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# VOICE OF THE CUSTOMER THROUGH CUSTOMER COCREATION: THE CASE OF FUJI XEROX JAPAN

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# VOICE OF THE CUSTOMER THROUGH CUSTOMER CO-CREATION: THE CASE OF FUJI XEROX JAPAN

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## Abstract

*Nowadays, many companies collect Voice of the Customer (VOC) in order to understand more about customers and the way they think about the companies or products/services. Many collection methods are being used to capture those valuable resources. This paper introduces "VOC 3.0", a new Voice of the Customer (VOC) collection method through customer co-creation. This new method is aiming to create value with customers through co-creation activities and exploit knowledge residing both in customers and company. This study identifies the differences of VOC 3.0 from other traditional VOC collection methods. We also propose a theoretical framework for VOC 3.0 and introduce the case of Fuji Xerox's Customer Co-creation laboratory's open laboratory as an example of a successful company with VOC 3.0. From this case study, key activities of the collection method are listed by using Process-Workplace-Tool framework. Findings in this study also show the examples of process, workplace and tool that might be key activities in VOC 3.0.*

*Keywords: Voice of the Customer (VOC), Co-creation, Customer Knowledge Management (CKM), Knowledge Management (KM).*

# **1 INTRODUCTION**

## **1.1 Research Background**

According to Carulli et al. (2013), understanding, analysing customer needs and capturing the Voice of the Customer (VOC), is one of the strategies for establishing effective product development processes. Nowadays, doing business without listening to customers' voice might lead to failure (Stevens and Burley, 1997). That is why Voice of the Customer (VOC) is important for the company especially for developing and improving products/services. Customer knowledge (CK) or knowledge resides in customers is an essential resource for company if they can transfer that knowledge from customers to their companies. With Knowledge management (KM) process which also takes part in this step, activities that enable knowledge transfer from customers to company are introduced. With the acquired customer knowledge and knowledge management, Customer Knowledge Management (CKM) concept emerges and focuses on customers while considering customers at the center of the business (Al-Shammari 2009). This also leads to other activities related to customers, or activities that make the company understands their customers better. Furthermore, collaboration with customers for joint value creation (Gibbert et al., 2002) is another activity that companies try to get closer to the customers while create value for the betterment of their business.

## **1.2 Problem Statement**

Practically, VOC has been used in many companies for decades. Many companies introduce VOC in the company aiming to gather feedbacks from customers by establishing call center and its database, while other companies try to capture customer needs via interviews, focus group discussion and other methods. Data collection can be largely divided into collection of reactive data and proactive data.

In this paper, the existing VOC will be defined as below.

- Reactive data collection method (VOC 1.0): customer complaints, compliments, feedback, hotline data, product returns and/or warranty claims via call center, website, and on-site employees.
- Proactive data collection method (VOC 2.0): customer interviews, surveys, focus groups, observations and/or test customers.

However, in company which implements CKM system, there is also the concept of VOC from co-creating with customers. This concept is different from the traditional VOC 1.0 and VOC 2.0. It creates customer value and interaction of VOC is enabled. VOC in this area is new in academic area and practical use also has not been investigated yet.

## **1.3 Research Objective and Research Question**

The objective of this research is to make understanding of the new VOC collection method through customer co-creation. Research question of this study is stated as below.

“How does the new VOC collection method through customer co-creation differ from VOC 1.0 and VOC 2.0?”

In order to answer the above research question, firstly we proposed a new framework for the new VOC collection method through customer co-creation. Then we investigated the case at Fuji Xerox, a Japanese manufacturing company where VOC 1.0, VOC 2.0 and the new VOC collection method are being implemented. From the findings, we wrote a case study to look into the company's key activities and information system. Term of key activities in this study is defined as set of activities of process, workplace or tool that are required in order to perform the operation.

## **1.4 Expected Results and Contribution**

### *1.4.1 Expected Results*

The new VOC collection method can be achieved by performing the set of key activities which can be identified by using process-workplace-tool framework and customer knowledge transfer through customer co-creation. Furthermore, this new VOC collection method can be distinguished from the traditional VOC 1.0 and VOC 2.0 by its objective and characteristics.

### *1.4.2 Contribution*

This study introduces another VOC collection method which is different from the existing VOC 1.0 and VOC 2.0. We also introduces the idea of the new VOC collection method as another alternative to companies that are considering to implement VOC 1.0 or/and VOC 2.0 in their companies. Finally, we introduces an example of a successful case of the new VOC collection method.

## **2 LITERATURE REVIEW**

### **2.1 Voice of the Customer (VOC)**

According to Griffin and Hauser (1992), the Voice of the Customer (VOC) is basically the customer needs, wants, expectation and requirements that customers expressed in their own language. On the other hand, Marina et al. (2013) consider VOC an important strategy for product development process. Apart from new product development, VOC is also widely used for hearing feedbacks, responses and claims from customers who already bought the products/services or had plan to buy the products/services. Many VOC collection methods are introduced as alternatives for capturing VOC. This includes call center, market researches, questionnaires, website community and focus group interview (Griffin & Hauser 1992).

### **2.2 Customer Knowledge Management (CKM)**

Gibbert et al. (2002) research shows that by managing the knowledge of their customers, companies are more likely to sense emerging market opportunities before their competitors, and able to create economic value for the company, their partners and customers. Customer Knowledge Management (CKM) is the strategic process change the position of their customers from passive viewpoint to active viewpoint and knowledge partner. CKM is about gaining, sharing, and expanding the knowledge residing in customers, to both customer and company benefit (Gibbert et al. 2002).

Regarding about knowledge, they can be largely divide into tacit knowledge and explicit knowledge (Nonaka & Takeuchi 1995). In the base-superstructure model, tacit knowledge is considered as the base of the model and explicit knowledge is at the top of the model. It is said that tacit knowledge is difficult to communicate or share because it has a personal quality and deeply root into action (Nonaka & Takeuchi 1995). On the other hand, explicit knowledge is knowledge that can be codified and transfer easily.

Customer Knowledge (CK) or knowledge related to customers can be categorized into three areas as Knowledge from Customer, Knowledge about Customer, and Knowledge for Customer (Zanjani et al. 2008). Zanjani et al. (2008) gave definition of each CK type as below.

- *Knowledge from Customer* is a kind of knowledge (also data or information which can be analyzed, interpreted and eventually converted to knowledge) that the company attains in order to enhance their products and services.
- *Knowledge about Customer* is a kind of knowledge (also data or information which can be analyzed, interpreted and eventually converted to knowledge) that the company attains in order to make better understanding in their target customer.

- *Knowledge for Customer* is a kind of knowledge (also data or information which can be analyzed, interpreted and eventually converted to knowledge) that the company's target customer attains in order to know the company better.

In this study, customer knowledge which is the knowledge that resides in the customers is considered as the company important resource. However, transferring knowledge from customers to company is required. The flow of Customer Knowledge Transfer from customers can be described as in Figure 1 which combined the concept of base-superstructure model of knowledge.

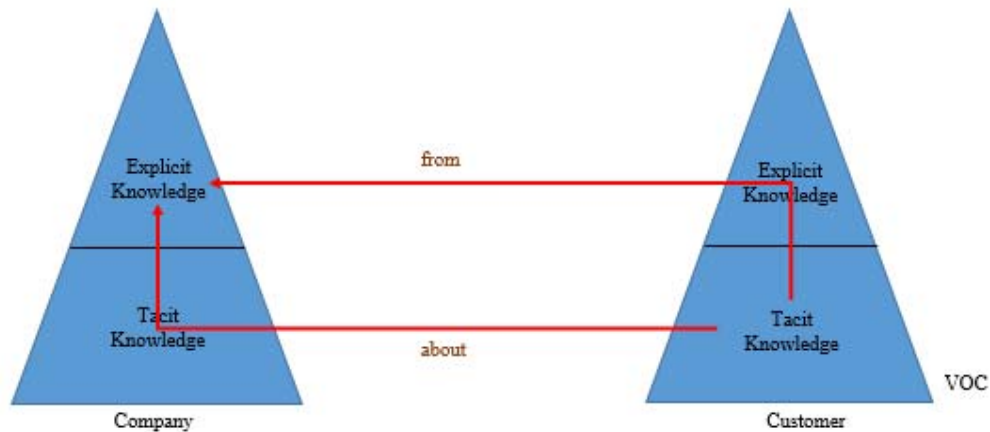


Figure 1. Customer Knowledge Transfer Theoretical Framework

### 2.3 Co-creation of value

Co-creation may have many definitions, however in this study, we focus on the co-creation of value. Prahalad and Ramaswamy (2004a) defines co-creation of value as joint problem definition and problem solving. From their concept, co-creation is a joint creation of value by the company and the customer. Objective of the process is different from activities for getting higher customer satisfaction. Prahalad and Ramaswamy (2004b) proposes that co-creation of value is to create an experience environment in which consumers can have active dialogue and co-construct personalized experiences. This also includes the case with same product, but different customer experiences.

## 3 RESEARCH METHODOLOGY

We started by doing literature reviews on the area of Voice of the Customer (VOC), Customer Knowledge Management (CKM) and co-creation. After that, we developed a conceptual framework for the new VOC collection method through customer co-creation based on the combined concept from the literature reviews. After that, we investigated a company that implemented all of VOC systems (VOC 1.0, VOC 2.0 and the new VOC collection method through customer co-creation) in the company. Fuji Xerox Japan is selected as our research target because the company uses all VOC collection methods which are our research scope. Moreover, with more than five years of experience (as of March, 2016) in performing VOC collection method through customer co-creation, and with many successful practical cases, we chose Fuji Xerox Japan as our research target. For data collection, we visited Fuji Xerox at R&D Square, Customer Co-creation Laboratory and participated in the activity of open laboratory in Customer Co-creation Laboratory and did a fieldwork inside Fuji Xerox's organization observing both customer co-creation laboratory and other R&D departments. Apart from that we also conducted a 3 hours semi-structured interview with Mr. Toru HATORI, Manager of Strategic Alliances, Customer Co-creation Lab, R&D Planning and Management, Fuji Xerox Co., Ltd. He started working at Fuji Xerox in 1994 and he became one of starting members and main facilitators of Customer co-creation laboratory

in 2010. The structure of the interview was focused on activities of the new VOC collection method through customer co-creation. Later on we also did some additional data collection by asking questions in details about customer co-creation laboratory via e-mails to Mr. Toru HATORI. Follow by writing a single qualitative case study of Fuji Xerox Japan, findings enable us to answer our research question, and draw useful implication and conclusion from the analysis.

## **4 CASE STUDY OF FUJI XEROX'S CUSTOMER CO-CREATION LABORATORY: OPEN LABORATORY**

### **4.1 Introduction of Fuji Xerox Co., Ltd.**

Fuji Xerox Co., Ltd. is a joint venture between Xerox Limited and FUJIFILM Holdings Corporation to develop, produce and offer copying machines, printers, multifunction devices and document management products, services and solutions in the Asia-pacific region. This manufacturing company is also considered as the world longest running Japanese-American joint venture since its establishment on February 20, 1962. With the slogan of “to become the best partner for our customers”, Fuji Xerox commits many corporate activities showing that they are trying their best to provide customers new values and innovations in the area of document services and communications. In order to achieve customer satisfaction, they also gather customer viewpoints and use those for the improvement and development of products and services.

As mentioned in Fujifilm's sustainability report 2015, customer satisfaction (CS) is fundamental to their corporate activities. They value customers as core component at the center of the business and apply Customer Knowledge Management (CKM) in the organization in order to gain, share and manage customer knowledge which resides in customers in order to contribute benefits to company and create new values for customers in return. They create points for communication with customers in order to collect, analyze and store customers' opinions through the Voice of the Customer (VOC) system. VOC in Fuji Xerox are from the following five sources: (1) the integrated customer support center which is t Fuji Xerox's call center that serves as the main contact point for customers; (2) the Voice of the Customer (VOC) collection system which is an internal VOC system that all employees in the company can get access to input, retrieve and edit the database; (3) official website which offers 24 hours online system for customers who would like to convey their opinions, complaints and advices to Fuji Xerox via web-based system; (4) various market researches which are periodically conducted each year; and (5) the CS programs to make improvements based on the CS survey results.

Due to changes in business context, Fuji Xerox changes their strategy from “Make & Sell” to “Sense & Respond”. In the past, their strategy was to created products and tried to sell those products to the market. Nowadays, they need to adapt to the market, understand the customers and respond. That is why research and development (R&D) in Fuji Xerox has been changed. One of the example is that Fuji Xerox had many R&D centers in Japan; however, Fuji Xerox merged those scattered R&D sites and created a new R&D center called as “Fuji Xerox R&D Square” in Minatomirai, Yokohama. This new R&D center begins its operation in April, 2010. Around 4500 researchers (as of March, 2016) are working in this center with the objective to aim at reinforcing R&D functions through cross-divisional collaboration, shortening product development lead time, reducing R&D costs, and responding to market needs swiftly by strengthening ties with customers.

### **4.2 Customer Co-creation Laboratory**

At R&D Square, Customer Co-creation Laboratory is established in May, 2010 in order to become the place for co-creation of value with customers. The Customer Co-creation Laboratory consists of “Open Laboratory” which is on the 3<sup>rd</sup> floor at the entrance hall of the R&D building, and “Secure Laboratory” which is located on the 6<sup>th</sup> floor in the same building. With the concept that value which Fuji Xerox believes that it is essential might not always be the same from their customers' viewpoints. That is why

Fuji Xerox invites their customers, partners and other stakeholders to join the co-creation session and by doing activities together, they can find and create value through the process.

First, Fuji Xerox's top sales will invite customers to come to Customer Co-creation Laboratory in order to participate in co-creation session. After customers accept the offer, staffs from Customer Co-creation Laboratory will prepare the materials and themes that will be introduced in the session. The preparations also include some researches on the participants' positions, departments and interests. The co-creation session will take place in open laboratory. Participants of the session are normally facilitators from Customer Co-creation Laboratory, Fuji Xerox's sales department, customers and Fuji Xerox's researchers. Customers are management class people who have decision making authorities in their companies. Co-creation session will be conducted and led by facilitators. When co-creation session is finished, the conclusion will be made and customers with Fuji Xerox will decide that will they escalate their action into the next step or not. Next step is the step that will take place in secure laboratory on the 6<sup>th</sup> floor of the R&D building. In case that the customers are interested in what Fuji Xerox introduced in the open laboratory's co-creation session and they agree to find more value with Fuji Xerox, discussion and further co-creation sessions will take place in secure laboratory with Fuji Xerox's R&D researchers. This step requires customers and Fuji Xerox to sign non-disclosure agreement contract for developing the final product together. In secure laboratory, co-creation projects with each customer will be conducted and through adaptation and modification, final solution for the customers will be released and applied into customers' organization or launched to market later.

Work flow and structure of customer co-creation laboratory can be described as in Figure 2.

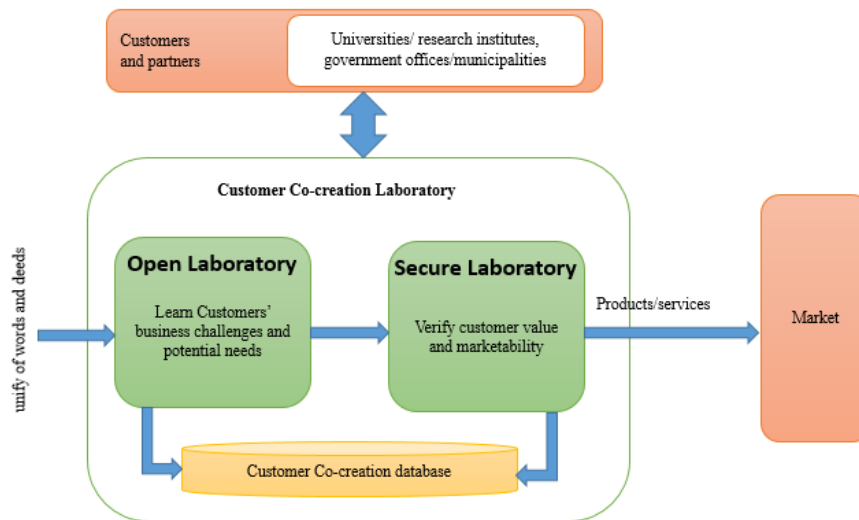


Figure 2. *The structure of the Customer Co-creation Laboratory (Adapt from the new customer value creating process to develop business in Fuji Xerox Technical Report No. 23, 2014)*

#### 4.2.1 *Fuji Xerox's Co-creation Laboratory's major changes*

From establishment in May 2010, there were some major changes in customer co-creation laboratory. New tools were introduced in order to support better co-creation environment. (See Table 1.)

#### 4.2.2 *Fuji Xerox's Co-creation Laboratory's current Key Performance Indicator (KPI)*

From the interview with Mr. Toru HATORI, in order to evaluate performance of Customer Co-creation lab, at least 12 KPIs are being measured. Those are number of visitors/companies, net promoter score (NPS), percentage of executives/ management level or upper participants, number of projects that

entered secure lab, number of projects that came out from secure lab, number of customer co-creations/partners, number of projects that had been made into business, number of VOC records, department that VOC have been applied to, number of new themes that introduced in open laboratory, number of employees who use the system, and percentage of co-creation/ business in terms of usefulness. From the interview, we found that Fuji Xerox's customer co-creation laboratory satisfies in their performance as KPIs (data from 2010 to 2014) show good range of numbers such as number of visitors/companies (960-1,650 persons/year), percentage of management level or upper participants (60-70%), and number of VOC records that are input into VOC Collection system (300-400 records/year). Moreover, some of the KPIs show increasing trend from 2010 to 2014 such as net promoter score of customer satisfaction and number of employees who use the system. (See Table 2.) Furthermore, regarding about co-creation activities results, as of year 2014, there were 12 projects that entered secure lab and 7 projects that successfully came out from the lab. Regardless of these high number KPIs, Fuji Xerox still aims to further improve the results of the laboratory in the future.

When	Changes
May 2010	Start co-creation laboratory (discussion about technologies or processes of improvement cases with customers in open laboratory with no electronic whiteboard, but using only memo)
2011	Discuss about the issues to be solved by improving cases, and introduce electronic whiteboard into open laboratory for creating meeting report
2012	Start visualizing data structurally to create easier to understand content during co-creation session in open laboratory
2013	Introduce EOO-Cards system (iPad & post-it system) for better visualizing method and create more values

Table 1. Major changes in customer co-creation laboratory

KPIs/Year	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014
Customer satisfaction (Net promoter score/ NPS)	-4pt	21pt	20pt	34pt	35pt
Number of employee who use the system	1,840 persons	1,460 persons	3,140 persons	3,930 persons	4,090 persons

Table 2. Increasing numbers of KPIs

#### 4.2.3 Open laboratory

Open laboratory of the Customer Co-creation Laboratory is located at the entrance hall of R&D square building. This location is in Fuji Xerox because it is located at the entrance hall of the R&D square building. During the co-creation session here, when customers have questions that required deeper knowledge or explanation from the related researchers, facilitators can contact the R&D researchers immediately and ask them to participate the session. If the co-creation session is not taking place in the same building or close to R&D researchers working place, those related R&D researchers will not be able to join the session easily and the progress or result of the co-creation session might not be as good as it should be.

Regarding about the participants of the co-creation session in open laboratory, most of them are top executives, managers and company decision making people. That is why Customer Co-creation Laboratory tries their best to create value in order to benefit both the company and customers as the people who join the session are normally busy people, but they agree to join the session to find value together with Fuji Xerox.

During the session, visualization is considered as an important activity to make better understanding of what the participants are discussing, proposing, answering and brainstorming. To enable visualization, E Open Office (EOO) consisting of EOO-Board and EOO-Cards are introduced in the session. EOO-Board is the electronic white board which is used to display EOO-Cards or electronic memo (post-it)



that participants write their opinions, questions, answers, or interesting points with their own handwriting on the tablets. In Fuji Xerox's open laboratory, iPad is being used as tablet devices. This EOO-Cards tool is normally anonymous, so anyone can write what they think freely. For example, if customers would like to ask some questions, they can write questions and send those to display on the EOO-Board without interrupting the session. After that, one of the facilitators who join the co-creation session will answer those questions if they can. With the support of ICT tool and appropriate environment, co-creation session is conducted and results in many successful projects that escalated to the next step in the secure laboratory. Fuji Xerox also applied EOO in their customer's organization. EOO was introduced in the meeting of executives and normal employees of the customer company. Normally this annual meeting, opinions and questions from normal workers to high rank officers are so few, but with the support of EOO anonymous style, the company received opinions, comments and questions many times more than session without EOO. Another benefit of EOO is that participants can write their comments freely and send those to EOO-Board anytime even when other people are discussing. This enables shared context and value among the participants. An example of a co-creation session in open laboratory can be seen in figure 3 with the EOO-Board behind the facilitator who is coordinating the session.

An example of the diversified co-creation sessions is the case that Fuji Xerox introduced the technology of visualization of the whole production line which is being used in the production of multifunction machine in China. In that session, participant from banking industry said that the approach of what Fuji Xerox is doing is similar to the process in banking sector. It was very surprised to the facilitator as manufacturing company and banking company shared a similar process in business. That session implied that Fuji Xerox's solution can be applied to banking industry and led to the co-creation project in the next step. EOO that Fuji Xerox has been using in the open laboratory is also an example of a successful product from customer co-creation session. Because at first, EOO was the system in Fuji Xerox, but it was not launched as products. With customer co-creation, the project was escalated and provided for a fee to other companies.

VOC generated through co-creation activities through Customer Co-creation Laboratory are recorded in the Customer Co-creation Database which is a local database, and from the database, the filtered and refined VOC will be record into the "VOC collection system" of the overall company. VOC collection system is the company database where all employees can get access anytime.

## **5 ANALYSIS**

### **5.1 Key activities of customer co-creation laboratory's open laboratory**

From the case of Fuji Xerox's open laboratory, in order to identify key activities in VOC 3.0, first, we listed out activities in the co-creation laboratory's open laboratory. Then we selected set of activities that are required in the co-creation session. After that, we categorized those activities using the following Process-Workplace-Tool framework which we adapted from what the customer co-creation laboratory used in the designing process (Horikiri, 2015). Horikiri (2015) stated that "In order to identify practical expert knowledge, we arranged workshops at the International Conference on Ubiquitous Computing (Weiser, 1991) from 2005 to 2008 (Back, 2007) ... Through these workshops, we have found that researchers in the field tend to use very similar approaches to design and evaluate new user experiences as follows:". After that the process-workplace-tool is proposed as the framework for Fuji Xerox's customer co-creation laboratory. That is the reason why we choose the process-workplace-tool as the framework for analysis in this paper.

The analysis of key activities in co-creation lab is showed in Table 3. Regarding about the selection method, activities are selected as key activities if those activities are mutually related and required in order to perform the co-creation session. For example, using facilitators during co-creation session will not be functional if two ways communication method for co-creation session is not introduced, and if facilitators do not participate in the session, customers will not talk about their business challenges but

only jot down what they learned. In this case, value will not be created from the co-creation session. Furthermore, structurally visualization during the session cannot be achieved without using Information System support tool like EOO-Board and EOO-Cards. In addition, giving information and knowledge of Fuji Xerox's technologies during the session cannot be done in case that the place for open laboratory is not in the same place or closed to R&D center where related R&D researchers can be called to explain or solve problems and issues that facilitators cannot answer well enough. Normally, calling new participants to participate in the middle of the session is quite unique and cannot be done in case that those participants are too far from the place where the session takes place. The workplace concept in open laboratory enables this activity.



Figure 3. A co-creation session in open laboratory on the 3<sup>rd</sup> floor of Fuji Xerox R&D square (Reprinted with permission of Fuji Xerox Japan, n.d.)

	Activities
Process	<ul style="list-style-type: none"> <li>• Use facilitators during co-creation session</li> <li>• Use two ways communication method like group discussion in order to understand needs and derive VOC</li> <li>• Research participants' basic background like positions, departments and objective of participating co-creation lab for better preparation of topic that will be discussed on the day</li> <li>• Give information and knowledge regarding about Fuji Xerox technologies in order to draw attention of the customer and lead to customer's business topic</li> <li>• Customers talk about their business challenges</li> <li>• Use visualization during co-creation session</li> </ul>
Workplace	<ul style="list-style-type: none"> <li>• Use open space for discussion instead of closed room</li> <li>• Use space for open laboratory in the same building or close to R&amp;D department (outside security but inside the building)</li> <li>• Introduce interesting themes in the area in order to draw attractions of customers while making tour in the open laboratory</li> </ul>
Tool	<ul style="list-style-type: none"> <li>• Use EOO-Board &amp; EOO-Cards</li> </ul>

Table 3. Analysis of key activities in open laboratory

## 5.2 Analysis of VOC activities in Fuji Xerox

In this study, we developed a framework derived from literature review of VOC, CKM and co-creation. The new VOC collection method through customer co-creation or VOC 3.0, can be explained by the VOC 3.0 and CKM Conceptual Framework in Figure 4. Tacit knowledge which resides in customer to explicit knowledge and transfer to company as knowledge from customer. This approach is the traditional VOC 1.0. In case of sharing context between customer and company is created, tacit knowledge of customer or knowledge about customer is transferred to company side in terms of tacit

knowledge and the company convert it to explicit knowledge later. This approach is the traditional VOC 2.0. With give and take activity which company introduces their business challenges, technologies and approaches to customers and customers discuss those issue freely while talking about their own business challenges and comments in return. The company can take or grasp those idea and respond to those issues accordingly. This repetition of give and take activity enables co-creation and value will be created finally. The whole picture of these customer knowledge transfer and co-creation process are components of the new VOC 3.0. Give, take and co-creation activities are divided in this research for analysis, however VOC 3.0 in our concept is defined as the set of give, take and co-creation activities.

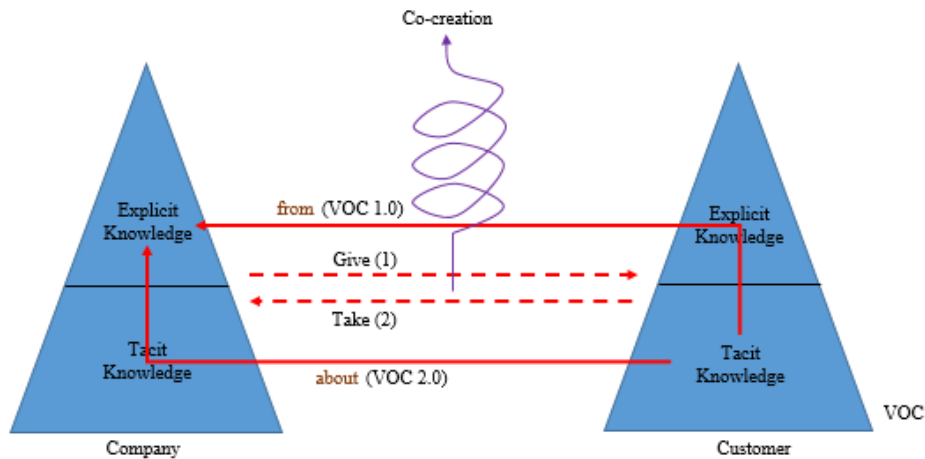


Figure 4. VOC 3.0 and CKM Conceptual Framework

We analysed the case study of Fuji Xerox by using our proposed framework in Figure 4 and fill out key activities of each VOC system that are conducted in the organization. This include VOC 1.0, VOC 2.0, and VOC 3.0. By using the Process-Workplace-Tool framework and the proposed VOC 3.0 framework, we can identified and categorized activities as described in Table 4.

### 5.3 Analysis of Information system in Fuji Xerox

Regarding about information system in Fuji Xerox, we can see that the company is using all of VOC collection methods (VOC 1.0, VOC 2.0 and VOC 3.0). Role of technology and communication between customer and Fuji Xerox can be explained in Figure 5 which is adapted from the technology service encounter framework (D'Souza & Menon 1995). Technology-Mediated is the pattern that customers do not have face to face communication or direct contact with the company, but communicate via the support technology. Fuji Xerox's integrated customer support center or call center, and website are examples of this type. Technology-Assisted is the type that customers and company contact directly or having face to face interaction while the company has technology supported at the back. On-site service and maintenance is a good example of this type. As the employees who talked directly to customers can get access to the company resource and convey what they found in the system which those data can be analysed and use for the betterment of the company and customers in the future. Focus group market research is also similar to maintenance cases, where interviews of group of customers are conducted and those data will be input into database by the company side. Finally, Technology-Facilitated is the type that customers and company can access the technology and also have direct contact with each other. EOO is an example of this type as all participants can use the support technology while doing discussion and brainstorming through co-creation session.

Activities	Process	Workplace	Tool
Knowledge from customer (VOC 1.0)	<ul style="list-style-type: none"> <li>• <b><i>Research participants' basic background like positions, departments and objective of participating co-creation lab for better preparation of topic that will be discussed on the day</i></b></li> <li>• Customer satisfaction surveys</li> <li>• Daily customer communication (complaints, claims, requests, inquiry)</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated customer support center</li> <li>• On-site maintenance/service at customers' place</li> </ul>	<ul style="list-style-type: none"> <li>• Customer support help desk service</li> <li>• Official website</li> </ul>
Knowledge about customer (VOC 2.0)	<ul style="list-style-type: none"> <li>• <b><i>Use two ways communication method like group discussion in order to understand needs and derive VOC</i></b></li> <li>• Focus group market research</li> <li>• Cross-division meeting for new product development (Product design and sales department)</li> </ul>	<ul style="list-style-type: none"> <li>• Ebina center new product development's meeting room(Fuji Xerox's another major development and manufacturing technology center)</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting monitoring device</li> </ul>
Give	<ul style="list-style-type: none"> <li>• <b><i>Give information and knowledge of the company in order to draw attention of the customer and lead to customer's business topic</i></b></li> </ul>		
Take	<ul style="list-style-type: none"> <li>• <b><i>Customers talk about their business challenges</i></b></li> </ul>		
Co-creation	<ul style="list-style-type: none"> <li>• <b><i>Use facilitators during co-creation session</i></b></li> <li>• <b><i>Use visualization during co-creation session</i></b></li> </ul>	<ul style="list-style-type: none"> <li>• <b><i>Use open space for discussion instead of closed room</i></b></li> <li>• <b><i>Use space for open laboratory in the same building or close to R&amp;D department (outside security but inside the building)</i></b></li> <li>• <b><i>Introduce interesting themes in the area in order to draw attractions of customers while making tour in the open laboratory</i></b></li> </ul>	<ul style="list-style-type: none"> <li>• <b><i>Use EOO-Board &amp; EOO-Cards</i></b></li> </ul>

Table 4. Analysis of VOC activities in Fuji Xerox (Italicized and bolded activities are key activities of VOC through customer co-creation lab)

#### 5.4 Comparison of each VOC's characteristics

From Fuji Xerox's case study, we can identify the differences of VOC 3.0 from VOC 1.0 and VOC 2.0 and also examples of practical usage of each VOC in Fuji Xerox as in Table 5.

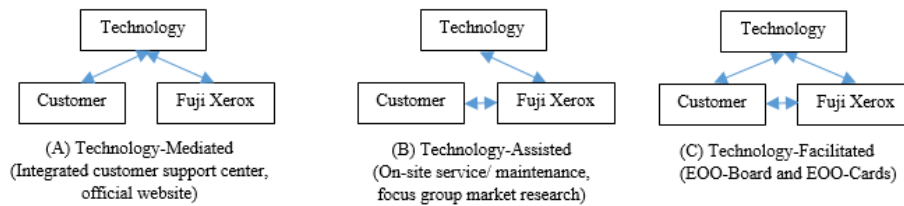


Figure 5. Role of Technology in Fuji Xerox's VOC system

	Objective	Data/Information/ Knowledge type	Role of technology	Workplace	Fuji Xerox Case
VOC 1.0	Product improvement/ Respond to complains	Reactive (Explicit)	Technology-Mediated, Technology-Assisted	No direct contact with customers (only via phone/ website), face to face (service/ maintenance)	Call center, official website, on-site service/ maintenance
VOC 2.0	Testing prototype/ concept	Proactive (Tacit)	Technology-Assisted	Anywhere (mostly closed meeting room)	Group interview, focus group study
VOC 3.0	Find and create value with customers	Explicit/ Tacit knowledge	Technology-Facilitated	Place closed to R&D dep. (researchers can join the session easily even from the middle of the session)	VOC 1.0, VOC 2.0, give & take, co-creation

Table 5. Comparison of VOC 1.0, VOC 2.0 and VOC 3.0

## 6 CONCLUSION AND IMPLICATION

In this study, case study of Fuji Xerox is introduced in order to make understandings of VOC 3.0, the new VOC collection method through customer co-creation. From the findings, we can distinguished this new VOC from the traditional VOC 1.0 and VOC 2.0 by its objective, data or information or knowledge transfer type, role of technology in the system, and workplace. These findings show the concept overview of VOC 3.0 and example of key activities that Fuji Xerox is using as a guideline for implementation of a successful VOC 3.0 system.

Characteristics and objective of each VOC system are different. In case that the company would like to respond to claims and services, VOC 1.0 might be a good choice for capturing VOC. On the other hand, in case of new product development or product testing, VOC 2.0 which focuses on group activities might be appropriate; however the scale of coverage in terms of customer diversification will be limited in some cases. Apart from that, for companies that are developing products or services, with enough technology supported, they can create value of what they are trying to do with their customers and can finalize the product together through co-creation process. VOC 3.0 is recommended. These are all considered as alternatives of VOC collection methods.

Finally, we believe that this study will be able to contributed not only in practical area as the study shows the example of a successful company in performing VOC 3.0, but also in academic area as we proposed

a new framework of VOC 3.0, and categorized VOC 1.0, 2.0 and 3.0 which could lead to a new concept of VOC collection method for other researchers in the future. Not only that, but we also provide the measurement criteria that Fuji Xerox is using in customer co-creation laboratory as example of KPIs that could indicate performance of the system. This could lead to future study in the area of measurement of VOC system performance.

## **7 LIMITATION AND FUTURE WORK**

Key activities in this study is defined by using Process-Workplace-Tool framework. The framework covers core activities of the system, however there are also some limitations to this framework as there might be other important activities that are out of the scope of this framework and cannot be identified accordingly. Future study in a larger scope is needed in order to look at a bigger view of VOC 3.0 key activities.

Regarding about the limitation of this case study, because Fuji Xerox is mainly focusing on business to business (B2B) area, business to customer (B2C) and other areas need to be investigated in future research.

Furthermore, in this study, we do not investigate drawbacks of each VOC system. Future research needs to expand more in this area and uncover those demerits again. Finally, in this research, we conducted the interview with only Fuji Xerox side, in other words, company side. We might also need to approach other stakeholders such as participants from other departments or customers which could lead to other new findings in the future.

As the objective of introducing a new VOC method, VOC 3.0, issues about theoretical framework for developing VOC 3.0 is not mentioned in the study. This will be pursue in the future study.

Moreover, actual cases of VOC 3.0 are not focused in this study, in order to understand more in practice, future researches on the details are needed.

Finally, key activities of Fuji Xerox's open laboratory that are identified in this study is a set of activities that could lead to a success VOC 3.0 system. However, in different industries or companies which have different factors, key activities might not be the same as Fuji Xerox's key activities. Research further in this area is required in order to understand more about key activities of VOC 3.0.

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