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Table of Contents

Introduction	2
1. Stockholm Gases' approach to innovation.....	4
1.1 Drivers for innovation	4
1.2 Source of innovation	5
1.3 The new product development process.....	6
2. Role of the project leader in the teeth whitening project	7
2.1 Individual knowledge and experience	7
2.2 Organizational knowledge and experience.....	8
3. Open model and one closed model of innovation and their application	10
3.1 Open model innovation	10
3.2 Application in teeth whitening project	11
3.3 Closed innovation model	12
3.4 Application in teeth whitening project	12
3.5 Recommendation	13
4. Recommendation regarding the project.....	14
4.1 Good market size	14
4.2 New product and innovation.....	14
4.3 High expectations of the consumers	15
Conclusion	17

List of figures

Figure 1: Simple stage-gate model.....	6
Figure 2: Open innovation model	11
Figure 3: Closed innovation model	12

Introduction

Innovation is a process where a new product or service is created by a company in order to increase their market share. Innovation is done through a sophisticated process which is started with opportunity identification and ends with product selling. This report talks about an innovation that is done by Stockholm Gases, one of the market leaders in Germany. This report covers their innovation process and their approach to the innovation. Also, this report encompasses the role of a member of the management team from individual and organization perspective. Further more, this report includes discussion on closed innovation and open innovation and how they can be applied to the teeth whitening market along with the suggestion of best approach between these for this particular project. Finally, this report recommends whether Stockholm Gases should take this opportunity and go forward with their innovation.

1. Stockholm Gases' approach to innovation

Stockholm Gases' approach to innovation is based on new product development. They have been working on the teeth whitening project for one year. In this one year, they have tried to comprehend the usage of plasma, fourth matter, which can be utilized to whitening the teeth of humans because of its special characteristics. Innovation can come from different approaches by a company, but in this case, it comes from new product innovation because Stockholm Gases has identified the opportunity which has been untapped for several years.

Stockholm Gases is quite popular for its business because of its important contribution to the gas industry (Urbancova, 2013). They are the suppliers of various types of gases and liquids, and they are running several projects where they are looking for any kind of untapped opportunity. Amidst of all these projects, the teeth whitening project seems quite viable and a lucrative opportunity for them. Because within the project the whole team put a lot of effort into this project, and they have done their research thoroughly. They have invented a new product which can easily whiten the teeth by using plasma. Since they are dealing with different types of gases and liquids, the material cost is quite low for them, and they think it's a very good idea to take the new product innovation approach.

1.1 Drivers for innovation

In Stockholm Gases, there are several projects are going on in the R&D department for innovating new products. It is important to understand what incited them to be more curious about the teeth whitening project through the usage of plasma. Since Stockholm Gases is already dealing with several types of gas in the industry, plasma is quite known to them. They wanted to explore the possibilities. Since they are dealing with various types of gases, they have enough resources to facilitate the project, and also the main raw material of this project is available to them. Natural plasma has some problems in it to be implemented in tissue. But through the advancement of technology in their facility, the project team has found a way (Bowonder, et al. 2019). That's why they have innovated artificial plasma, which is much more useful and cooler so that it can be used to whitening teeth, which is already a big thing in the market. There might be a question of the artificial plasma to be hotter, which may cause pain to the tissue.

But through the continuous development of an arc welder, it is possible to create artificial plasma, which is cool enough to use it on the human tissue so that it doesn't cause any pain to the tissue.

Another driver was rising customer expectation, which has been dominating for the last couple of years. There are several types of products in the market currently in order to whiten the teeth, such as toothpaste, floss, chewing gum, electric brushing, mouth wash, scaling and polishing, etc. But none of these does not provide results instantly, and also people do not follow these procedures continuously. That's why people are looking for something more than just toothpaste and other means of whitening teeth. This product will be able to fulfil the expectation of the people, which will instantly whiten the teeth, and also, there is no side effect, which is a tremendous advantage for the people.

1.2 Source of innovation

Since Stockholm Gases are involved with the gas industry, their products are used in different sectors, and healthcare is one of them. This drives to create a new product for professionals such as doctors as well as the customers in order to grab an untapped market that has multibillion-dollar potential. They already supply different types of liquids and gases to the healthcare industry, which are used to help people in the hospital (Gloor, 2016). Out of that thinking, they wanted to develop something new, which will not only give a benefit to their business but also it will help mass people to whiten their teeth. Knowledge push innovation is also being worked here in their case because they have the resources as well as the advanced technology to bring the idea into reality. They have become advanced in using technology, and they are implementing it.

Also, they have found a patent that was submitted by the University of Southern California regarding plasma to purify the teeth. Actually, they would not start the project if they did not find that patent. Because the project was risky as well as costly even though there were so many opportunities. So, based on that patent, which gave them faith in them to innovate the product, they initiated their project, which is now about to give them a breakthrough in the industry.

1.3 The new product development process

A simple stage-gate model is used to develop the product. But they have not made the decision yet. That's why they are in the middle of the product development process. Once their decision-ready is ready, they will start working in full swing (Vanhaverbeke, Van de Vrande, and Chesbrough, 2018). The simple stage-gate model starts with the idea generation. In the case of Stockholm Gases, they started their project when they got the patent, which showed the possibility that plasma can be used for whitening human teeth. From that knowledge, they started to work on it by innovating different ideas in their laboratory with the help of their assigned project team. They generate ideas based on the current market situation, availability of the resources, and current market demands.

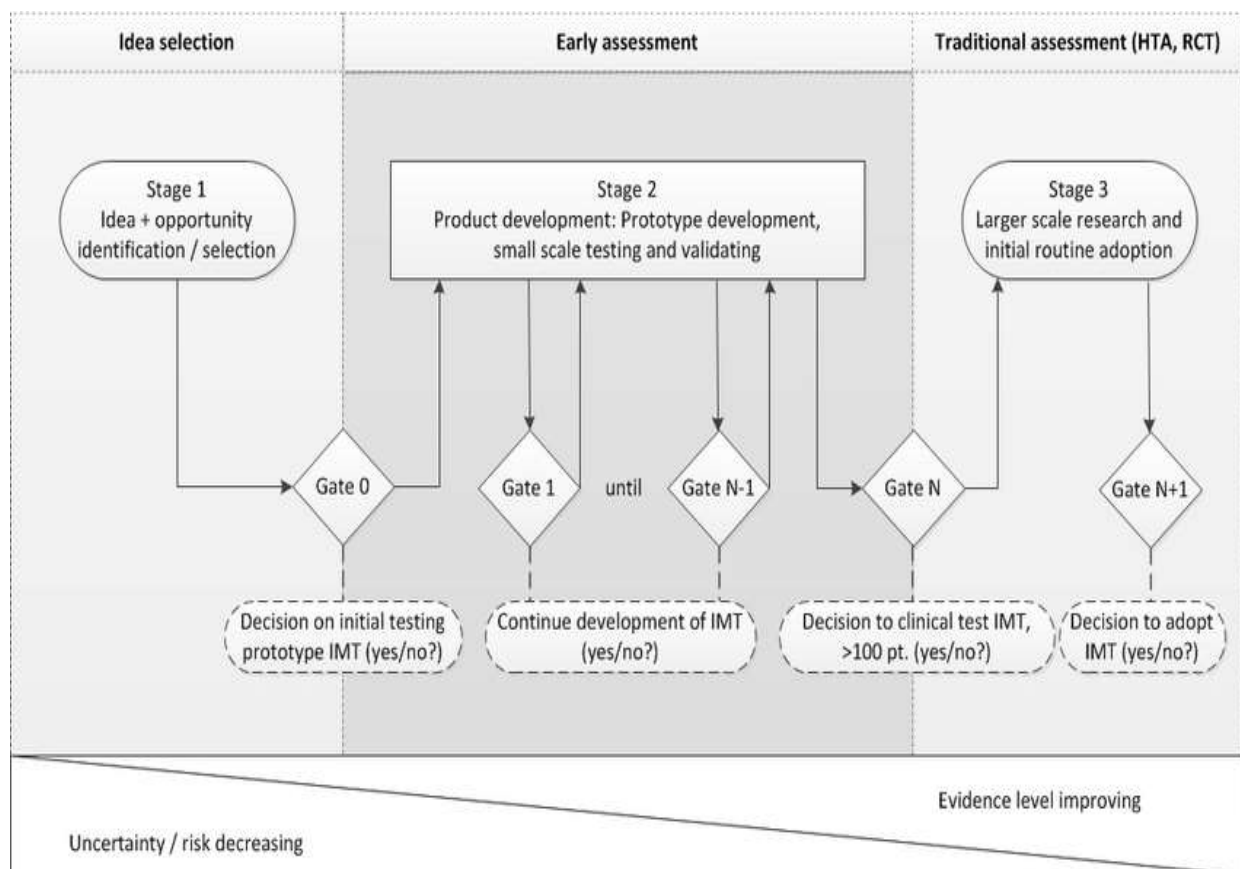


Figure 1: Simple stage-gate model

(Source: Johnston, and Bate, 2013)

In the second stage, Stockholm Gases tries to test the feasibility of the product, which they have innovated. They test the feasibility of the product through various means,

such as measuring market demand, finding technical issues, etc. The project team has measured the market gap of teeth whitening products, and they have found that customer demand is quite high, actually. Also, they have found a way to create artificial plasma, which is cooler than the regular plasma so that it can be easily applied.

After running the feasibility test, they have developed a prototype of teeth whitening product where it can be easily used by the consumers or the professionals to whiten their teeth easily. They have presented it in front of the members of the board (Epetimehin, 2013). Also, they have measured the other products which are currently in the market how their product will compete against those products.

The next stage is to implement the project by marketing and launching the product. But first, they need to have a positive signal from the board regarding the product, and then they will continue with the later activities of the simple stage-gate model.

2. Role of the project leader in the teeth whitening project

Thomas Wolfgang is the project leader of this project, and he has done a lot of extensive research to come to a conclusion regarding this project. He has presented the idea completely in front of the management. While leading this project, he has used his personal and organizational knowledge and experience with a bit of creativity. It helped him to get better output from the project and deliver better results to the management.

2.1 Individual knowledge and experience

Thomas Wolfgang has thoroughly researched the different aspects of plasma. Since it is the centre point of the new product, it was important for him to comprehend everything of plasma as a project leader. He did his extensive research through various sources and took the time to implement those studies on the new product (Johnston, and Bate, 2013). He understood that the most important thing here is the temperature. Because if they cannot make a product where plasma is too hot, then it will not be possible to use that product on the human tissue because it will cause severe pain, and people will become afraid to use that product. Rather through his extensive research as well as creativity, he led his team to develop an artificial plasma that is cooler than the natural plasma. In this case, he also used his knowledge of advanced technology to make the plasma cooler. His creative thinking, as well as the implementation, has led the team to

come to this point where they have become able to create a prototype of teeth whitening products. He finished his studies regarding the technical aspect of plasma, which will be used to develop the new product. After putting a lot of time and effort into this project, his team has successfully invented a new instrument that destroys the bacteria, which causes the teeth to be yellow.

Another important thing is, he used his personal experience while innovating the product. He knows very well that this product will be commercialized if it becomes successful and popular. So, he thought from the perspective of the business. Through critical thinking, he continuously questioned himself about the viability of the product and made a sound judgment. He tries as much possible as to be neutral in this case, and it helped him to have a good understanding of the market demand about teeth whitening products, which he later presented in front of the board.

It was an important breakthrough for them because, based on this instrument, they can prepare the final product and commercialize it (Bassett-Jones, 2015). He observed the previous case of teeth whitening products from their competitors and analysed it thoroughly. Also, he analysed the current situation of the market where the different teeth whitening products are making their way to the customers and what customers think about those products. He also used system thinking as well as the strategic thinking so that he can create an unbiased view towards this product, and he has become successful.

With the combination of his knowledge and experience, he has successfully able to run the one-year-long project and present a good amount of information and data in front of the board members. The board members also can see his individual effort in this project, which is absolutely praiseworthy, and they are quite happy regarding the result of the project because it shows the opportunity to enter into a new market where multi-billion-dollar opportunity exists. Without critical thinking as well as the proper combination of knowledge and experience, it would not be possible for him to reach this point.

2.2 Organizational knowledge and experience

Besides thorough research of the product, Thomas Wolfgang has done some market research with the help of his organization's knowledge and experience. As he was the

project leader, he has several employees under his to assist him in the project. Since he has been in this company for a long time, he actually knew how to use those human resources to create an innovative product, and he actually did this. He led those employees in a unique way where they all worked for the same purpose, which is to create a new product for giving a breakthrough (Gupta, and Singhal, 2013). In a project, it is important to take the opinions of others and take significant suggestions to form those opinions to implement it on the new product. Thomas Wolfgang has done it perfectly. He considered all the opinions of his project members and wrote down those ideas. Then he evaluated all the ideas through the help of his members. Then best ideas were selected, and they implemented those. Based on those ideas, they selected one viable idea, which is using the artificial plasma in order to whiten the teeth. It is very visible here that his organizational experience has worked here because he knew that if he wants to innovate something, he must have to take the views of others and use it for developing the new product. If he overlooked his members' suggestion, it would not be possible for him to create a complete product, and eventually, he would fail as a project leader. But years of organizational experience have helped to overcome these barriers and impediments.

Through the usage of a competitor map, he has shown that there is a huge scope for Stockholm Gases to untap this multi-billion-dollar opportunity. There is an existence of a competitive space for defending periodontal disease in the market. Also, he unravelled a great market demand for effective cleaning products, which will clean the teeth. The marketing manager also supported his views, which in turn strengthen the idea of commercializing teeth whitening products. This was all possible because of the organizational knowledge he gathered in his past years in this organization. Before this project, he also worked in several projects where he worked in the same way, and this time, he followed those guidelines as well. He viewed this innovation from the organizational perspective and collected market data with the help of his team members and then examined the market thoroughly (Yang, 2015). He and his team members talked with different consumers as well as the professional in order to get an idea about what market thinks about the innovation in the teeth whitening industry. This organizational knowledge helped him and his team to get a real scenario of the market,

which they did in the previous project before launching a new product in the market. It was quite helpful in their case obviously.

3.Open model and one closed model of innovation and their application

2.3 Open model of innovation

The basic idea of this model is to facilitate the innovation process through internal-external resources. The company takes the help of external resources or collaborators to execute the innovation process in order to create a new product that might be used to increase the market share of the company. In this model, the company does not feel confident about its employees to be competent. The company often thinks that their employees can not solely bring innovation in their company because not all of them are smart. They also think that there are so many individuals out there who are smarter and skilled than their employees (Gurteen, 2018). That's why they want to use those individuals in favour of their company and bring innovation to the company, which may help them to get success. By incorporating the knowledge and competency of those individuals in the company, it becomes easier for them to innovate new products based on the demand of the market. Also, the company sometimes believes that the effort from the internal R&D is not enough always because they have so many limitations as well as barriers. That's why they need to take help from the external R&D, which will help them to break through the barriers and bring significant success in the organization.

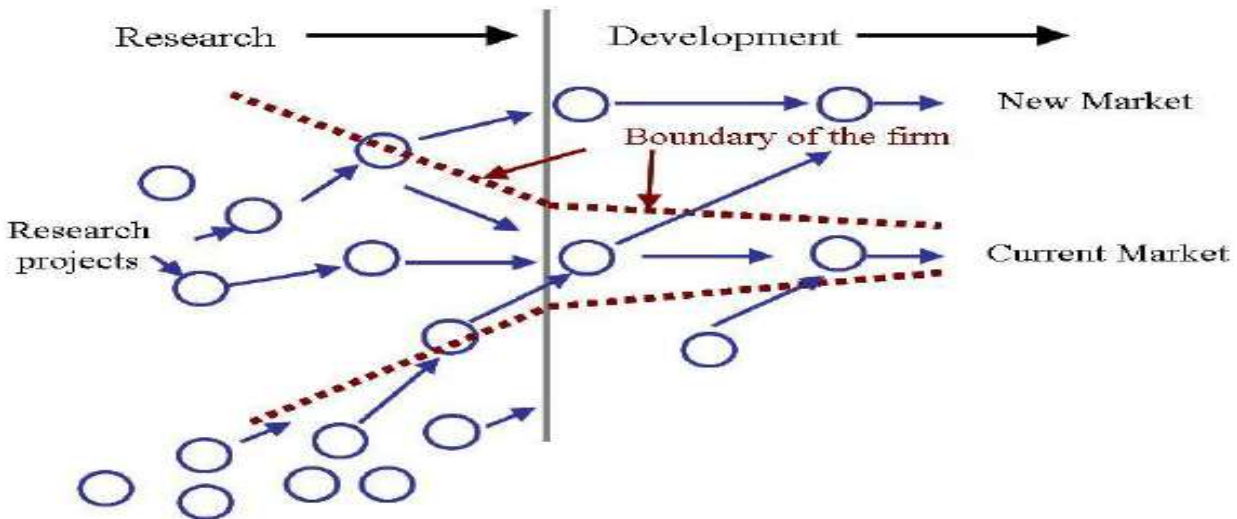


Figure 2: Open innovation model

(Source: Bassett-Jones, 2015)

2.4 Application in teeth whitening project

This can be done in the teeth whitening project by incorporating the external resources and skilled employees. Because Stockholm Gases might not have talented employees, who are needed to execute the innovation process and develop it effectively. Teeth whitening project requires a lot of skills as well as creativity in order to create a viable and sustainable product which may create a huge competition in the market. Also, it is important that the product can be able to fulfil the demand of the market successfully. That's why creative minds are needed here in order to execute the plan. Stockholm Gases needs to consider people who are experts in this field and take their suggestions regarding what can be done in order to make the product so that it can be demanded by people all over Germany.

External R&D is also needed in order to enhance the value of the overall innovation process as well as the new product. Because the technical aspect of the teeth whitening project is very sophisticated and it requires a lot of technical knowledge to incorporate important stuff in the product so that it becomes an actual product eventually which can be commercialized. There are other scopes of innovation under this model, which may allow the company to use the innovation of other companies or individuals to bring the new product in the market (Hinterhuber, and Liozu, 2017). For this, Stockholm Gases might have to pay a royalty fee every year to the main innovator. Under the open

innovation model, it is important to have a better business model rather than getting into the market first with the product.

2.5 Closed innovation model

Under this model, the company just uses its own resources and employees to facilitate the whole innovation process. There is no provision to use external resources. Because the company here wants to innovate their new ideas and product and make a profit out of it. That's why they are very much serious about their intellectual property.

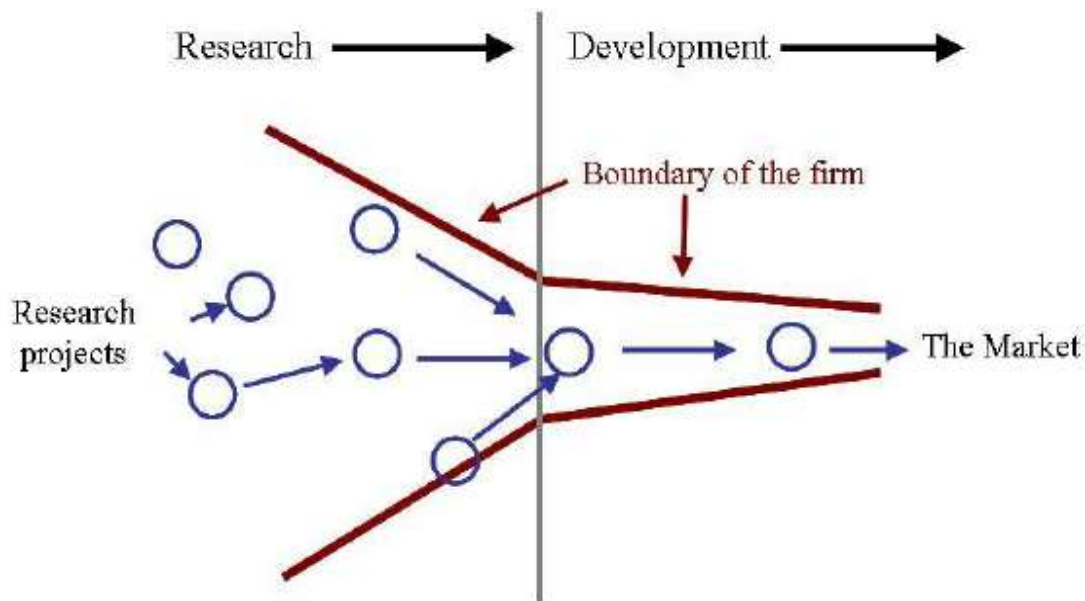


Figure 3: Closed innovation model

(Source: Singh, 2013)

2.6 Application in teeth whitening project

Stockholm Gases can use this model to innovate their new product for teeth whitening project. But in this case, they will not take any kind of help from external sources. They will employ all their human and material sources to develop their products in their own laboratory. In this case, they will invest a heavy amount in their R&D department in order to get the best output. By enriching their R&D department, they will be able to bring an innovative product that will meet their objectives.

Also, they will commercialize the product as soon as they innovate it. Also, it is important for the company to take the new product to the market as soon as possible. Because there are possibilities that other companies will clone their products and take benefit out

of it, which is obviously, they will not want (Cook, 2018). That is why they need to focus on their intellectual property, as well. That's why they need to patent their products from the regulatory office. In this way, other companies will not be able to clone their products, and if they do, Stockholm Gases can take legal action against them because of cloning their intellectual property.

It is important for the company to protect its trade secret at any cost. Because, based on this, they will take benefit from the market. If they fail to protect their trade secret, they will have to face a huge loss. Apart from that, the company needs to focus on the market insights to get useful data regarding the demand. They should find out whether there is actually a demand for innovative products in the teeth whitening industry. Because their measurement is wrong, then the consequences will be quite bad for them, which they will not be able to bear.

2.7 Recommendation

It will be better for the company to go forward with the open innovation model because it is more effective and efficient in recent times. Because the open innovation model considers several things which are not considered in the closed innovation model (Singh, 2013). Such as open innovation looks for the expertise out of the organization. It enhances the product quality as well as enrich the main idea. The open innovation model also focuses on the development of the product by outsourcing from external R&D, which is very important in case of innovating a new product. That's why it is better to go for the open innovation model for Stockholm Gases.

Moreover, it focuses on the business model more closely, which is not considered in the closed innovation model. But a business model is more important than the business model. There are so many cases in the world that different companies failed in their industry despite their unique ideas because their business model was not sustainable and strong. In the case of a closed innovation model, it is overlooked (Rohrbeck, Hölzle, and Gemünden, 2019). That's why it is better for the company to formulate a business model that may facilitate their teeth whitening project to be successful in the market. In so many cases, the open innovation model surpasses the advantages of closed innovation model. That's why many companies around the world are using the open

innovation model. In some cases, they are incorporating the advantages of a closed innovation model to open innovation models. It's a hybrid innovation model, actually.

3. Recommendation regarding the project

As the whole project shows promising revenue, which is presented by the project leader, it will be better for the company to go forward with the project. They should invest £10million in this project for various reasons.

3.1 Good market size

The market size is quite big in this industry, and a lot of people are interested in this type of product. Because of the huge size of the market, a lot of competitors are operating their business here, such as Unilever, Procter, and Gamble, etc. They are selling various kinds of toothpaste to the people. People are very concerned about whitening their teeth (Urbancova, 2013). That's why this industry is growing. There are a lot of customers in Germany who want to whiten their teeth. Because they feel good about it. That's the number of customers in this segment is quite huge. If there were not a lot of customers, then there would not be so many companies here, competing over the market share of the teeth whitening segment. The idea of using plasma to whiten teeth is completely new, and given the size of the market, it's a very good idea to carry forward. Because it will help the company to give a breakthrough in this industry, and they will be able to earn a huge amount of money.

3.2 New product and innovation

All the products that are used by the consumers are quite conventional and not that exciting. But the idea of plasma to whiten teeth is quite exciting as the marketing manager of the company describes it. He has the vision of people suing mini cylinder of artificial plasma to whiten their teeth is quite intriguing. The interesting fact about this

product none has seen anything like that ever. It is absolutely new in terms of its usage, and the time it takes to whiten the teeth is also very short. People have become bored by using all those conventional products, and these are not so effective (Bowonder, et al. 2019). Also, when a company innovates a new thing in the industry, people become very crazy about it. Since Stockholm Gases has the opportunity to be the first mover of this product, they will be able to reap a huge benefit out of it. Their investment in this project will pay them off to a large extent, and they will have the opportunity to lead the multibillion-dollar market.

3.3 High expectations of the consumers

Consumers are expecting something new, which will be something radical in this industry, and the idea of plasma is exactly matched with their expectations. But the problem here is that people do not do what is suggested by the doctors continuously. The result is that the conventional and contemporary methods to whiten teeth are quite lengthy. People want something that will instantly whiten their teeth without any pain (Gloor, 2016). That's why it's a very feasible idea to launch this project. On a different note, consumers' dream to use a product to whiten the teeth instantly will come into reality as well. Because with the help of plasma, people will be able to easily remove the yellow layer from their teeth, which is actually what they want badly. Also, if the company can increase production and achieve economies of scale, then the product price will be quite low for the customers, which will be, in turn, good for the companies. Because then the company will be able to earn a huge amount of money.

But there are some other things that Stockholm Gases should focus on when making the investment in this project. There are some crucial factors that a company should consider while making an investment. Because every investment is connected with risk. There are some risk factors in every investment. So, if the company fails to understand those risk factors and the risk borne by the company becomes bigger than the return, then the company will have to go through a huge loss.

3.4 Impact of increasing cost

It's an important issue while making an investment in a project in order to get a good return. Teeth whitening project is a fancy project which gives a unique idea as well as a different experience regarding whitening the teeth. But the company should also

consider the associated cost with it, which might be increasing. The costs in the industry are increasing gradually day by day. That's why competition is getting intense (Vanhaverbeke, Van de Vrande, and Chesbrough, 2018). Because every company wants to get the market share to increase their revenue, which is why launching a new product at this time can be very daunting. Even though they have enough resources in their company to do their own work, they should be careful about the raw material cost, which is important here. Because plasma is the main gas that will be used to whiten the teeth. If the price of artificial plasma goes up, then the product price will also be higher, and people will not feel the motivation to buy the new product, and they will just abandon it.

3.5 The complexity of Research and development

Producing artificial plasma is not an easy job. Even though the project leader has said that artificial plasma is cooler than the natural plasma and it can be used, there are still so many complexities around it. The heat issue is quite a strong one case of plasma, and if the customers cannot use the product properly, then it will be a huge problem for them, and it will create a negative impact. Also, the dental scientists of the company have said that more research work is needed to be done to comprehend the mechanism of artificial plasma in this case (Epetimehin, 2013). This means that the R&D of the company needs to run extensive research throughout the idea and the negative sides of it. That's why the company needs to invest a huge amount of money in R&D. In this way, the cost might be increased. Also, there are other complexities in R&D, as well. So, it's not an easy decision to make for the company.

The company should definitely go for the implementation of the project because the idea is quite unique, and surely it will grab the market. But the company needs to focus on the cost and R&D as well. Because the cost gets increased, then it will be hard for the company to recover that cost from selling the product initially. That's why considering all the factors; the company should invest in this project.

Conclusion

This report shows the significance of innovation in the context of Stockholm Gases, which has developed a new product for whitening the teeth. Their approach is described here with the help of various theories. Also, the role of the project leader is also analysed in this report. This report also shows how he used his individual and organizational knowledge and experience to contribute to the project. The application of the open model and closed model innovation is also presented, and it is found that open model innovation is much better. Finally, the recommendation towards Stockholm Gases is they should go for the new project.

References

- Bassett-Jones, N., 2015. The paradox of diversity management, creativity, and innovation. *Creativity and innovation management*, 14(2), pp.169-175.
- Bowonder, B., Dambal, A., Kumar, S., and Shirodkar, A., 2019. Innovation strategies for creating a competitive advantage. *Research-technology management*, 53(3), pp.19-32.
- Cook, P., 2018. The creativity advantage-is your organization, the leader of the pack?. *Industrial and commercial training*, 30(5), pp.179-184.
- Epetimehin, F.M., 2013. Achieving competitive advantage in the insurance industry: The impact of marketing innovation and creativity. *Journal of emerging trends in economics and management sciences*, 2(1), pp.18-21.
- Gloor, P.A., 2016. *Swarm Creativity: Competitive advantage through collaborative innovation networks*. Oxford University Press.
- Gupta, A.K., and Singhal, A., 2013. Managing human resources for innovation and creativity. *Research-Technology Management*, 36(3), pp.41-48.
- Gurteen, D., 2018. Knowledge, creativity, and innovation. *Journal of Knowledge Management*, 2(1), pp.5-13.
- Hinterhuber, A., and Liozu, S.M., 2017. Is innovation in pricing your next source of competitive advantage? 1. In *Innovation in Pricing* (pp. 11-27). Routledge.
- Jenssen, J.I., 2013. Innovation, capabilities, and competitive advantage in Norwegian shipping. *Maritime Policy & Management*, 30(2), pp.93-106.
- Johnston, R.E., and Bate, J.D., 2013. *The power of strategy innovation: a new way of linking creativity and strategic planning to discover great business opportunities*. Amacom.

Rohrbeck, R., Hölzle, K., and Gemünden, H.G., 2019. Opening up for competitive advantage—How Deutsche Telekom creates an open innovation ecosystem. *R&d Management*, 39(4), pp.420-430.

Singh, S.K., 2013. Organizational innovation as a competitive advantage during the global recession. *Indian Journal of Industrial Relations*, pp.713-725.

Urbancova, H., 2013. Competitive advantage achievement through innovation and knowledge. *Journal of competitiveness*, 5(1).

Vanhaverbeke, W., Van de Vrande, V., and Chesbrough, H., 2018. Understanding the advantages of open innovation practices in corporate venturing in terms of real options. *Creativity and innovation management*, 17(4), pp.251-258.

Yang, J., 2015. Knowledge integration and innovation: Securing new product advantage in the high technology industry. *The Journal of High Technology Management Research*, 16(1), pp.121-135.