies and make wise choices. In the same way companies have to pick right choices in investing for futuristic goals. In the economic concepts, real option defined as a choice available to a company regarding in investment opportunity. It defines how to manage this portfolio real option in order to maximize the value of the firm.

In my perspective this agreement was in line with the real option theory. The type of real option theory incorporated between these firms was technological uncertainty. When world in looking for a new technology like EVs, BMW grab an opportunity to invest in battery cells because it is major component for EVs. So, BMW decide to invest into solid power for developing a new product in 2016. Both the firms do not know whether it will successful or not. Since it may affect the success of an investment also there be impact on future revenues. But BMW took risk and believe in the capabilities of the solid power to build hybrid governance forms. Also considering the option to defer or to wait BMW postpone high specific investment in solid power. Whenever solid power succeeded in the prototype, BMW initiated the expand option.

Conclusion:

Considering the critical analysis in my opinion, other than this joint development agreement I prefer joint venture between these firms. Because the agreement provides significant benefits to both companies and allows them to conduct complementary cell development and manufacturing activities to further advance the technology, but the development is a complex process, and there is no guarantee of success. BMW provided the development funding and other resources to solid power, this was a financial risk. Also, the BMW depended on quality of the product provided by solid power. Where the cost of development and production of batteries is high, and there is no guarantee of a return on investment. May be there is risk that competitors emerge with similar products which could reduce the market potential.

Bibliography:

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