Co-Creation of Non-Economic Values in Islamic Banking: A New Frontier in Service Science

Amna Javed, Katsuhiro Umemoto, and Youji Kohda

Abstract—The purpose of this paper is to examine co-creation of non-economic values in Islamic banking services and their significance for service science by comparing Islamic and conventional banking services. Although many scholars have discussed co-creation of values in services, most of them have focused on only economic values.

Following Sharia (Islamic principles that are based on Qur’an and Sunnah) traditions, Islamic banking is more concerned with such non-economic values as well-being, partnership, fairness, trust, and justice, than such economic values as money in terms of interest. Therefore, it may be more sustainable and suitable for today’s unpredictable socio-economic environments.

We also argue that Islamic banking is essentially a value co-creation business model that fits better with the so-called Service-Dominant Logic (SDL) than conventional banking. This paper explores a new frontier of value co-creation in services, thereby contributing to further development of service science.

Keywords—Value co-creation, Islamic banking, Non-economic values, Service science.

I. INTRODUCTION

The role of the banking sector in the economic development of any nation is challenging. A close relationship exists between growth in the financial and economic sectors. The banking industry is playing a vital role towards economic development and wellbeing of any society [1]. Enlightening human well-being is becoming a debatable challenge with the passage of time [2]. There are lot of factors that concern about the well-being of either individuals or communities that includes poverty, unemployment, natural disasters and numerous factors [2]. There is a dominant banking sector known as conventional banking however in relation to this sector there is another aspect of the banking world in case of Islamic banking. This study examines the comparison of co-created values in Islamic banking and conventional banking system and its contribution towards service science. First we need to understand the terms “conventional banking, Islamic banking, and service science”.

The Islamic banking system refers to a banking system that is based on the principles of Islamic law (also known as Sharia) and guided by Islamic economics [1]. Two basic principles behind Islamic banking are the sharing of profit and loss [1] whereby interest (riba) is prohibited; money is not treated as a commodity; there is prevalence of justice; and uncertainty (gharar) is prohibited.

Conventional banking is based on a pure financial model, in which the relationship between bank and customer is mainly as debtor or creditor. This banking system follows the age old resolution of interest-based mobilization of funds and lending that refers to capitalism with the purpose of profit maximization [1], [3], [4]. Islamic banking and conventional banking are differentiated on the basis of objectives. The philosophy and central doctrines of the Islamic banking are different from conventional banking [4] therefore Islamic banks show a healthy competition with conventional banks for value co-creation regarding with economic or non-economic values. The customers’ perception of value depends on the service quality, product quality, price and image. By developing strong relationships between customers and financial institutions, serve as incentives for customers to remain loyal and thus provide financial institutions with a source of differential advantage [5].

As most of the economies and businesses are considered as service economies and service businesses respectively, it may conclude that service is the application of knowledge and skills for the benefit of others [6]. It combines organization and human understanding with business and technological understanding to explain the growth of the service systems [7]. And organizations that discover ways to improve well-being for customers, together with their own employees may gain more creative labor force, a competitive advantage in the market and increased customer loyalty [2].

So far services are understood implicitly in the western cultural context, this research will offer an answer to what changes service science will undergo from the Islamic culture, by comparing the banking services. As Islamic banking is generally based on a business relationship and partnership approach, such approaches are now acquiring popularity and propose those involved in service exchange, the opportunity to co-create values or at least mutual benefit and this is one of the signs for economy that Islamic banks are on the horizon of improving trends every year [1]. This study will depict that Islamic banking is essentially a value co-creation business model that demonstrates attributes associated with the emerging service-dominant logic paradigm. Islamic banking follows the Sharia traditions to co-create values with their business and customers. This will lead to have a new frontier and the continue development towards service dominancy and value in use of service science.

Amna Javed is a student at the School of Knowledge Science, Japan Advanced Institute of Science and Technology, Nomi, Ishikawa, Japan,923-1292 (e-mail: s1250207@jaist.ac.jp).

Katsuhiro Umemoto is a professor of knowledge management at the School of Knowledge Science, Japan Advanced Institute of Science and Technology, Nomi, Ishikawa, Japan,923-1292.

Youji Kohda is a professor of service science at the School of Knowledge Science, Japan Advanced Institute of Science and Technology, Nomi, Ishikawa, Japan 923-1292 (e-mail: kohda@jaist.ac.jp).
This paper is organized into V sections. Section II presents a pictorial overview of differences between Islamic banking and conventional banking. Section III is about discussion on the amalgamation of differences and co-creation of non economic values in Islamic banking. What do these values mean and their contribution is discussed in Section IV. Finally the concluding remarks and main results of the application are mentioned in Section V.

II. COMPARISON BETWEEN ISLAMIC BANKING AND CONVENTIONAL BANKING

Individual bank’s functions and operations vary in their application. These differences follow several reasons including the prevailing laws in the country, experiences, objectives and the manner of interaction between the banks and the customers as well. More specifically, this section is to demonstrate the differences of customer dealings between Islamic banks and conventional banks, ultimately to refine the value-in-use in numerous service transactions for the betterment of the economy.

A. Functions & Operations

The foundation of Islamic banking is based on the Islamic faith [4]. Islamic banking refers to the banking system whose functions and operations follow the Sharia, meaning (the way to the source of life), refers to the legal system that is Islamic law in all aspects based on Qur’an (Holy book) and Sunnah (the words, deeds and tacit concurrence to the words and deeds of others of the Prophet (Peace be upon him). Islamic principles are fixed as these principles cannot be changed with the passage of time and same throughout the Islamic world. However conventional banking follows the man-made principles that vary according to the transactions required [8], and can be revise any time with the objective of profit maximization which is aligned with the capitalism overview. Fig. 1 shows basic rules and principles on which the two banking systems are grounded for.

B. Investment Products, Priority and Risk

Investment products in Islamic banking work on the basis of profit and risks haring between all the parties involved [8]. Both an investor and a customer make investment in the same enterprise with no fixed profit; that depends on the nature of the contract, loss is distributed as per capital contribution and an investor also takes part in the management decisions. This sharing promotes partnership that reflects the Islamic view towards balanced distribution of wealth and promoting social economy. Islamic banking has a stress on accomplishment of business and management of projects that benefit society and ensures equity development. Fig. 2 (a) explains the whole procedure of the investment based on the partnership contract, and also the stress and priority given by Islamic banking during the whole investment period.

As compare to the Islamic banking system in conventional banking the investor receives a fixed rate of interest. The main focus is to protect the bank’s interest and selection of the projects that ensures profitability [9]. It normally stresses capital recovery and the ability of the creditor to repay the loan. In this scenario the risk is primarily born by the customer or creditor. Fig. 2 (b) illustrates the mechanism of investment in conventional banking.

Fig. 1 Functions & Operation in Islamic and conventional banking

B. Investment Products, Priority and Risk

Investment products in Islamic banking work on the basis of profit and risks haring between all the parties involved [8]. Both an investor and a customer make investment in the same enterprise with no fixed profit; that depends on the nature of the contract, loss is distributed as per capital contribution and an investor also takes part in the management decisions. This sharing promotes partnership that reflects the Islamic view towards balanced distribution of wealth and promoting social economy. Islamic banking has a stress on accomplishment of business and management of projects that benefit society and ensures equity development. Fig. 2 (a) explains the whole procedure of the investment based on the partnership contract, and also the stress and priority given by Islamic banking during the whole investment period.

As compare to the Islamic banking system in conventional banking the investor receives a fixed rate of interest. The main focus is to protect the bank’s interest and selection of the projects that ensures profitability [9]. It normally stresses capital recovery and the ability of the creditor to repay the loan. In this scenario the risk is primarily born by the customer or creditor. Fig. 2 (b) illustrates the mechanism of investment in conventional banking.

Fig. 2 Investment products, Priority and Risk in Islamic and conventional banking

In Fig. 2 (b), we can see that only the customer manages the investment by himself, however a fixed amount of interest goes to the investor that is conventional bank in the given scenario and the whole risk ultimately transfers to the customer.

C. Relationship

The position of Islamic banking in relation to its customers is that of an investor and trader as shown in Fig. 3 (a), customer normally acts as an investor and offers some product to Islamic bank with the purpose of trade. In Fig. 2 (b) both bank and
customer agreed upon some contract to carry out and in this situation they act like partners [1]. In the third relationship as mentioned in Fig. 3 (c) they behave as buyer and seller. In this case customer acts as buyer and makes payment to the seller (bank) for the desired product/service [8]. However in conventional banking the relation is defined as that of creditor and debtor with interest being the price of credit [8]. Fig. 3 (d) shows the relationship as lender/debtor and borrower/creditor. The loan always transfers from bank to the customer hence bank turns as lender or debtor. This is the most common relationship in the conventional banking system worldwide. The bank makes profit between the difference of rate of interests between borrowing and lending of money [1]. Fig. 3 demonstrates the clear snapshot of the difference between the two sectors as a whole.

TABLE I

<table>
<thead>
<tr>
<th>Governing Principles of Islamic Banking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five Principles</td>
</tr>
<tr>
<td>Profit sharing and risk sharing</td>
</tr>
<tr>
<td>Prohibition of riba (interest)</td>
</tr>
<tr>
<td>Avoidance of Gharar (uncertainty)</td>
</tr>
<tr>
<td>Prohibition of forbidden assets (Halal permitted)</td>
</tr>
<tr>
<td>(Alcohol, gambling)</td>
</tr>
<tr>
<td>Existence of an underlying asset</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Governing Principles of Conventional Banking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Principles</td>
</tr>
<tr>
<td>Interest</td>
</tr>
<tr>
<td>Profit</td>
</tr>
</tbody>
</table>

Conversely, conventional banking is proven under the principle of capitalism and conducts business by charging interest [9], and their major concern is to maximize profit as much as possible, which is forbidden in Islamic law [10], [11], [12]. Table I (b) explains governing principles in conventional banking that are majorly interest and profit. In this banking sector almost every transaction includes interest that leads to the oppression of the community [12].

**E. Values & Drivers of Operations**

Islamic banking represents non economic values (Partnership (cooperation), Fairness (commitments), Well-being, Justice, and Equality etc.) that act as the drivers of operations. There is no specified difference between the two terms, values and drivers of operations. The lower part of the given Table II (a) shows all the base values in Islamic banking (uniformity, justice, trust, accountability) that lead towards the growth of the banking system in today’s world; however the upper part demonstrates the values extracted from the economic and social activities performed by Islamic banks for the betterment of economy and mankind [13]-[15]. Table II (a) shows the values and drivers of operations in Islamic banking that justifies that both values and drivers of operations in this banking system are preferred to be non-economic values.

On the contrary the conventional banking system has defined the values and the drivers of operations separately that depend on one another however not the same throughout as in the Islamic banking sector. As the bank is a dealer of money and according to the capitalist system, reward for spending money is interest [9]; therefore the leading foundation of revenue to conventional banks is charging interest by lending and accepting deposits respectively. Interest and guarantee on all its deposits are the key drivers of operations in the conventional banking system along with the other cherished services including, funds transfers, safety of wealth, facilitation in international trade etc. [9] are considered as the secondary drivers of operations. Table II (b) displays values and drivers of operations in conventional banking.

**TABLE II**

<table>
<thead>
<tr>
<th>Values in Islamic Banking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniformity</td>
</tr>
<tr>
<td>Justice</td>
</tr>
<tr>
<td>Trust</td>
</tr>
<tr>
<td>Accountability</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Values in Conventional Banking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
</tr>
<tr>
<td>Profit</td>
</tr>
</tbody>
</table>

Fig. 3 Relationship between Islamic and conventional banks with customers

**D. Governing Principles**

Islamic banking follows the Five basic governing principles that constitute Islamic banking: No interest transactions (Riba prohibition), Gharar (uncertainty) avoidance, Existence of an underlying asset (asset/service backing), Profit and loss sharing, Prohibition of forbidden assets (Halal permitted) [9]-[11]. Islamic banking is majorly concerned with these principles in all its dealings, there is a check and balance of Sharia board on the banks for not to avoid or neglect the rules explained by Sharia. Table I (a) describes all the governing principles in Islamic banking.
TABLE II
(a) VALUES AND DRIVERS OF OPERATIONS

<table>
<thead>
<tr>
<th>ISLAMIC BANKING</th>
<th>NON-ECONOMIC VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Well-being</td>
</tr>
<tr>
<td></td>
<td>Partnership</td>
</tr>
<tr>
<td></td>
<td>Fairness</td>
</tr>
<tr>
<td></td>
<td>Uniformity</td>
</tr>
<tr>
<td></td>
<td>Justice</td>
</tr>
<tr>
<td></td>
<td>Trust</td>
</tr>
<tr>
<td></td>
<td>Accountability</td>
</tr>
</tbody>
</table>

(b) VALUES AND DRIVERS OF OPERATIONS

<table>
<thead>
<tr>
<th>CONVENTIONAL BANKING</th>
<th>DRIVERS OF OPERATIONS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interest</td>
<td>Wealth maximization</td>
</tr>
<tr>
<td></td>
<td>Guarantees</td>
<td>Injustice and Oppression</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diversity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competition</td>
</tr>
</tbody>
</table>

Islamic Banking
(5C’s)
1. Character
2. Capacity
3. Capital
Condition
Collateral

Conventional Banking
(5C’s)
1. Collateral
2. Capital
3. Capacity
CharacterCondition

As the conventional banks products are based on interests and diversifying rules, hence the interest increases, installment increases automatically, that leads to an increase in the amount of the loan that extends the tenure that gates towards injustice and oppression to the entire society [12]. These two leading values give place to the forthcoming values as Competition and Wealth maximization as shown in the right side of the Table II (b).

Table II covers the comparison of values and drivers of operations of the both banking systems in the form of Table II (a) and Table II (b) above.

F. 5Cs (Character, Capacity, Capital, Collateral, Condition)

Every bank gives importance to 5Cs (capital, capacity, collateral, character and condition) however their priority level is different. Islamic banking affixes priority to the elements of 5Cs in the order as (Character, Capacity and Capital) with no priority for condition and collateral however they are still the part of comparison. Fig. 4 (a) shows the priority level of elements of 5Cs in Islamic banking.

In contrast, the conventional banking system exists whose priority level is (Collateral, Capital, and Capacity) [13]. For conventional banks collateral is the most important element, however they are also concerned with the capital and capacity having second and third rank respectively as mentioned in Fig. 4 (b). That creates a clear difference given that Islamic banking is concerned with character of the customers first and they are more interested in capacity than in capital. However they have the similarity regarding the conditions on the issue of security and feasibility of any project with respect to the financing needs [16]. Please refer to the Fig. 4 for the overview.

G. Performance (Balance Sheet)

There are many publications about the performance analysis of the both banking sectors as here we elaborate a difference between two banks by simply compare the balance sheets that show the financial position of any organization [17].

Islamic banking balance sheet presents bank assets; bank liabilities, profit sharing investment accounts, and bank equity, and the distribution of all these in the balance sheet format is mentioned in Fig. 5 (a), whereas the conventional banking system represents only bank assets, bank liabilities, and bank equity as in Fig. 5 (b). The main difference is in the case of losses, as in conventional banking, liabilities are repayable in full therefore losses fall entirely in the banks equity with full influence of asset gains/losses. A small default rate can badly damage the banks equity and ultimately affects the banks ability to lend. Conversely, Islamic banking shares profits and losses on assets with the profit-sharing investment account holders, therefore the bank equity does not bear all the losses [17].

Fig. 5 clearly depicts the financial status of both banks in terms of balance sheet with explanation that can highlight the major differences prevailed in these sectors.
III. CO-CREATION OF NON-ECONOMIC VALUES IN ISLAMIC BANKING

In section II we have a detailed comparison of the traditional banking system (conventional banking) with the growing banking system (Islamic banking). The two have the different foundations but still they exist altogether. We want to review the survey with the point of service and we pick the major points of differences like deposits and loans (Fig. 2), priorities and risks (Fig. 2), major relations between the bank and customer (Fig. 3), values and drivers of operations as in Table II (a) and Table II (b), and governing principles as in case of Islamic banking, the most important principle that is profit and risk sharing was taken and shown in Table I (a), Table I (b) and amalgamation of all these points is given in Fig. 6. This research focuses on the interface of the bank, the customer and the rest of the value chain to co-create values through economical and non-economical activities, finally to create non-economic values that are essentially in services.

Fig. 6 (a) explains the deposit case in conventional banking, the whole mechanism to carry out this activity is based on profit in terms of interest. The conventional banking system is more concerned with the economic values that include profit and interest as these are the drivers of operations in this system (Table II (b)). Here in this case co-creation occurs between the customer and the bank, first the customer have some expectations to receive a fixed amount of money in terms of profit, so they go to the bank and offer some amount of money to make deposit as per their expectations. The bank makes investment of that money in a project or enterprise and receives some profit; the fixed amount of this profit goes to the customer. And if the bank suffers loss, the customer do not involve in the loss, the whole loss or risk transfers towards the bank as shown in Fig. 6 (a).

In the case of a loan the customer contact the conventional bank for loan to make some investment, and bank has no concern with the project of investment (Fig. 2 (b)). As the customer invest by themselves so the bank only receives a fixed amount of profit and whole risk or loss bears by the customer as in Fig. 6 (b). In both cases the relationship between the bank and the customer is always as debtor or creditor as mentioned in Fig. 3 (d).

In contrast, there is Islamic banking, where the concept of partnership (Table I (a)) exists in most of the dealings. In this banking system both deposit and loan cases follow the same principle of sharing profit and loss. In the deposit case co-creation process is same as per conventional banking see Fig. 6 (a). The customer visits the Islamic bank with some expectations to make deposit and earns profit see Fig. 6 (c). Islamic bank makes further investment in some project or enterprise however the case is different, as the bank earns either profit or loss it is shared between both parties that is considered to an economic value however with it they also co-create the non-economic values in the form of cooperation, fairness, justice and well-being of the individual and a fixed amount of profit goes to the Non-Governmental Organizations (NGO) and Not for Profit Organizations (NPO), that ultimately leads towards the well-being of the whole community. That is the reason that Islamic banks sometimes also known as the welfare organizations and it is considered more towards customer driven approach.

The same is the case with a loan, when the customer asks for a loan from Islamic banks than the authority is not fully transferred to the customer to make an investment. The bank plays an intermediary role, and they make a joint investment by following the Islamic law. In this transaction the amount of profit or loss is shared between the involved parties in the pre-decided ratio that is not fixed as per the conventional system. Here again the co-created values are the same both economic and non-economic as in the explanation of deposit case in Islamic banking in Fig. 6 (c). There are three types of relationship exists between the customer and the bank, that depends on the agreement between the parties.

By this investigation, this study tries to depict the value system and a theory is derived from the literature survey that shows the value co-creation process and as a result created values in Islamic banking and conventional banking as well. Islamic banking has noticed the change towards a more consumer-centric competitive world in which engagement of the consumer becomes a critical factor for success and this will lead to the better competitive advantage for service science.
There are two types of values in the Islamic banking sector, economic and non-economic values. By comparing the Islamic banking and conventional banking it is clear that non-economic values are playing a major role as drivers of operations.

Fig. 6 (c) shows that all the economic activities are ultimately concerned with non-economic values in case of Islamic banking, because economic values are necessary to conduct for playing a social role. The left part of Fig. 6 explains value co-creation process however the right part of Fig. 6 shows co-created values in both conventional (economic values) and Islamic banking (economic and non-economic values). This Fig. 6 depicts the result of literature in Section II in detail at a glance.

IV. NON-ECONOMIC VALUES CREATED IN ISLAMIC BANKING

Fig. 7 describes the co-created values in Islamic banking as a result of co-creation process, see in Fig. 6. Here the creation of two values has observed, firstly, the economic values in terms of profit (money), service charges (when the bank performs an intermediary role) and opportunity cost (the benefits received by bank by taking an alternative action, penalty charges can also be considered as opportunity cost however in case of Islamic banking these charges are utilized for the betterment of the economy and for the well-being of the mankind) [18]. Secondly, the non-economic or social values as service quality, customer satisfaction [19], team work, justice, trust and many other values as shown in Fig. 7. These values play an important role to attract new customers and also to retain existing customers.

Thus economic values relate to the market and assessed price of products/services, however non-economic or social values are the principles or quality control standards to control human actions. Fig. 7 shows all the economic and non-economic
values in detail and their relation to one another in a consistent manner.

There are many non-economic values occurred in Islamic banking however only some are selected here that are the most important values. Firstly, partnership that is derived from the economic activity and further relates to sharing, cooperation and team work. Cooperation depends upon the effective communication that leads towards the customer driven excellence. Secondly, justice is a base value in Islamic banking that involves freedom, equality and it extends towards respect and trust that covers honesty and further fair dealings, commitments towards accountability and safe-keeping of the promises and valuables, and leads to have an element of responsibility. Thirdly, uniformity that means Islamic principles that are not changeable according to the transaction, regardless of the transaction type it remains the same and this is the main difference between Islamic and conventional banking as explained in Fig. 1 in Section II. Uniformity further narrates the visionary leadership, accuracy, transparency (everything is crystal clear to the customer) and decision making capacity.

Islamic Banking

Economic values

Non-economic values

Profit
Service charges
Partnership
Uniformity

Opportunity
cost

Cooperation

Team work

Sharing

Effective communication

Customer-driven excellence

Equality

Freedom

Respect

Justice

Trust

Safe-keeping
(Promises, precious things)

Commitments

Honesty

Responsibility

Accountability

Fair dealings

Purity/transparency

Decision-making
Capacity

Accuracy

Visionary leadership

Fig. 7 Economic and non-economic values in Islamic banking

V. CONCLUSION

This study though descriptive in nature, provides valuable information to the western banking system and also to the service science.

Firstly, it is a great opportunity to broaden the view of value co-creation in service science. As per the case of Islamic banking not only economic values however also the non-economic values are co-created. This research denotes an innovative area in both customer and service research that can subsidize to understand and reduce the stimulating problems facing today’s society. By focusing on this area, we hope that it will be a promoter for additional service research dedicated to the problems related to customer’s well-being.

Secondly, this study serves as a catalyst to know about another financial perspective in the world that is the Islamic banking system. Now Islamic banking is getting reputation due to profit and risk sharing activities, interest free products/services and strong bonds with the religion. Islamic banks work as welfare organizations to promote trade and economic activities as per instructions of Islam by providing interest free products/services. Money is basically a mode of exchange in Islamic banking, and not a store of value of product/service as in conventional banking. Money is just traded to move the wheels of business and not just earning interest or making profit.

Finally this study also highlights that as the most economies are service economies and most of the businesses are considered as service businesses, so far, services are understood in the western cultural context, this research will offer an answer to what changes service science will undergo from the Islamic culture, by making comparison of both banking services. We can see that Islamic banking is safer and customer oriented than conventional banking.

REFERENCES


Anna Javed was born in Lahore, Pakistan. She received her B.Com (Bachelor of Commerce) from University of the Punjab (PU), Lahore, Pakistan in 2006. She also received her M.BIT (Masters in Business and Information Technology) from University of the Punjab (PU CIT), Lahore, Pakistan in 2009.

She also worked as a Lecturer at Punjab College of Commerce, affiliated with University of the Punjab, Lahore, Pakistan. She did Business Internships in Dubai Islamic Bank and Bank Alfalah Limited (Islamic banking). She is currently a student in Graduate School of Knowledge Science, Japan Advanced Institute of Science and Technology (JAIST). Her current area of research includes Islamic banking with respect to service science.

Katsuhiro Umemoto is a professor in the Graduate School of Knowledge Science of Japan Advanced Institute of Science and Technology (JAIST), Japan. He graduated from Kyushu University in 1975 with BA in Economics and obtained his doctoral degree in public policy from the George Washington University in 1997.

He worked at Hitotsubashi University as research associate for Professor Ikujir Nonaka who co-authored a worldwide bestseller titled the Knowledge-Creating Company. He was a member of the project for the Knowledge-Creating Company that initiated the knowledge management movement and has translated the book into Japanese. He has also translated Davenport and Prusak’s Working Knowledge and Nancy Dixon’s Common Knowledge, both of which are worldwide bestsellers in the field of knowledge management. His current research interests include knowledge management in non-business sectors such as public administration, health care, social welfare, NPOs, etc.

Youji Kohda was born in Tokyo, Japan. He received the B.S. degree in Information Science and the M.E. and Dr. Eng. degrees in Information Engineering from the University of Tokyo in 1981, 1983, and 1996, respectively.

He joined Fujitsu Limited in 1986 and joined Fujitsu Laboratories Ltd. in 1990. He was engaged in research and development of Fifth generation computing, advanced user interface, groupware and instant messaging. He joined Fujitsu Limited again in 2007 and was engaged in several business innovations with the company’s customers as a “field innovator” for four years. He has been a professor of Japan Advanced Institute of Science and Technology since 2011. He is now engaged in service research in the Graduate School of Knowledge Science of the Institute.