SHARING PLATFORM MODEL AS LIBRARY INNOVATION OF UNIVERSITY STUDENT COMMUNITY IN TAIWAN

[1] TOMMY ANDREA GUNAWAN, [2]HUI-WEN LIN, [3]BART VAN BUEREN

[1]B Design, Institute of Creative Industries Design at National Cheng Kung University, No. 1, Daxue Road, East District, Tainan City, 701, Taiwan
[2]Associate Professor, Institute of Creative Industries Design at National Cheng Kung University, No. 1, Daxue Road, East District, Tainan City, 701, Taiwan
[3]MSc, Institute of Creative Industries Design at National Cheng Kung University, No. 1, Daxue Road, East District, Tainan City, 701, Taiwan
E-mail: [1]altoand@yahoo.com, [2]hwlin@mail.ncku.edu.tw, [3]bartvanbueren@gmail.com

Abstract - This paper presents about the movement from linear economy to circular economy is increasing slightly. Circular economy is about closing the loop of value product chain. Many people start to think to create zero waste from one product and try different ways to sustain the value product chain. Many people compete each other to change the waste into something useful through some business models including Circular Supply-Chain, Recovery and recycling, Product Life-extension, Products as a Service, and Sharing Platform. However, sharing platform model is the only business model can be done not only by the original company that manufacture the product but also third-party stakeholder.
Sharing platform model is also related to sharing economy which means people share the same resources to other communities. Library of Things at National Cheng Kung University (hereafter called LoT NCKU) is one of the sharing platform model in Taiwan. LoT NCKU is a platform where student can lend and borrow things among NCKU students. LoT NCKU aims to create the culture of sharing between NCKU students.
The writer conducts the research about the suitable sharing platform model that can be applied in Taiwan university among students community of Taiwan university. The writer held workshop in Tainan, Taiwan and focus discussion group that participated by twenty-five NCKU students. In that workshop and focus discussion group, writer as workshop participants and observer join the workshop how to know what people think about the sharing platform model (LoT NCKU).
This study aims to deliver the workable of sharing platform model as library innovation to create culture of sharing. Creating culture of sharing will be worthwhile for environment because people don't need to demand for a new manufacturer and can use the same resource.

Index terms: Circular Economy, Sharing Platform Model, Library Innovation, Culture of Sharing

I. INTRODUCTION

Constructing a circular economy involves complex efforts at the local, national, regional and global levels. To change from linear economy to a circular economy, it requires to close the loop of value products chain as shown in the butterfly diagram below (Mckinsey, 2013).

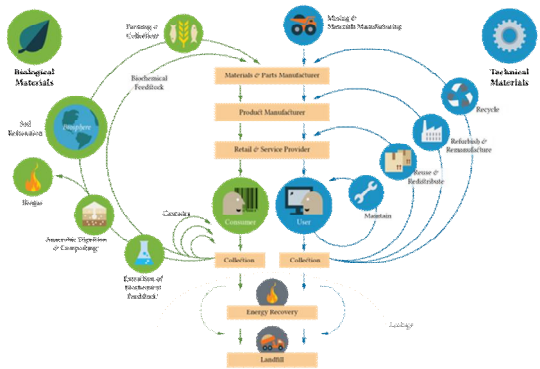


Figure 1: Butterfly Diagram (Mckinsey, 2013)

Basically, on linear economy started from companies manufacture the product, market the product and consumer use the product. Afterwards, consumers use it for a period of time. If they no longer use the product, they will throw the product away and ended up in landfill. The objective of circular economy is to remove or reduce the waste that is dangerous to the environment, in other words circular economy is about closing the loops of value product chain as shown in the diagram.

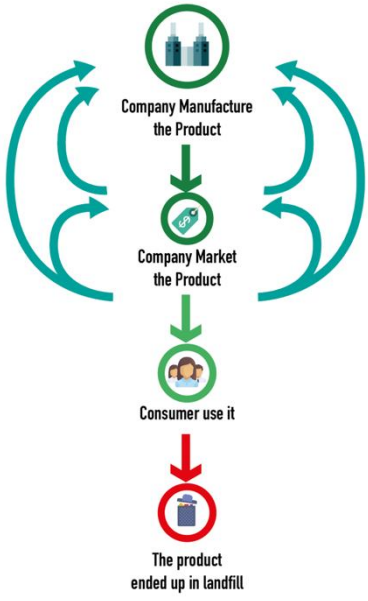


Figure 2: Circular Economy Diagram

Peter Lacy and Jakob Rutqvist (2015) stated that the evolution from linear economy to circular economy is the biggest evolution and become the opportunity for how people produce and consume in global economy. It can't be argued that companies also can gain a massive opportunity through circular economy concept to create competitive advantage. Those competitive advantage can be done through innovative business models, digital technologies, knowledge engineering, and empower variety of capabilities that support the whole concept of circular economy.

II. FUNDAMENTAL DRIVER OF CIRCULAR ECONOMY

Ellen Macarthur Foundation (2014) declared that at the high position, there are three fundamental drivers of the circular economy:

1. **Resource constrains –** because the current economy (linear economy) is wasteful
2. **Technological development –** because the development of new technologies or digital innovation is making the circular economy significantly attractive and capable enough for businesses.
3. **Socio-economic opportunity –** because customers want to squeeze the most value out of products and assets.

Circular economy idea is the term of keep supplies in productive use in the economy for as long as possible. For economic beneficial, it's about changing waste into wealth (Dustin Benton and Jonny Hazell, 2014). Benton and Hazell established the waste into four distinct forms:

1. Wasted resources are materials and energy that cannot be constantly reconstructed, after it's used and it will be forever gone. For example, the air conditions may produce the heat energy from the exhaust machine, this heat energy is just wasted.

2. wasted embedded values are components, materials, and energy that can't be recovered from disposed products and re-use it again afterwards. For example, the packaging of laundry detergent. After consumer use the detergent, they will throw the packaging.

3. Products with wasted lifecycles are products that have short working lives or usually consumer will throw it away after it's used, but there is still demand for those products from other users. For example, someone buy an Ipad to try the technology. After several years, it's no longer used because of outdated. But, there might be some people who need the Ipad for another usage.

4. Products with wasted capability are products that almost 80 – 90 of those products' lives stay idle or unused unnecessarily. For example, people buy camping tent and use the tent very rarely once or twice a year. The rest of it, the camping tent will stay idle.

III. CIRCULAR ECONOMY BUSINESS MODELS

Lacy and Rutqvist (2015) declared the five circular economy business models to help companies strengthen differentiation, reduce cost to serve and own, generate new revenue and reduce risk. These five new business models are Circular Supply-Chain, Recovery and recycling, Product Life-extension, Products as a Service, and Sharing Platform. Circular Supply-Chain, Recovery and recycling, Product life-extension and Products as a Service, all of these models require the companies to take part in doing these business models. Those four business models start from the company who produce the product and later the company itself close the loop of the value products chain.

Sharing platform model is quite different from another business models. This business model involves not only companies who produce the product, but third-party stakeholder generates to close the loop of value products chain. All around the world, it's almost 80-90 percent of the things in home are used only once a month or even once a year. Those things such as camping tent, tools, oven, Christmas tree or even car are known as 'idle products'. The sharing platform models could shape the new relationships and business opportunities for consumers, companies or communities who share, lend-borrow their idle products. Everyone also can both earn and save money (Lacy and Rutqvist, 2015).

IV. SHARING PLATFORM BUSINESS MODEL IN TAIWAN

Sharing platform is firmly related to the sharing economy. Nowadays, there are already several companies doing thing sharing economy by providing the platform and have achieved millions of members. These include Airbnb (home sharing) and Uber (ride sharing). By opening its service of these sharing platform to public for using the idle products, these movements are enhancing the value from the product itself to use them. In other words, the sharing platform model allow diversified consumers use the same resources, reducing demand for new manufacturing. As seen on the diagram below, the sharing platform model can close the loop of value products chain.

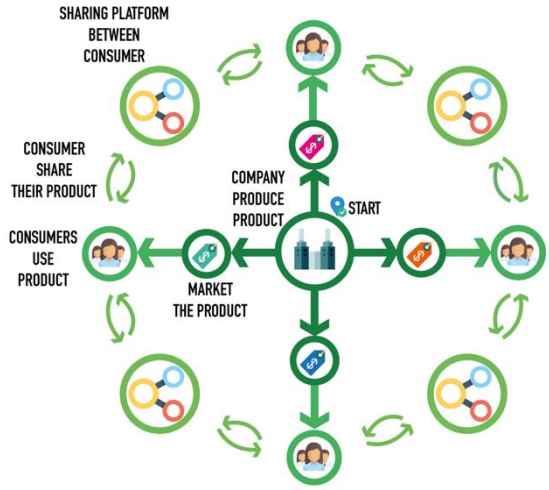


Figure 3: Sharing Platform Diagram

Lee Hsin-Yin posted an article on November 2017 in focustaiwan.tw titled 'Taiwan seen as well-positioned for sharing economy, despite challenges'. Lee mentioned that because the infrastructure in Taiwan is well-developed, Taiwan become the great potential country to develop sharing economies. Recently, there are many companies or communities doing the sharing economy models or projects in Taiwan.

Currently, Uber is increasingly well-known in Taiwan. Uber use the sharing economy business model to earn money by sharing the ride between people in Taiwan. Another example is Library of Things (hereafter called LoT) at National Cheng Kung University (NCKU). LoT NCKU is a sharing things platforms between students of NCKU and was created by university student of National Cheng Kung University. They called themselves as Circular NCKU Club. LoT NCKU is one of the library innovation that utilize the concept of sharing economy. Normally, people assumed that library is a place to only borrow books. But, in LoT NCKU students of NCKU can borrow not only books but also other things like electronic appliances, home appliances, sports equipment, clothes and accessories.

V. DESIGN THINKING TOOLS

Sustainability and circular economy concept in Taiwan drive LoT NCKU members to build this project. They are trying to develop a more sustainable community and create culture of sharing through sharing platform model. LoT NCKU encourage students of NCKU to maximize the value of the products and produce zero waste in the future. In accordance with the concept changing waste into wealth, LoT NCKU focus on the products with wasted lifecycles and wasted capability. For instance, NCKU students will buy camping tent then just use camping tent once or twice a year. Afterwards camping tent stand unnecessarily in the corner of their room. LoT NCKU encourage people to boost the value of products by sharing the items to others. Thus, creating no waste to the environment.

Due to the importance of creating the zero waste and close the loop of value products chain through circular economy focusing on sharing economy models in terms of LoT NCKU. Circular NCKU Club held a workshop on January 7th, 2018 in Tainan, Taiwan called Co-design and Library of Things Workshop. Circular NCKU Club collaborated with Bron van Doen (BvD) to hold this kind of workshop.

BvD is social creative studio based in Eindhoven, Netherlands. BvD develop projects that embody social, cultural, and economic value. BvD cultivate their own design thinking tools and prototype for their project. They called their design thinking tools as co-design tools.



Figure 4: Sharing Platform Diagram

BvD's co-design tools consists of four cards those are actions card, context card, value card, resource card. Each card has its own color, and has different function. Actions card is used for write the idea about what people do in the projects. Context card is used for who, where, and when the projects will be executed. Value card is used for something that inspires people to do the project, while Resource card is used for what kind of things that needed in the project.
Circular NCKU Club and BvD discussed together how to implement the co-design tools. By using this co-design tools in the workshop, all the participants be expected to have the brainstorming about the sharing platform models that will be implemented in LoT NCKU and discuss together in focus discussion group regarding the future sharing platform models of LoT NCKU

VI. SHARING PLATFORM MODELS RESULTS

Co-design and Library of Things workshop was participated by twenty-five people. All the participants are NCKU students with different ages. At the workshop, all participants are required to do brainstorming. At the first stage, instructors ask some questions related to Library of Things. Afterwards, all participants answered the questions in colorful sticky notes depends on the color related to four cards. If participants answer the question related to what people do in Library of Things, they need to write down the answer in the red sticky notes and so on.

After the brainstorming sessions, all the participants spited up into three small groups alters on their interests. Those three small groups are physical library, online based library, and mapping resources library. All these groups were created based on the initial focus discussion group from all the participants. Then, they continue to discuss deeper about the topics they were in.

The discussion took place very intense and it seemed that everyone had the passion on Library of Things. Until the moment instructors asked the groups to present what they had been discussing.



Figure 5: Simulated Results of Physical Library of Things

The figure above illustrates the simulated results of Physical Library of Things. At physical LoT, student in university can come to physical LoT to borrow the items belongs to LoT. LoT will collect the items from dorm donation and donation share. Donation dorm is one of the activity that will be held by LoT NCKU that student who will leave dorm in the university can donate their items instead throwing the items away. While, LoT NCKU also will provide a shelf in some locations in the university where student can donate their unused items into the shelf. Afterwards, LoT NCKU will collect the items and sorting out the best items that other student can borrow from LoT NCKU.

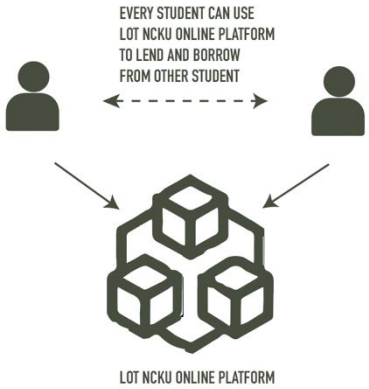


Figure 6: Simulated Results of Online Based Library of Things

The figure above is showing the result of other group about online based Library of Things. Online based LoT will provide online platform such as websites or apps that every student can lend and borrow through apps. At this stage, LoT will become the middle man as platform to connect each student in university to lend and borrow. LoT itself will not own items that can be borrowed, all the items are coming from each student.

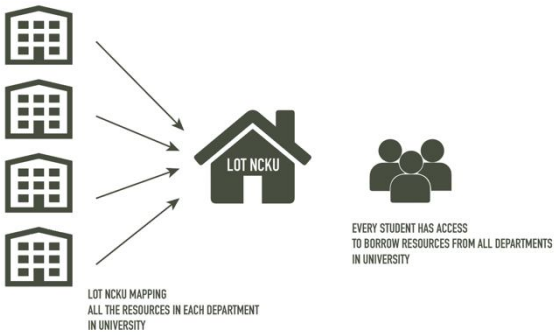


Figure 7: Simulated Results of Mapping Resources Library of Things

The shown figure above explains about simulated results of mapping resources group. This group had the idea about mapping all the resources from each department in the university. Most of the university has the unused resources that can be used by every student at the university. However, most of the students don't have access to borrow the things. LoT will map all the resources in one platform like website or apps. Therefore, every student would be able to know what kind of items that they can use in the university and borrow the items through LoT.

CONCLUSION

All results from co-design and library of things workshop will be very helpful for the implementation of Library of Things in student community of Taiwan university. The anticipated outcomes from Library of Things are to create library innovation, create culture of sharing and encourage people to produce no waste by using the same resources and reducing demand for new manufactures.

REFERENCES

[1] Benton, D., & Hazell, J. (2014). Wasted Opportunities: Smarter Systems for Resource Recovery: a Report from the Circular Economy Task Force. Green Alliance.
[2] Lacy, P., & Rutqvist, J. (2016). Waste to wealth: The circular economy advantage. Springer.
[3] Lee, H. Y. (November, 2017) Taiwan seen as well-positioned for sharing economy, despite challenges. Retrieved from http://m.focustaiwan.tw/news/aeco/201711140021.aspx (Accessed: 01, Dec, 2017)
[4] MacArthur, E. (2013). Towards the Circular Economy, Economic and Business Rationale for an Accelerated Transition. Ellen MacArthur Foundation: Cowes, UK.
[5] MacArthur, E. (2014). Towards the circular economy: Accelerating the scale-up across global supply chains. MacArthur Foundation, Geneva.
[6] McKinsey, E. (2013). Towards the circular economy: Opportunities for the consumer goods sector. MacArthur Foundation, Geneva.
[7] MacArthur, E. (2013). Towards the circular economy. Journal of Industrial Ecology.