



## GOOGLE GLASS: TYPES OF INNOVATION, THE ORIGIN OF INNOVATION, AND ENTREPRENEUR DEFINITION

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### Abstract:

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Google Glass is a prime example to learn how innovation is created and commercialized. More notably, learning from the making decision or acts of Google's expert entrepreneurs is invaluable on the journey to become future entrepreneurs and innovators. Therefore, this article will discuss types of innovation matching Google Glass, entrepreneurial approaches to create Google Glass, and the definition of an entrepreneur. Note that every explanation will be based on the Google Glass case study and evidence from scientific research.

### Introduction

Google Glass is a meaningful case study in entrepreneurship and innovation. More specifically, Google Glass includes much knowledge about creating innovation and managing innovation [1]. Furthermore, it provides many lessons learned for entrepreneurs and managers about managing the innovation process, and commercialization, such as the response of market users [2] to Google Glass and the importance of consumer behavior to Google Glass's success on the market [3]. Therefore, this study will examine innovation types of Google Glass and its origin of idea to understand how Google entrepreneurs make the decision on innovation strategy. Besides, a further understanding of entrepreneur definition will be discussed accordingly.

### Methodology

To conduct this study, social websites and other media means, including videos and blog posts will be useful sources to collect data about Google Glass. The primary key words, including Google Glass and innovation are utilized to search about the Google Glass case study. The article also uses journal articles on the innovation theories by Norman and Verganti (2014), Schumpeter (1934); Sarasvathy (2001), Alvarez and Barney (2007) and Gartner (1989) to explain the Google Glass's types of innovation and its innovation origin. Furthermore, the lecturer's lessons in the course of Idea Management, Master of Entrepreneurship and Innovation, the University of Queensland will also

be employed to support the findings on the entrepreneur's definition.

### **Discussion: The case of Google Glass**

#### ***Types of Innovation***

The first part of the paper will discuss the classifications of innovation that Google pursued. The first version, the Google Glass Explorer, was a radical innovation that meets three criteria of radical innovation (Dahlin and Behrens, cited in Norman and Verganti, 2014). It includes novel and unique characters which are dissimilar from prior or current products, such as a phone, a computer or camera in the market, and it is socially approved and accepted by customers at the early stage of launching. Nevertheless, Google is not an inventor of the glass or functions of cameras, or phones, such as searching, recording, and using voice commands, because those inventions were already invented. The evidence for its novelty and uniqueness is that Google patented about six inventions related to the wearable glass and software integrated into the Explorer. Most importantly, Google creatively integrated the existing technologies in a new format (glass) to create the Explorer as a real product, an innovation, not just an invention itself. People accepted the Explorer, wear on their eyes, and use the functions of a camera or a phone with free hands.

What classifies the Explorer's types of radical innovation is based on the driver (the meaning of usefulness or technology). Google Glass belongs to "technology epiphanies" [4,p.90] in which Google leveraged the glass and software-related existing technologies to transform the mainstream customer's use purpose of accessing digital information because the mainstream customers do not have this purpose of using such a smart eyewear gadget when phones, computers, and cameras are handy. However, due to the only focus on product development without searching for when and where to use this device, the reaction of non-tech lovers, and especially social issues related to personal privacy and safety for health, the first version was soon be rejected by both users and non-users after two years of launching. It explains that only focusing on the product innovation while being ready to launch to the market without much understanding the market proposition, resulted in failure.

The scenario for the second version of Google Glass named Enterprise is entirely different, which transforms the Google Glass's situation into corporate customer's must-have gadget. The success can be attributed to the flexible and smooth combination of types of innovation Google applied. Instead of innovating the product, Google innovated Google Glass's market as the first step. More importantly, market innovation enabled Google's organizational innovation to promote product innovation (Schumpeter and OECD, cited in Schmidley, 2020). From identifying new targeted markets of workers from small to large corporations thanks to the observation and conversation with several corporate customers, Google idealized another version of Google Glass to meet this market. Subsequently, a new team was established with the name of "Glass at Work" (GaW), gathering experienced engineers to improve the product based on the first version, Google Glass Explorer. Before officially launching on the new market, Google secretly spent two years to create new prototypes, test and improve the product in some selected corporates. During the testing period, Google Glass Enterprise undergone incremental innovations [4] related to design upgrades to create improved versions for the target market. As a result, at the time of launching, Google and Google Glass regained its reputation and confidence in the market and succeeded.

Although the Enterprise is remaining as a dominant design, there are challenges to Google Glass when in the current smart eyewear market, many competitors are competing with typical Intel and Apple. More than that, smart contact lenses might be one breakthrough as a disruptive innovation that might replace Google Glass in the market. However, this has remained unknown uncertainty.

#### ***The origin of Innovation***

Regarding the origin of Google Glass idea, Google flexibly combined the discovery approach and creative approach. In particular, Google inclines to harness the discovery approach and causal reasoning more [5].

Google harnessed the external changes or used the discovery approach to create a new idea for the Explorer. Referring to the environmental context, touching interfaces, gestures, voice to control, and

augmented reality were popular in smartphones, computers, and games. Moreover, the social trend of using tech devices was everywhere, with many tech lovers who were willing to try new things, but it was not the same that the mainstream customers had known the purpose of using wearable devices. However, there was an exception for several corporations who used augmented reality helmets, a type of wearable and hand-free format, to deal with the working tasks in the manufacturing industry. It means that the trend of technology application in working was currently existing to meet the increasing demand for the production efficiency and effectiveness. This trend showed one huge existing opportunity for devices like Google Glass. Google intended to create a more convenient device for the users. Unfortunately, Google had not discovered this opportunity before having an idea for Google Glass until launching the Enterprise. As mentioned in the work by Alvarez and Barney (2007) on the discovery theory, Google's inability to discover the opportunity could not deny the existence of the opportunity.

In the next step, Google inclined to apply the discovery approach for the Explorer rather than a creative approach and effectual reasoning. Firstly, Google had a plan for producing, testing, and selling the Explorer. Google, however, did not assess the outcome of the plan. With Google's assumption on the target market of masses of customers, Google focused on producing the product. After secretly making a prototype of the Explorer in the Company X, Google launched this product to market by selling at the price of US\$1,500, but the aim was to test the prototype and collect the user's feedback. Apart from enhancing the promotion of the Explorer through campaigns, Google upgraded the Explorer into the second version to satisfy the customer's needs. However, Google failed at selling the Explorer at the market eventually.

Secondly, although the adverse scenario happened to the Explorer, the way to launch the Explorer to the mainstream market was creative and employed a part of the principle of effectual reasoning named the affordable loss principle [6]. Google sold the prototype to test the market and collect the customer's data instead of doing conventional market research that often took time,

effort, and money. It is noted that the many types of customers, including fashion designers, athletes, journalists, and doctors, used the Explorer in their professional work rather than in their daily activities. If Google had not assumed about the target market, each customer type above would have been the Explorer's separate market. It means Google had not leveraged those opportunities and eventually turned the Explorer into a bad scenario.

Explaining the Explorer's failure can be attributed to wrongly reasoning the target market as everyone that was too big to serve. Furthermore, Google skipped the critical step of collecting data related to why the users use the device, how they use it, when, and where they use it, thereby anticipating related issues and having the plan to solve. The evidence is that when launching the second version of Explorer with many flaws and negative feedback from users, Google made a list of do's and don'ts, but not sufficient to solve the problems. Instead of making incremental improvements for the product and coping with the social issues, Google stopped the production and distribution of the Explorer version.

Regarding the second generation of Google Glass, the Enterprise, Google tended to use the creative approach (Alvarez and Barney, 2007) and the effectual reasoning [6] successfully from the step of collecting the market data. Firstly, Google exploited the corporate customer's preference in using the Explorer. Then, Google tried to examine how and why they use the products by communicating directly with them. After that, they planned to create the Enterprise that was utterly different from the Explorer to meet the corporate's needs, such as making design improvements and addressing the privacy issues and then secretly delivered to the selected enterprises to test and get feedback before launching.

Thanks to applying the effectual process, when talking with some enterprises using the Explorer, Google identified the potential markets, including logistics, manufacturing, and healthcare industries. It means Google discovered more than one goal for its development direction. Besides, the effectual principle, including the principle of partnership and the leveraging contingencies, was exploited at the development stage of the Enterprise. Google had not assumed anything related to competitors, just

discovered them when developing the product. Google were not not alone in satisfying the defined market. Instead of having a competitive strategy, Google built a partnership strategy to turn the start-up competitors into Google's solution partners called "Glass Partners". As a result, this helped Google remain and sustain in the market and enhanced market opportunity (more than fifteen solution partners and 100 companies).

The Enterprise's success was attributed to the flexible application of the entrepreneurial methods and the leverage of the firm's resources, based on the work [7]. Google made use of the firm's sources, especially human resources, to sustain its competitive advantage. Apart from harnessing intellectual property assets like patents-related product design or applicable software, Google gathered an elite and talented group of technical engineers and a super innovative company X where is considered an ideal place for innovative ideas. Besides, Google took advantage of a network of experienced engineers possessing high expertise in the tech industry and the partnership with many large corporations in diverse fields. Google allocated and collaborated those resources during the development process of Enterprise. Most importantly, building and managing the relationship with those partners to gain a mutual goal of creating and harnessing an innovative product to satisfy the defined market is the key to success. Therefore, regarding Google's ecosystem or value chain, Google, a focal firm successfully manages its tech ecosystem and its value chain to commercialize Google Glass to the market.

#### ***A further understanding of entrepreneur definition***

Entrepreneurs plays an primary roles in creating and commercializing innovation to the market [8]. Understanding the entrepreneur definition is essential in building individual innovation capabilities. Some advocated the entrepreneur definition based on an entrepreneur's characteristics, including uncertainty bearers [9] and the need for achievement and creativity [10]. However, an entrepreneur definition using entrepreneur's personal traits does not sufficiently differentiate an entrepreneur and a non-entrepreneur [11]. Gartner (1988) persuaded that traits or personalities are used to define an

entrepreneur is a vague and ambiguous approach, and not leading to the nature of entrepreneurs. Most importantly, based on Garner's behavioral approach, an entrepreneur is measured and qualified by his do-ability. In other words, an entrepreneur is a doer, not just a thinker. Furthermore, being an entrepreneur is a role in the business journey so that anyone can take the role, or anyone can learn and be trained to take the role. However, one limited aspect of Garner's definition is that an entrepreneur creates a new venture, which did not give a final and thoughtful answer to the purpose of a newly created organization by an entrepreneur to create value for customers. Thus, [12] Schmidley (2020) explained that entrepreneur is attributed by his or her ability to commercialize innovative ideas in the market to create values for customers. Therefore, an entrepreneur is a crucial part of value creation, not just a venture creation based on Garner's definition. As a result, an entrepreneur can be anyone who possesses the do-ability in any organizations, even social entrepreneurship organizations and takes part in the process of value creation for customers.

One vital piece of learning is differentiating an entrepreneur and a non-entrepreneur through reading the article by Sarasvathy (2001) and the ten myths of Entrepreneurship [13]. The critical thing to make entrepreneur entrepreneurship is applying the effectual logic and the entrepreneurship method. The center of effectual logic is how entrepreneurs treat the future as opportunities they can create, not predict, thereby controlling the future (uncertainty). Therefore, the entrepreneur's acts and actions are much more critical in creating the future. The Entrepreneurship method is a useful tool for entrepreneurs to create future opportunities in which the effectual reasoning process and principle are the main things. More importantly, the entrepreneurship method is to contribute to the entrepreneur's learning journey to success. On the way to creating innovative ideas, entrepreneurs employ their means (abilities, knowledge, and networks, Sarasvathy, (2001)). If the failure (loss) happens, which means to enrich and consolidate the entrepreneur's means and to discover more goals/opportunities (HSGUniSTGallen, 2012), so the future becomes more explicit in their hand.

Referring to Google Glass case study, the process of creating and introducing the Google Glass to the market was undertaken by many staff. Those staff played a role of entrepreneurs who contributed their means (knowledge, skills expertise, and network) to produce Google Glass without any clearly mentioned personal traits. Their do-ability and making decision on innovation strategy contributed to the Google Glass's failure and success.

### Conclusion

In conclusion, an entrepreneur has do-abilities to create values to market and capture value to their firm no matter what an idea is. However, what makes entrepreneurs different from non-entrepreneurs is effectual thinking of the future, how they behave to uncertainty, and, more importantly, employing the casual and effectual process flexibly to create an innovative idea. Google Glass Case study is an excellent example of how Google leveraged its firm's resources, along with combining both kinds of approaches to sustain its competitive advance in the market.

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**GOOGLE GLASS:  
NGUỒN GỐC CỦA ĐỔI MỚI, PHÂN LOẠI ĐỔI MỚI  
VÀ ĐỊNH NGHĨA DOANH NHÂN**

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**Abstract:**

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Google Glass là một ví dụ điển hình để tìm hiểu cách đổi mới được tạo ra và thương mại hóa. Đáng chú ý hơn, bài học từ các doanh nhân Google trong việc ra quyết định hay các hành vi đổi mới đối với Google Glass là vô cùng quý giá cho những cá nhân trên hành trình trở thành doanh nhân và nhà đổi mới trong tương lai. Với mục đích này, bài viết này sẽ thảo luận các nội dung trên theo ba phần, bao gồm các loại đổi mới tương ứng với Google Glass, phương pháp đổi mới để tạo ra Google Glass và bài học và suy ngẫm của cá nhân tác giả từ định nghĩa về doanh nhân. Lưu ý rằng mọi lời giải thích sẽ dựa trên nghiên cứu trường hợp Google Glass và bằng chứng từ nghiên cứu khoa học.