A Proposal of a Method to Diagnose the Organizational Activation Level Using the Integrated Value Graph

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Yuichi Mori*
Graduate School of System Design and Management, Keio University, Kanagawa, Japan

Nobuyuki Kobayashi
The System Design and Management Research Institute of Graduate School of System Design and Management, Keio University, Kanagawa, Japan

Eriko Hikishima
The System Design and Management Research Institute of Graduate School of System Design and Management, Keio University, Kanagawa, Japan

Seiko Shirasaka
Graduate School of System Design and Management, Keio University, Kanagawa, Japan

Makoto Ioki
Graduate School of System Design and Management Keio University, Kanagawa, Japan,

ABSTRACT

This study focuses on improving organizational problem-solving capabilities through interdependence among organization members. We propose a method to facilitate the members of the organization to actively tackle conservative issues within the organization. We propose a method to diagnose the organizational activation level using the integrated value graph, in terms of whether the organization is actively tackling conservative issues. Regarding the diagnosis and improvement of the level of organizational activation, this study classifies the form of each integrated value graph using a classification table followed by the I-I chart method. The verification process involved getting participants to use the proposed tool. Participants were both male and female, aged from 20s to 50s, and arranged in groups of three; the verification was conducted among a total of 53 participants and the resulting questionnaire responses were compared using A/B testing. Based on the results of this study, we confirm the

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effectiveness of aligning purpose with and undertaking action for others. Using a series of methods, including the construction and integration of value graphs, leads to an improved level of organizational activation.

Keywords: Self-organizing, Value Graph, Integrated Value graph, Organizational Activation.

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1. INTRODUCTION

In current times of intense change, organizing relevant activities is necessary to explore the factors and methods that create collective "wisdom" rather than merely relying on the sum total of the intellectual resources owned by the organization's individuals (Miura Hida, 2002). In order to overcome this situation, Paulus and Yang (2000) report that from a personal view, sharing of diverse human ideas leads to organizational productivity, that is, organizational capability improvement.

Organizational capabilities refer to the ability to create value by combining a wide variety of management resources in their own way in corporate activities (Penrose, 1995). Taniguchi (2014) states that improvement in organizational capabilities including organizational innovation ability, revitalization of potential abilities, and construction of sustainable abilities are necessary to bring about changes in the business environment. In this situation, companies want to improve their organizational capabilities (Sogawa, 2000).

Therefore, this study aims to improve alignment on shared purpose and values and to understand the indifference towards actively intending to share the same, given a particular organizational activation level. The emerging self-organizing management utilizing multi-layer customer value chain analysis (Shima et al., 2018), I-I chart method centered around the degree of unity and indifference (Takahashi, 1990), IOS scale to indicate the degree of integration (Aron, Aron, & Smollan, 1992), and value graph expressing purpose and values (Ishi & Iino, 2008) address the same task. However little has been reported on how to raise the degree of organizational activation through self-organization.

Self-organization works adaptively, so that the system interacts with the environment to autonomously create a new structure (Iio, 1992). As such, this study sets up a two-step process, namely, the extension of the self-concept and adaptive self-reference to realize the feasibility of the two concepts.

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A theoretical description of each method used to verify the need to promote the sharing of purpose and values and spontaneous activities among organizational members, is included in Section 2. Specifically, Section 2 covers the methodology adopted in this study including self-organization, I-I chart method, value graph, and the IOS scale. Section 3 shows the relationship between the proposed process and the methods and tools employed. Next, Section 4 describes the verification approach while Section 5 concludes and suggests avenues for future study.

2 DESCRIPTION OF KEY METHODS

2-1 Self-organizing

Self-organizing is becoming more important as a mechanism to create new social order and new value between individuals (Shima et al., 2018). There are four conditions to achieve the concept of self-organizing (Takahashi, 2017), namely:

1. Prioritizing creative individual activities,
2. Considering fluctuation as a source of order,
3. Not excluding imbalances and chaos, and
4. Not approving the control center.

This study indicates that these four conditions can be shown on the I-I chart's axis of indifference, as described in Section 2-2. Accordingly, the four conditions can be paraphrased as follows:

1. Condition 1 represents a state of low indifference with high shared purpose among organization members;
2. Condition 2 represents a state of low indifference between the organization members, even if there is low shared purpose among them;
3. Condition 3 represents a state of interest in ones' surroundings and existence in relation to these surroundings; and
4. Condition 4 represents a state of interest in various policies and of not leaving important decisions to someone else.

These four conditions are descriptions of "indifference" and, as such, self-organizing ability is represented by the axis of indifference. While previous studies note the creation of a self-organized organization through corporate philosophy, no study applies the direct method of activating organizational members.

2-2 I-I chart

The I-I chart method is a method of characterizing organization members for the purpose of organizational activation analysis, as shown in Figure 1. Takahashi (1990) defines the activated state of an organization as a state where (1) one shares a common

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purpose or values with the organization, and/or (2) one actively realizes the organizational purpose and values. We set the degree of integration as an index for the degree of (1) and the degree of indifference as an index for the degree of (2). Accordingly, (1) indicates the degree of alignment between individual and company perspectives on management policies that have a serious impact on the organization's members. Similarly, (2) expresses the extent to which the members of an organization are indifferent to company policy. Based on these indices, the I-I chart method can categorize the characteristics of an organization's members into four types. Indeed, this method aims to characterize organization members and to propose organizational forms according to their characteristics. Therefore, the I-I chart is not used to identify how to increase the activation degree of organization members.

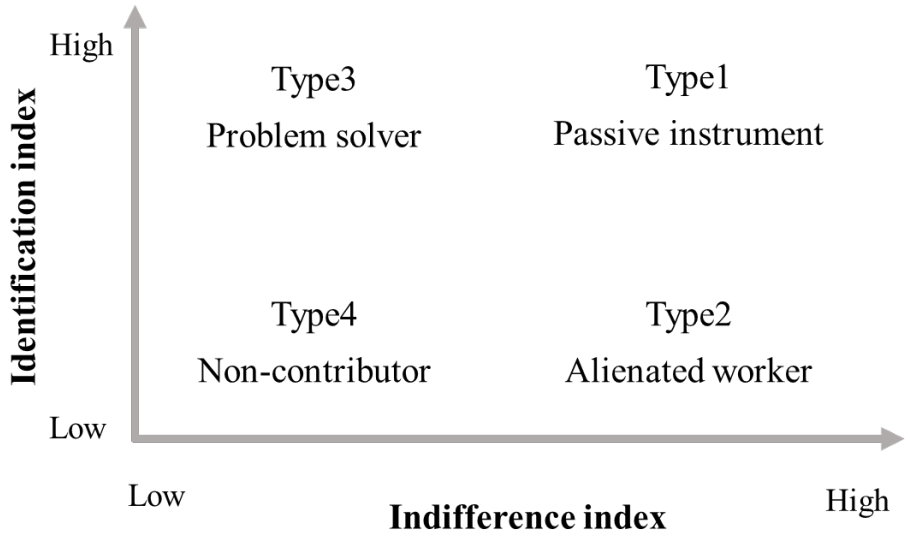

Figure 1. I-I chart method (Takahashi,1990)

2-3. Value graph

Value engineering is a method whereby the design team systematically reviews goals, design solutions, etc. at each stage of product development (Ishi & Iino, 2008). One such value engineering method is the value graph, as illustrated in Figure 2. The purpose of a value graph is to identify the higher purpose by asking "why" at each problem solving step. This activity not only generates creative methods, but is also able to provide various options by seeking solutions at each of the lower levels.

Finally, we can build a structured value graph by repeating the question "why" at each step of the value graph creation. Regarding value graphs, few studies have used them to focus on analyzing shared purpose and value.

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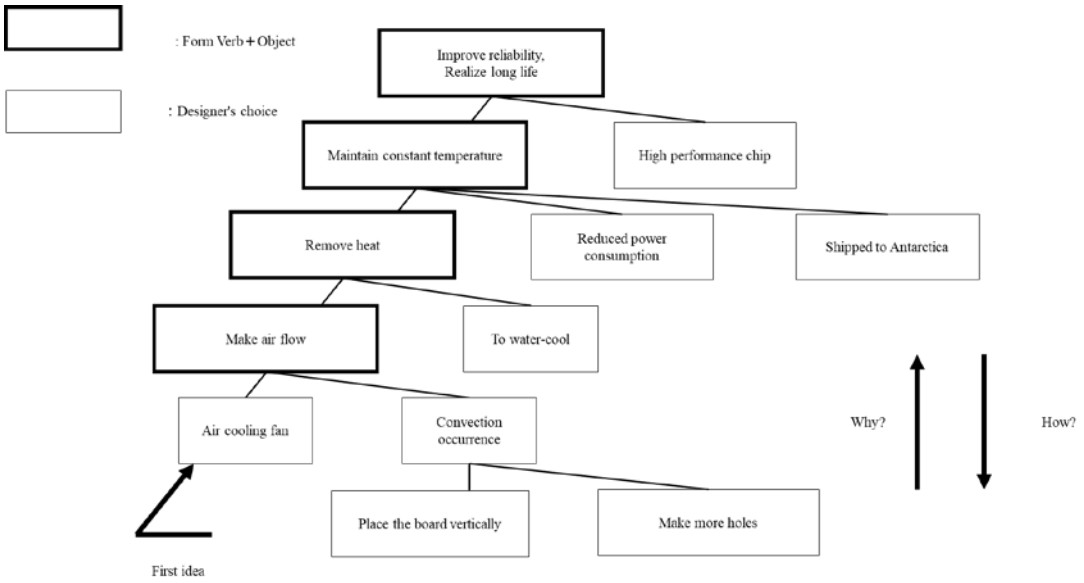

Figure 2. Value graph (Ishi & Iino, 2008)

2-4. IOS scale

The IOS scale is the cognitive recognition of the resources of related partners as the organization's own, resulting in self-expansion, thereby raising the self-efficacy and self-esteem of individuals. It is a measure of the two-person relationship between oneself and others and is used to express the mutual relationship between the members of an organization.

The specific investigation method involves choosing a picture that best describes your relationship with your partner. Next, the extent of overlap measures the degree of alignment with others, as shown in Figure 3.

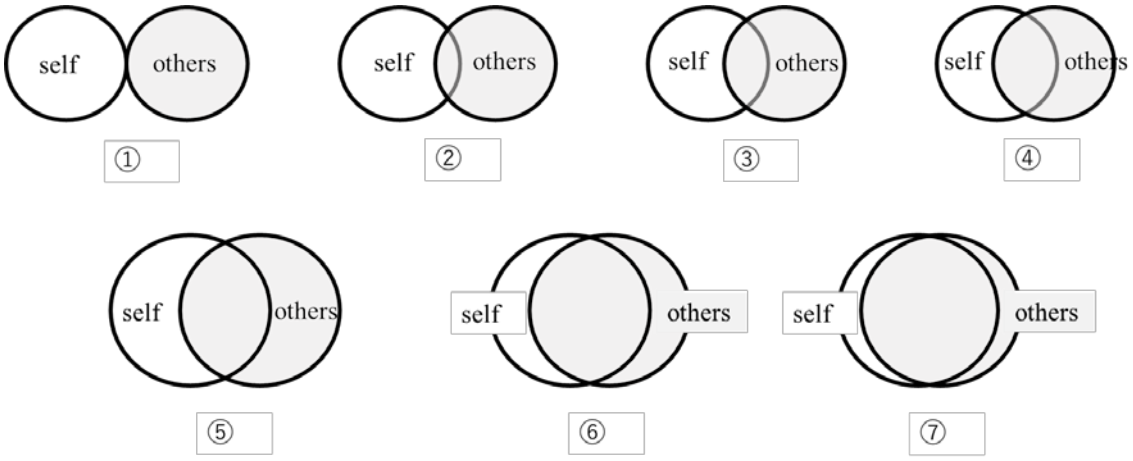

Figure 3. An example of the IOS scale (Aron, Aron, & Smollan, 1992)

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3. PROPOSED APPROACH

3-1. Overview of Process, Methods, and Tools

Through mutual dependence and cooperative activities, we aim to tackle a conservative issue by aligning purpose and values at organizational activities. The enabling process has been described in the Process, Method, and Tool subsections, and summarized in Figure 4.

3-1-1. Process

Based on the definition, "self-organization works adaptively so that the system autonomously creates a new structure in interaction with the environment" (Iio, 1992), the latter part of the sentence may be paraphrased as the "extension of self-concept that expands the purpose." Here, the system equates to oneself while the environment represents others. Creating a new structure is an extension of self-concept by encompassing the purpose and values of others. "Adaptive" refers to the behavior of reviewing the relationships between oneself and others. "Work" represents behavior to seek new connections between one and others, that is, adaptive self-referencing.

3-1-2. Method

The method involves four steps:

1. Express the purpose of each organization member.
   In order to broaden the purpose, it is necessary to express one's purpose and values structurally and to encompass the purpose and values of others.
2. Establish common objective with others to expand perspective.
   Attempt to expand the self-concept by encompassing the purpose and values of others.
3. Know the state of the organization.
   Grasp the relationship between oneself and the organization, including others for overall optimization.
4. Consider improvement of organizational activation.
   Explore new ways of connecting oneself and others.

3-1-3. Tool

1. Structure the purpose of the individual using a value graph.
2. We integrate the value graphs thus created for each organizational member according to "overlapping purpose" using the IOS scale and "links" in the value graph, that is, linkage of own purpose with that of others.

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3. Based on the I-I chart, we classify the integrated value graph, and understand the state of the organization. The integrated value graph is recognized by organization members as a pattern of organizations with reproducibility.
4. Reconsider the classified value graph and identify any new objects and forms of interaction.

Descriptions and methods of integrating value graphs are outlined in detail in Section 3-3. Based on the idea proposed in this study, value graphs have the potential to foster interdependence by aligning values among organization members and broadening viewpoints; hence, this tool is beneficial for future organizational activation.

The occurrence and selection of value concepts and identification of value graph fosters the expansion of self-concept and applicable self-reference (Ishi & Iino, 2008). Section 3-2 explains the methods of integrating and classifying the value graph in detail.

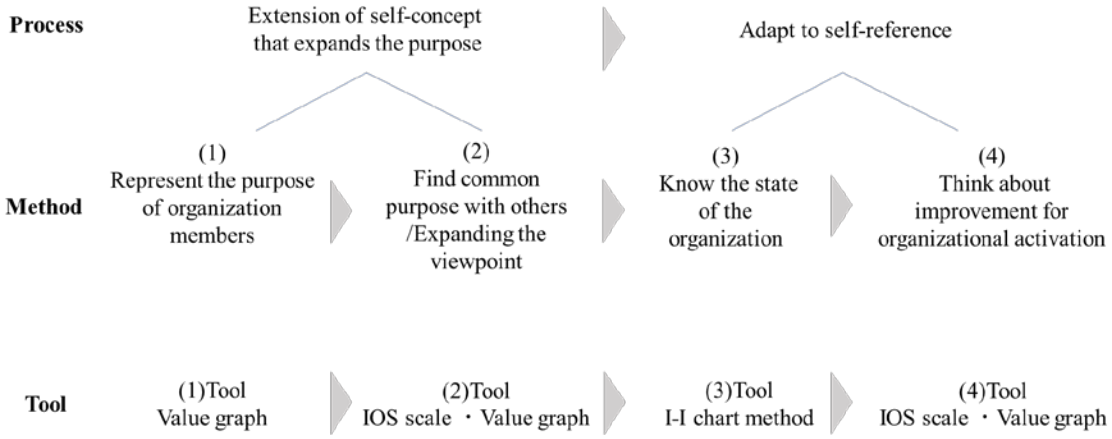

Figure 4. Process, method, and tools employed in this study

3-2. Explanation of proposed approach

1. Step 1
   Construct a value graph for each organizational member (Figure 5).
2. Step 2
   Determine whether a part of your value graph should be considered a higher level objective or a subordinate new solution of another member's value graph (Figure 6). The means of determining this is to raise the purpose of each value concept stepwise, comparing it with others' value graphs, and repeatedly addressing the question "why." In this manner, the value graph can be structured with clarified purpose and value. Similarly, by clarifying the true purpose and required function, we can move a concept to a lower level while asking what we

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can incorporate to others' value graphs. This method is similar to what Ishi and Iino (2008) share about value graphs.

3. Step 3
   Discuss whether new goals will be generated from other member's and own value graphs (Figure 7).

3-3. Proposed value graph classification method

Based on the I-I chart, create a classification table, similar to Figure 8. The vertical axis shows the degree of alignment on purpose and values, using the IOS scale as a measure. High sharing of both purpose and value on the IOS scale could lead to self-expansion and an improvement in self-affirmation levels. On the horizontal axis, the degree of indifference is set as a measure of the presence or absence of a possible upper level objective or lower level method to other member's value graphs expressed as a degree.

1. First quadrant: There is a new purpose and a common goal (red frame) that is controlled in the integrated value graph. But there are no links, indicating a high degree of indifference.
2. Second quadrant: We observe a new purpose and value (red frame) and a red line link in the integrated value graph.
3. Third quadrant: A red link is observed in the integrated value graph. However, there is no common purpose (or red frame).
4. Fourth quadrant: There is no new red object or red line in the integrated value graph.

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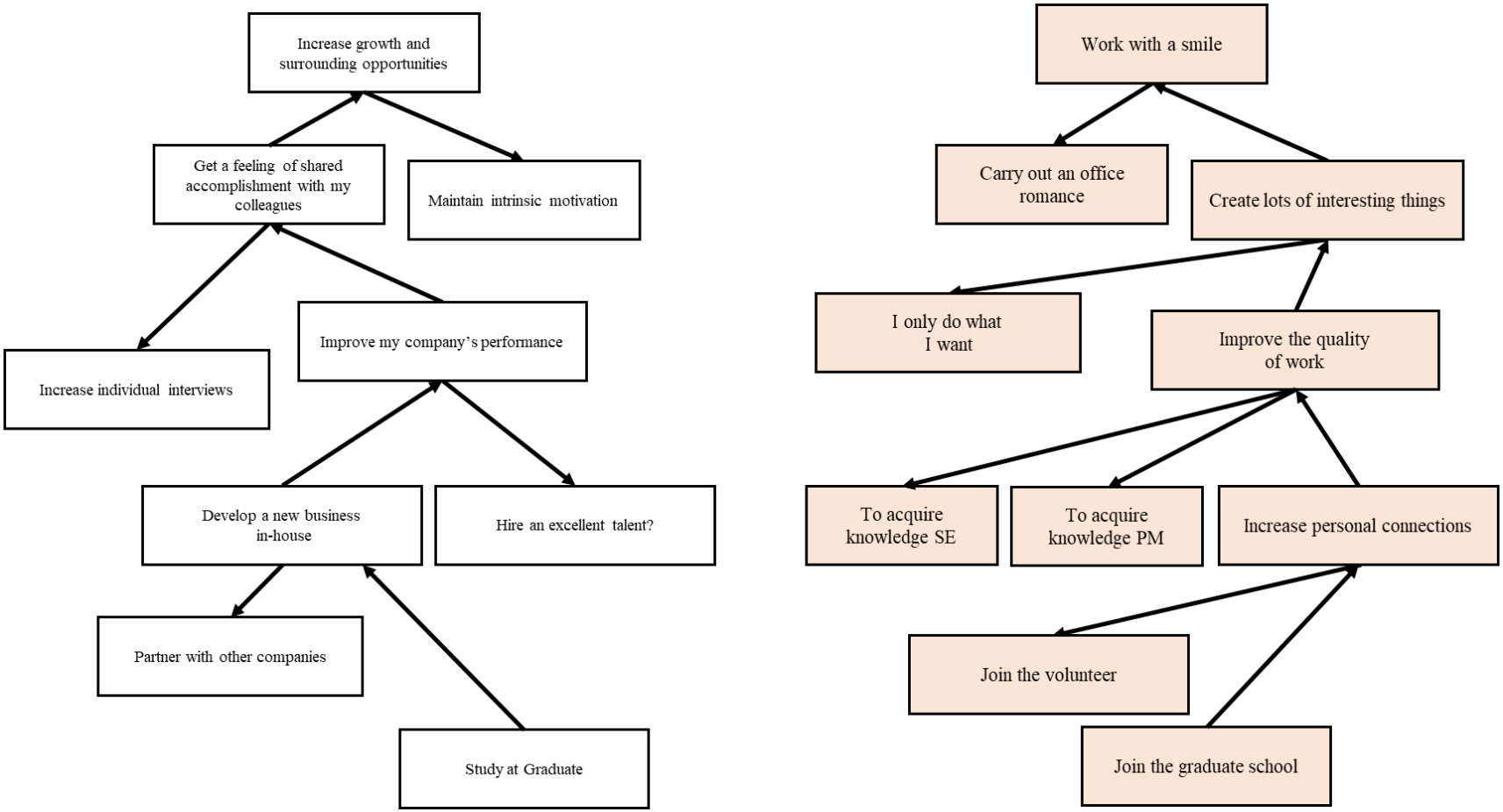

Figure 5. An example of separate individual value graphs

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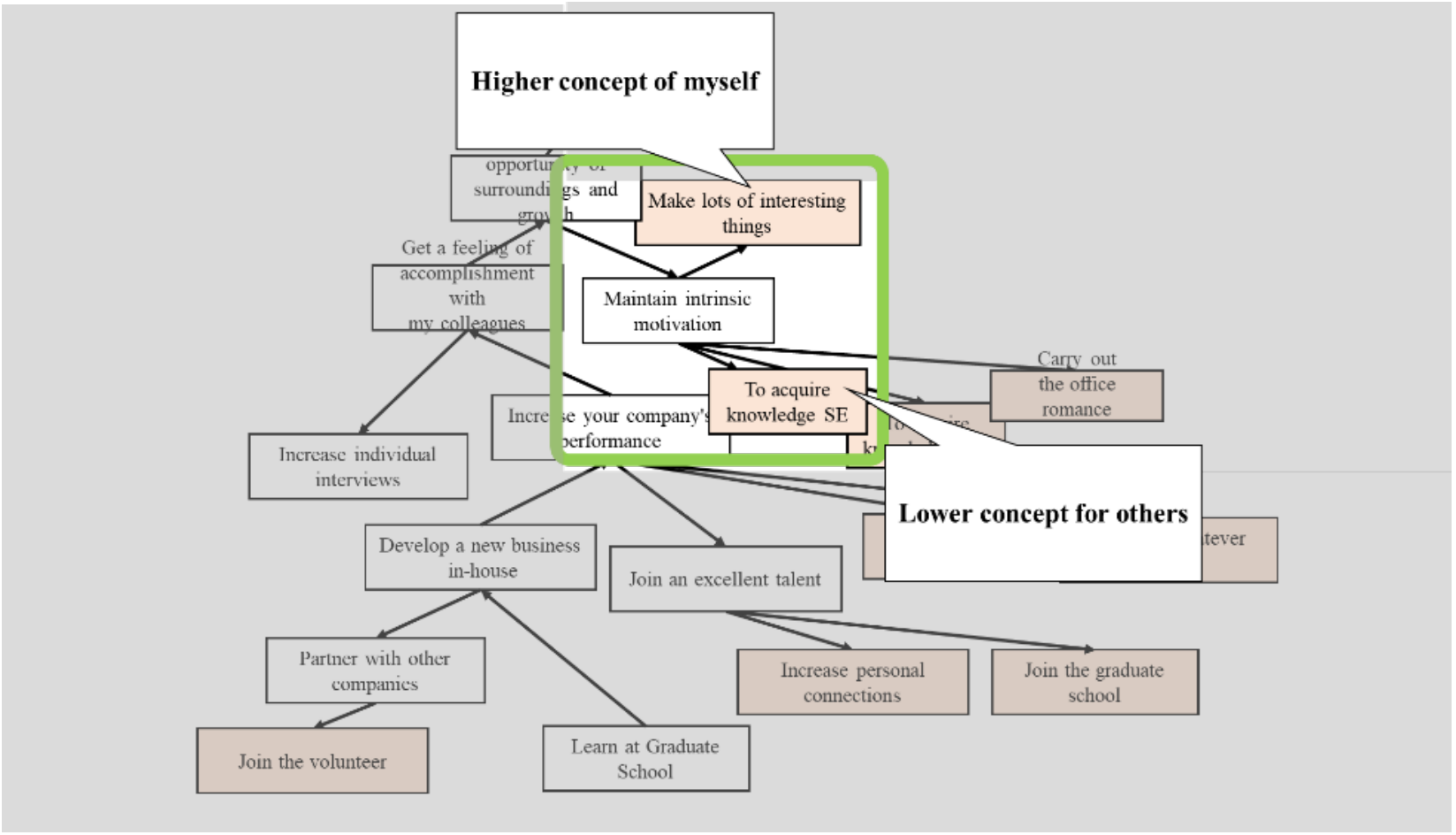

Figure 6. An example of an integrated value graph

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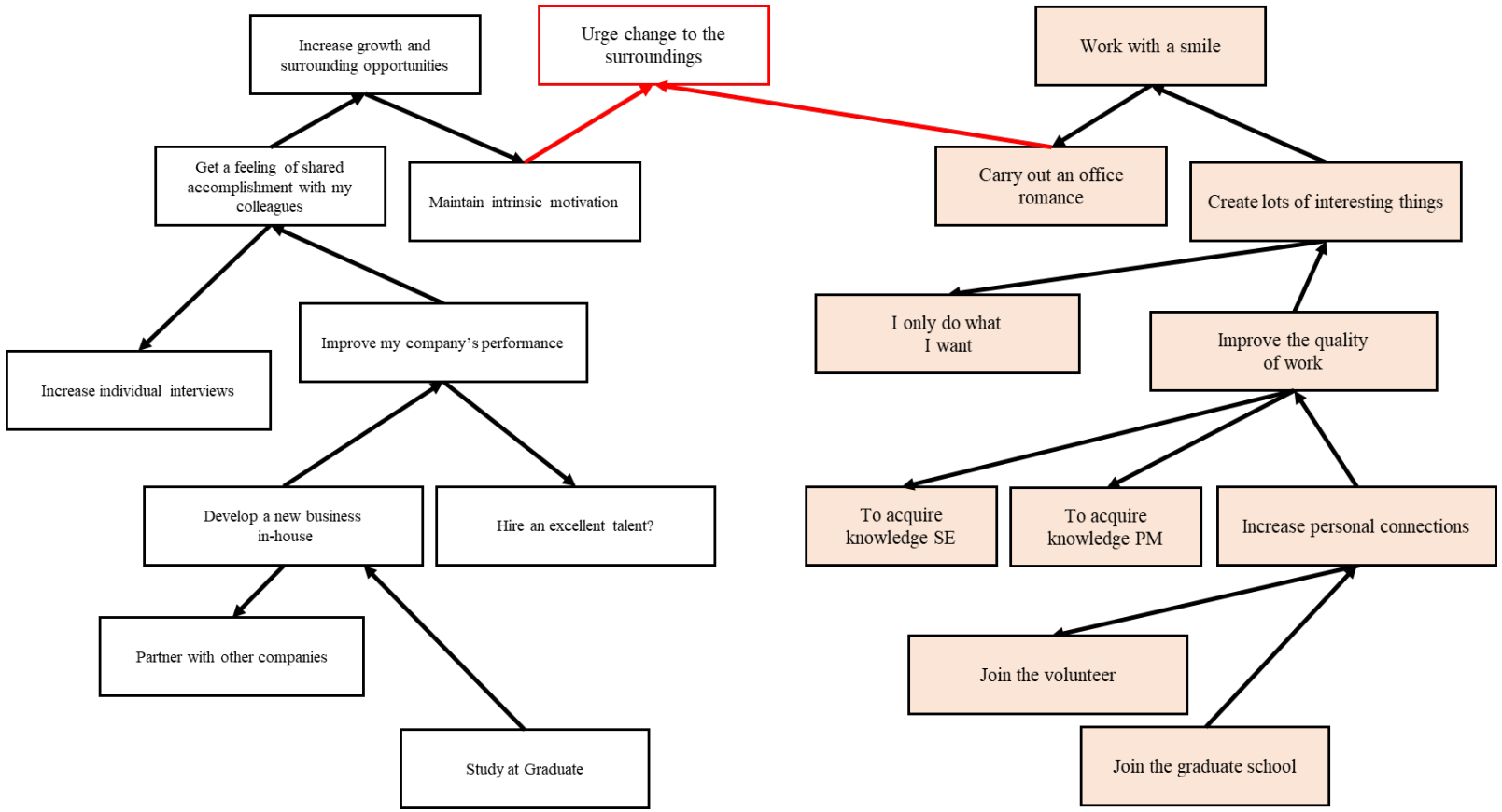

Figure 7. An example of value graphs with a newly generated purpose

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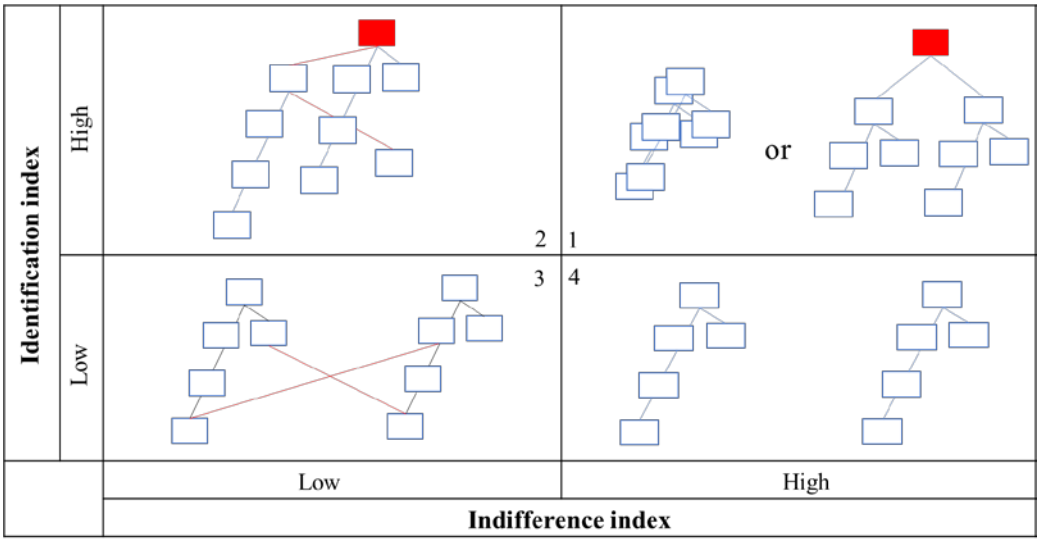

※ Red lines represent links.

※ Red frames represent shared purpose and values.

Figure 8. Reproducible value graph model

4 VERIFICATION METHOD

In the verification stage, we asked participants to use the proposed tool in accordance with the procedure shown in Figure 9. The verification was conducted among a total of 53 people, with a distribution of male and female participants, aged in their 20s to 50s, and organized in groups of three. Their responses to the questionnaire were compared using A/B testing as shown in Table 1.

There are a total of five evaluation items, namely:

1. "Recognize differences between your purpose and values and that of others, and note down any new elements on the value graph."
2. "Use this method to align purpose and value with others."
3. "Use this method to clarify differences between the purpose and values of others and your own."
4. "Use this method to recognize any new commonly occurring purpose."
5. "Promote actively acting for others."

Next, we analyze the results of the verification exercise with the open coding results shown in Table 1. The coding procedure (Kobayashi et al., 2017; Sato, 2008) for analyzing open-ended comments in the free description column is as follows.

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Step 1

From the free description column in the questionnaire, the author picks up what is related to the proposed process, method, and tools, and determines the viewpoint to be used to categorize the affinity diagram method (KJ method; Kawakita, 1967) in the next procedure. Here, the author decided on the viewpoint, "what you can obtain by using the proposed process, method, and tools" in order to verify whether this proposed approach promotes the sharing of purpose and values with others and active action on others' behalf.

Step 2

Based on the above viewpoint, categorize the comments in the free description column by contents of similar meaning using the affinity diagram method.

Step 3

Name each category as appropriate (the generic term is called "open coding result").

The author carried out the verification procedure based on the steps described above.

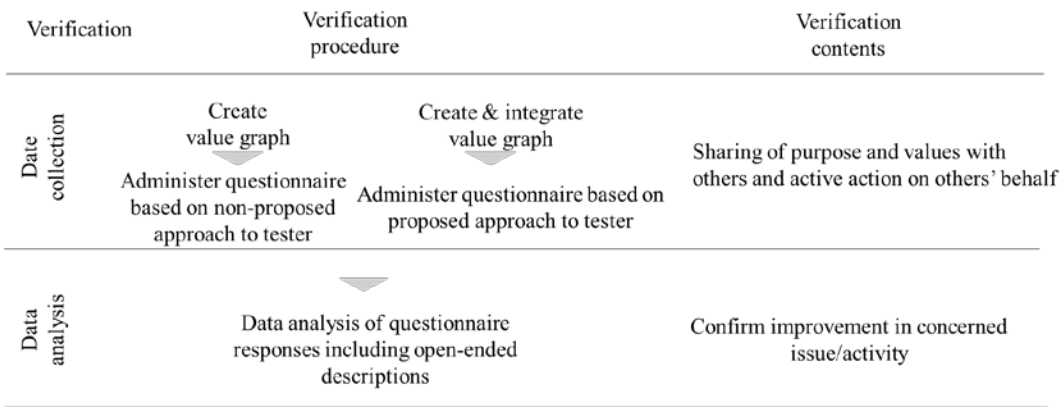

Figure 9. Verification procedure

5 RESULTS AND DISCUSSION

5-1. Results

Tables 1 and 2 show the t-test results while Table 3 indicates the open coding results. Using this study's proposed method of creating and integrating value graphs, the author confirmed whether the degree of sharing of purpose and values, and the indifference degree was improved using the proposed method. Based on the questionnaire responses and A/B test results, we confirm that, indeed the proposed approach is dominant.

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Next, we describe the questionnaire results (Table 2). “Recognize differences between your purpose and values and that of others, and note down any new elements on the value graph” is significant at 0.009% levels while “Use this method to align purpose and value with others” is significant at 0.007% and “Promote actively acting for others” is significant at 0.000%. However, “Use this method to clarify differences between the purpose and values of others and your own” and “Use this method to recognize any new commonly occurring purpose” is not significant.

Table 1. Group Statistics

		Frequency	Average	standard deviation
Recognize the differences between purpose and value with others and write new element on the value graph.	A(Non-proposal)	31	**5.1290**	1.47743
	B(Proposed)	22	3.9091	1.65929
Share the purpose and value with others by using this method.	A(Non-proposal)	31	**4.2903**	1.10132
	B(Proposed)	22	3.3182	1.32328
Clarify the difference between the purpose and value of others and your own by using this method.	A(Non-proposal)	31	**4.8710**	1.47743
	B(Proposed)	22	4.3636	1.21677
Recognize new commonly occurring purpose by using this method.	A(Non-proposal)	31	**3.8387**	1.77194
	B(Proposed)	21	3.3810	1.56449
Promote actively acting for others.	A(Non-proposal)	31	**3.4194**	1.28515
	B(Proposed)	21	2.8571	1.19523

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Table 2. Student's t-test Results

	Test of difference between two population means				
	t value	Degree of freedom	Significance probability (Both sides)	Difference in average value	Standard error of difference
Recognize the differences between purpose and value with others, and write new element on the value graph.	2.759	41.977	**0.009**	1.21994	0.44222
Share the purpose and value with others by using this method.	2.821	39.961	**0.007**	0.97214	0.34456
Clarify the difference between the purpose and value of others and yours by using this method.	1.367	49.784	0.1780	0.50733	0.37109
Recognize new commonly occurring purpose by using this method.	0.981	46.469	0.3320	0.45776	0.46673
Promote actively acting for others.	4.485	45.137	**0.000**	1.56221	0.34829

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Table 3. Main Open-coding Results

Open coding result	Number of occurrences
Be able to understand purpose and viewpoints of other departments	21
Be able to understand what others are taking care of	19
Understand the position of others.	19
To be able to understand the value that other people value	14
To be understand each other even if the value is different	9
To be understand the role of each organization and complementary relationship	8
Recognize the difference between others' value and your own value	7
Understand the degree of conformity of the upper purpose.	6
If you can find the higher purpose, have commonalitieswith others.	5
Knowing the state of others organization raises interest	5

5-2. Discussion

Takahashi (1990) shares that the state of organizational activation is classified by shared purpose and values, and active thinking. Therefore, we can prove that this study contributes towards activating the organization if we can find comments in the open coding data that suggest that the participants were able to achieve alignment on purpose and values and improve active thinking. The detailed results of each summarized topic based on the open coded data are described below.

“Be able to understand what others are taking care of” and “Be able to understand the purpose and viewpoints of other departments”

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In other words, these statements recognize the purpose and values emphasized by others such that the value graph can be considered the result of expressing the participants agreement that they were "able to understand the viewpoints of other departments" or that they shared common purpose and values. Thus, understanding others amounts to sharing purpose and values.

"To be able to understand other peoples' values"
This statement can be interpreted to mean not merely understanding others' words but also understanding their importance. It could suggest that when one understands the importance of other people's values, then one considers and emphasizes that value in oneself. Therefore, we can state that they share purpose and values.

"To be able to understand each other despite different values"
The occurrence of the response "can understand others despite a difference in values" suggests that one does not reject others merely because of differing positions, but broadens the scope and target of one's thinking and consciousness.

"To understand the role of each organization and complementary relationships"
Specifically, this means that one knows the role and complementary relationship between oneself and others, or between one's organization and other people's organizations. The participants understand the relationship with others and can recognize what they themselves and others do actively. Therefore, "To understand the role of each organization and complementary relationships among organizations" implies that the objectives and values as a whole can be shared.

"Recognize differences between others' values and your own"
To be able to recognize differences between others and oneself can be interpreted as the state of recognizing others unaware. In other words, being able to recognize the differences that exist between one and others implies that one is already actively thinking about others, with interest.

"Establish common alignment with others based on the higher purpose."
Knowing the degree of alignment enables one to determine the degree of overlap between one's superior purpose and that of several others. As a result, we can highlight that they understand the purpose and values of others, at least in part.

"Knowing the state of others' organization raises interest"

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Merely knowing others' state without any relationship with others should not inspire any special interest. However, the words "raises interest" suggests that some relationship has already been generated between the participant and others, indicating that he/she is actively thinking about others, with interest.

Based on the above, we confirm that the extent of purpose sharing and active thinking have improved resulting from the proposed approach.

6 CONCLUSION

This study improves the identification indices for shared purpose and degree of indifference towards active thinking among an organization's members. Analyzing the organization promotes interdependence, such that we created a state where the organization's members were able to actively tackle conservative organizational issues. Hence, as a result of this study, the proposed approach is effective for organizations.

In terms of future works, first, while we confirm that the proposed approach is effective for interdependent organizational activation, we may embed a hierarchy in the value graph to further increase its versatility. Second, as previously commented, this study needs to be quantitatively evaluated by an organizational activation expert, when value graphs are integrated to each other. Thirdly, the quantitative evaluation method to diagnose the organizational activation level using the integrated value graph is necessary for the future research topic. We create opportunities to use these methods and tools at various types of workplaces.

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