ENO Method: A Method for an Innovation Creation in an Architectural Design Studio

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Abstract

In 2017, the Faculty of Architecture, Rangsit University, importantly changed the teaching form in design studio so that students are able to choose the desirable studio they interested. Now, there are 10 studios divided into three categories, which are Professional, Creative, and Business Innovation, under ENO Studio (Everything Innovation). These emphasize the process and thinking methods that correlate with economic, business, technology, sociology, and engineering to lead to the innovation of design. The changes should occur positively to make it useful in both business and social aspects and create users experiences as it is the beginning of innovation. How should they combine the thinking of business and innovation with the architectural design so that it is systematic and has Mindset and Methods? The researcher employed the framework in the part of creating innovation and business to be applied such as 7 Mode, Business Model Canvas, and Sprint process to create the Customer-Centric mindset with the Architectural Design Process. The researcher examined by using this framework with 32 senior students through the assigned project "Tokyo 2020 Action & Legacy," which is to design the area of Haruni, the location of Olympic village. This research has an objective to design the process of ENO studio with Mindset and Methods system to understand the analysis and solve the design problems that need to answer the business question in creating innovation and experience to the customer. The result from the investigation using the method to create ENO studio provides the understandable, analyzing, and solving methods for the design that meets the demand of business to create the innovation and experience to the customer.

Keywords: *Architectural design, design studio, design method, architectural education, innovation, architectural programming, design framework, ENO studio*

1. Introduction

In 2017, the Faculty of Architecture of Rangsit University had adopted a significant change in its educational mainstream, especially the core courses which are the "Architectural Design" courses. The new practice has transformed formerly traditional classes or so-called the "Horizontal Studio," of which each class only consists of students from the same academic year, into new classes called the "Vertical Studio," of which each class combines students from 4 academic years (excluding the first year) and a group of lecturers. The entire institution composes of 9 vertical studios which are differentiated according to their philosophies, expertise, or interests. Groups of lecturers and students separately conduct their own studying culture, but the results of the study have to fulfill all requirements of each previously "horizontal" traditional studio as in the curriculum. (Charoensup et al., 2018) Now, there are 10 studios.
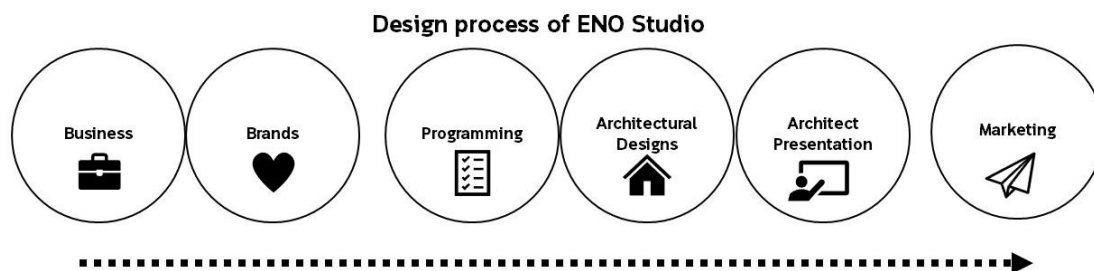

Figure 1 Design process of ENO Studio

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ENO Studio (Everything Innovation) is the studio that highlights the importance of the process and thinking method, correlated with economic, business, technology, sociology, and engineering, which leads to the innovative design, creates positive and useful changes in both business and society aspects, and creates the experience of users as it is the beginning of the innovative creation. From Figure 1, the design process of the studio begins with the thinking process, business, brand, programming, architectural design, presentation, and marketing under the proposed questions; What should we do to combine the idea of business and innovation with the architectural design with the use of the Mindset and Method system? The researcher employed the framework in the part of creating innovation and business to be applied such as 7 Mode, Business Model Canvas, and Sprint process to create the Customer-Centric mindset with the Architectural Design Process. Also, the researcher examined by using these framework with 32 senior students through the assigned project "Tokyo 2020 Action & Legacy," (The Tokyo Organizing Committee of the Olympic and Paralympic Games, 2016) which is to design the area of Haruni, the location of Olympic village.

This research presented the educational process and experiment to adopt the method of thinking innovative processes. The framework was applied with the brainstorming to create the architectural design program. For the previous architectural design, the researcher had used this framework and found that the efficiency on transferring creativity project can reflect into the artwork by using 7 Mode method; 7 models of the innovative design process. From Figure 2, this model will create the framework with different 7 activities to create the innovative design, namely, acquiring directions, understanding the contents, knowing people, deeply framework, surveying the thinking, solving framework, and the truth of recommendations (Kumar, 2014). The researcher employed this model in the workshop with the students to create the assigned project which students completely understand and to bring the innovations into creating the Business Model with "Business Model Canvas." It was a tool that combines all important components into "simple form," which takes only a one-page paper. Also, Figure 3 helped to understand and make the Business Model design simpler (Imazu, 2013). In this procedure, the channels that we would pay attention to were VP (Value Propositions) and CS (Customer Segment) to analyze through the Value Proposition Canvas. (Strategyzer, 2018) In Figure 4, after having the Business Model, the researcher used the Design Sprint process which is the method of GV (Google Venture) to examine the idea of the product before producing. The sprint is a five-day process for answering critical business questions through designing, prototyping, and testing ideas with customers. Developing through GV, it is a "greatest hits" of business strategy, innovation, behavior science, design thinking, and more – packaged into a battle-tested process that any team can use (Google Ventures, 2019). In Figure 5, the sprint was begun to apply at the studio in which the students were going to collect data in the area for project design and studying customers personal in Tokyo, Japan.
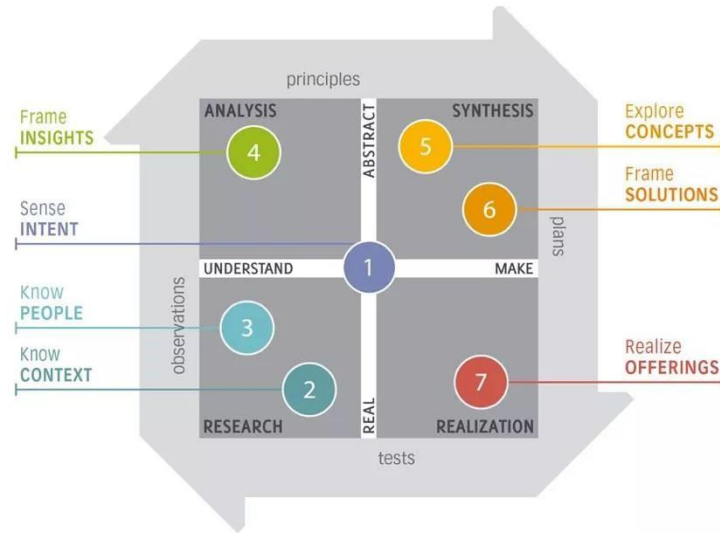
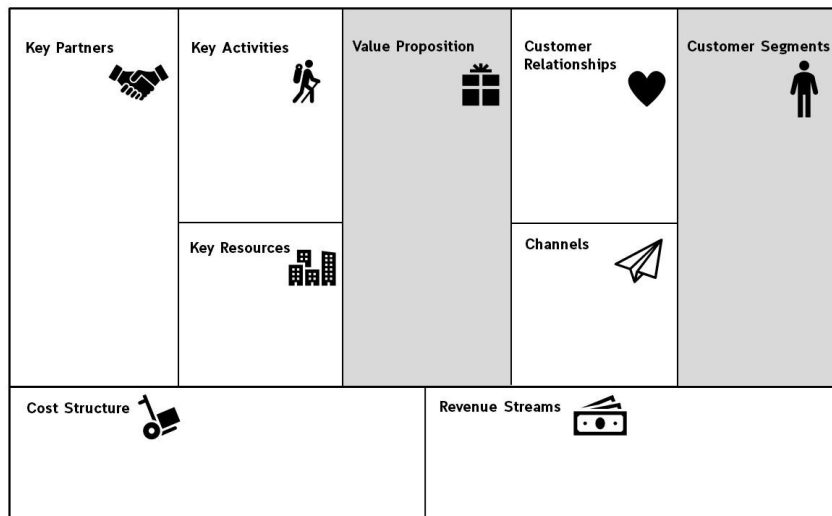**Figure 2** 7 Mode model of creating innovative design process (www.julianavanmatre.com)
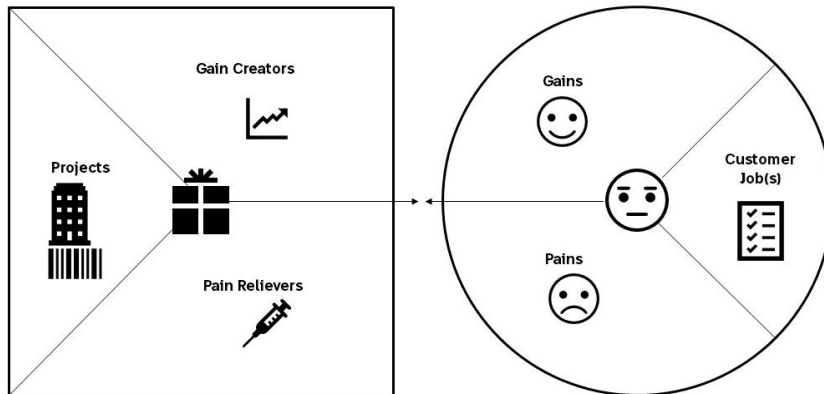

Figure 3 Business Model Canvas
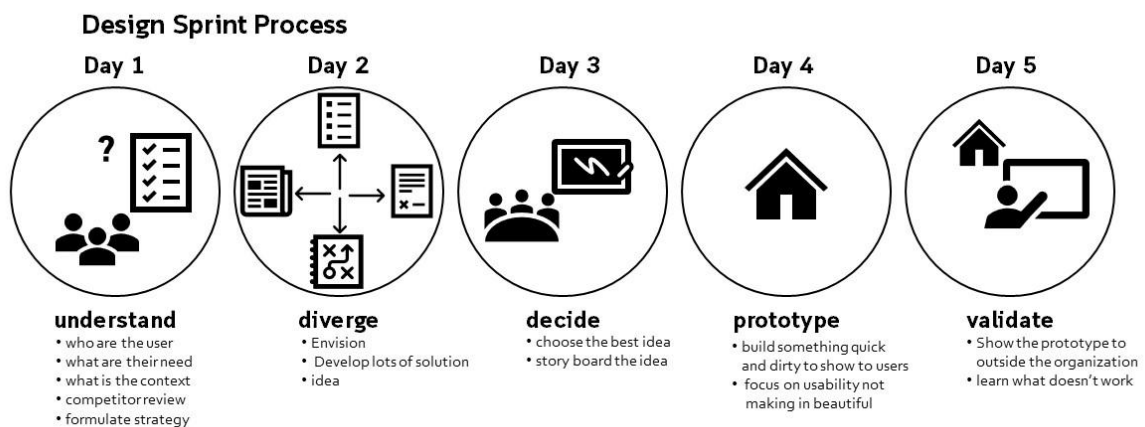
Figure 4 Value Proposition Canvas

Figure 5 Design Sprint Process

2. Objectives

To design the process of ENO studio with Mindset and Methods system to understand the analysis and solve the design problems that need to answer the business question in creating innovation and experience to the customer.

3. Materials and Methods

This study applies the method of which the characteristics emphasizes solving problems and modifying the working system of the architectural design process to be correlated with the process of thinking business and future innovation. It is to expand the idea of developing architectural works to create more experience for customers.

3.1 Study the problems from the Architectural design process. It was found that the process will start by searching for information and creating programming. The designer may misunderstand the Business model of the employer and customer groups who change their favorite products and service functions to emotion.

3.2 Study and experiment on the tools such as 7 Mode and Business Model Canvas by participating in the workshop with 5-academic-year students who currently work on their thesis. Then, participate in the

workshop of the design sprint with the expert employer in the part of assets to experiment, test, finally apply to the students, architects, or designers.

3.3 Design the methods of ENO studio and the setting of the group seminar to understand the idea of the studio in the topic design, the question of the topic, procedures, tools, and framework to show the overall picture.

3.4 Workshop using 7 Mode to create the topic of the assigned project and to create innovation through searching and group discussion processes.

3.5 Study the area contents for designing the project of customer persona and customer journey thinking by surviving the area of Harumi to analyze the data both potential of the area and users' behavior.

3.6 Apply the sprint process to create the architectural design which the participants in the workshop could understand its business and analyze the demand of customers to create the innovation for a new experience.

3.7 Conduct the architectural design and present to the committee.

3.8 Observe and record the analysis process to detect the weak point that causes the problem on the system or the point that participants do not understand to find the solutions and improve.

4. Results and Discussion

ENO studio method can be concluded as in Figure 6 in the experiment of Method which the researcher used the assigned project "Tokyo 2020 Action & Legacy." This topic design was conducted through the selected framework which has the process and result as follows.

4.1 Seven Mode for Design Innovation Planning Process

The researcher found that Seven Mode is the most efficient tool to apply to the students in creating the topic. It made the users of the framework had the thinking procedures systematically follow each Mode. It can test the deep mind in research including exchanging the knowledge and summarizing together in many ways. The designer could begin with thinking about the project from any mode, of which each mode has its target and procedures. After going through every mode and creating more than one loops, the users of the framework may have the ideas of innovation. The researcher had described each Mode so that the students in the workshop could understand easier.
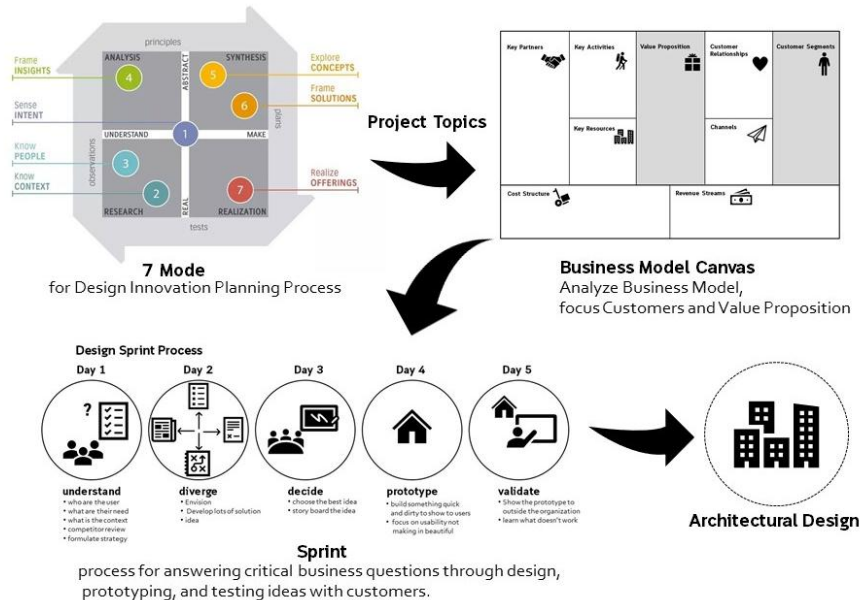
Figure 6 ENO Studio Method

Mode 1 Sense Intent is the acquisition of knowing the direction change of the world through the social currents that are occurring or in trends. For example, students who do the project with a working man who will be retired soon are interested in studying the possibility of elder populations in Japan. Japan today is in the over elder populations situation, and it will continuously increase due to the technology on medical and the changing economic factors that cause the business about elder cares growing dramatically.

Mode 2 Know Context is to understand the context of the social, economic, and physical area of the project site. Students are involved by surveying Harumi area from the development plan of Tokyo and studying from Harumi Triton Square project (Harumi Island Triton Square, 2012). It is the immovable property in mix use form at nearby area. The students are studying by walking and surveying.

Mode 3 Know people is to know deeply about people on the group that students interested in such as elderly people and working people and to focus on the emotion through observation, interviews, and studying the research.

Mode 4 Frame Insights is to deeply understand the knowing topic or the favorite one such as we like technology and have the knowledge on IoT (Internet of thing) or AI (artificial intelligence). It creates the issue or knowledge about this and combines with other Mode respectively; thus creating new innovation. For example, the accommodation project for workers who will retire soon combining with the artificial intelligence to help the elder. Meanwhile, we interested in online products, but the previous mode is thinking about the subway. They can also combine the subway with the screen showing products that can order and deliver to your accommodation automatically.

Mode 5 Explore Concept is to find a further possibility from studying the data from the previous mode.

Mode 6 Frame Solution is the solution frame after we have the idea and the solutions as a preparation for creating the project in mode 7.

Mode 7 Realize Offering is the architectural project in which we are interested. For instance, we interested in designing a primary school at the beginning but after going through an in-depth study in each Mode, we get other ideas. This primary school may be combined with the new innovation as it associates with disaster shelter of Tokyo.

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However, 7 Mode process is not a straight line, meaning that we can start from any mode without ordering. We could see that creating innovation is not a straight line. It could be re-thought over and over again. Figure 7 presents 7 Mode by 4-academic-year students.

Figure 7 the presentation of 7 Mode by 4-academic-year students.

4.2 Design Sprint

Sprint is versatile. The research had designed sprint calendar to make it appropriate for applying with architecture. Because the question of the project concerns a large building, despite the principle of the sprint which is to make it quick in 5 days, we can change without making the day that needs to close to the next day. They can have a duration gap in the day to give the team time for designing. Figure 8 shows the team working together in a sprint by 4-academic-year students.

Table 1 Design Sprint Calendar

Day	Activity	Result
Day 1 Understand	Cutomer Persona, Urban Development, Master Plan, Project Development Environmentally Friendly System Established	who are the user, what are their need what is the context, competitor review, formulate stategy
Day 2 Diverge	Business Model Canvas, Value Proposition Canvas, Journey, Component Experience, Programming, Zoning Analysis, Architectural Diagram	Envision, Develop lots of solution, idea
Day 3 Decide	Pinup, Discuss, Storyboard Idea,	choose the best idea, story board the idea
Day 4 Prototype	SKD sketch design idea, Combine Idea	build something quick and dirty to show to users, focus on usability not making in beautiful
Day 5 Validate	Pitching	Show the prototype to outside the organization, learn what doesn't work

4.3 Innovation and experience

According to the previous section, ENO studio pays attention to the importance of innovative thinking and meeting new experience to combine with architectural work. In the second day of Sprint, it is the important day from starting the Business Model Canvas to summarizing the group of customers and the value that the customers deserve. Then, customer persona and customer journey thinking were analyzed to defend customer pain and customer gain using the Value Proposition Canvas, which causes the design of gain creators to be better and pain relieve the weak and strong point on how we reduce or solve this process. It will create innovative ideas to meet the demand of a group of customers. This innovation could be used in architectural design. It considers that which part of function or space to create an experience to customers. The example in Figure 9 shows how to use the Value Proposition Canvas on finding the innovation on the project, Tokyo 2020.

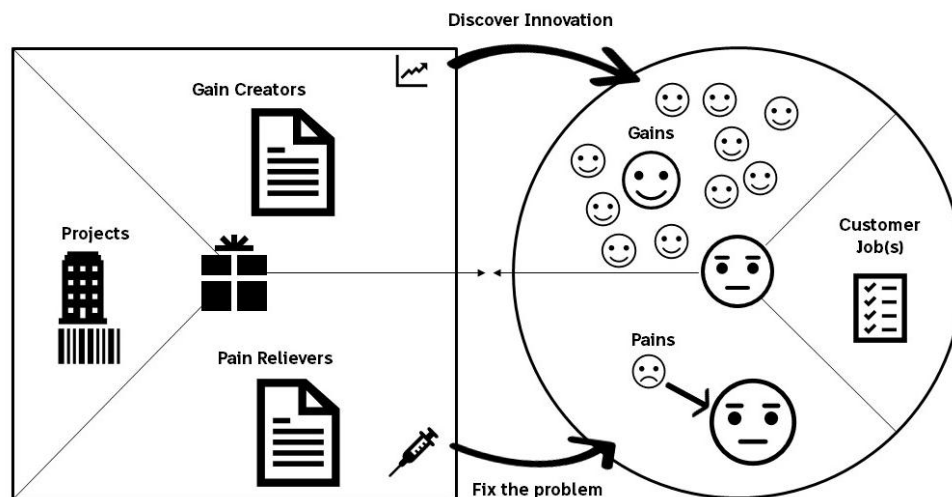**Figure 8** working together in a sprint

Figure 9 How to use Value Proposition Canvas with thinking on finding the innovation on project

Customer journey is another tool that needs the pivot situation when the group of users joined the program, how do our behavior such as walking in the building. The pivot situation through journey makes us know which functions have been used by many users. The designer will specially design that important part or find a way to make users stay in that area longer.

Both Value Proposition Canvas and Customer Journey are the tools for finding the result whether which one should give significant attention to the function and which innovation will be combined. Then, the data were used in consideration to create the component experience. The designer will create the picture of that space to do the primary experiment and then do the programming and the analysis to design the building in that part to be an experience that will reflect the system of zoning analysis and architectural diagram. Figure 10 represents Kachi Doki Station examples of architectural design by ENO Studio Method.

Figure 10 Kachi Doki Project design by ENO Studio Method.

4.4 Pitching Prototype

The final method of the sprint is to present the preliminary design to the expert or customer group in the Tokyo 2020 project (see the example of the experiment in Figure 11). ENO Studio had invited the professional businessmen on the immovable property who expertise in using sprint to be the commentator in both thinking process and the design from students which the comment will be improved and developed in the future.

Figure 11 Pitching Project Ideas to Investors

5. Conclusion

This study creates the process of ENO Studio which is a system with mindset and methods to support, understand, analyze, and solve problems in the design. It was found that the tools and process can come across the field of study. An example in this research had employed the tool on business thinking and creation of innovation which is developed to answer the new form of business and combine with the architecture design process so that we can understand the business at its root and meet the value of the business to customers or target group. Moreover, the learning or thinking through the ENO Studio Method is the way to practice how to think like the employer and can apply with our own business.

From the experiment, 4-academic-year students are the group that still do not have the experience of other surrounding knowledge or design. In this method, some points need to improve to answer the question of the users. For example, there should have a quick sketch design after doing the Business Model Canvas to review whether the overall picture of what the students had done is the same as what they described or test the basic laws of the area to find the connection from the students' thought to the realistic one that the customers want in terms of function. However, the professional designer and architect can also employ this method because it is thought and implies the result faster.

6. Acknowledgements

Rangsit University for the fund and budget to the researcher by letting the 4-academic-year students to survey the form and characteristics of people to be used in the analyzing customer persona and customer journey thinking at Tokyo, Japan. Most importantly, the students from ENO studio had studied by using method which the researcher had applied. The result will be improved and developed for next year students from ENO studio to be the leader of innovative thinking in the future and make the reputation to Faculty of Architecture, Rangsit University.

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