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Citation	
Issue Date	2005-11
Type	Conference Paper
Text version	publisher
URL	<a href="http://hdl.handle.net/10119/3901">http://hdl.handle.net/10119/3901</a>
Rights	2005 JAIST Press
Description	The original publication is available at JAIST Press <a href="http://www.jaist.ac.jp/library/jaist-press/index.html">http://www.jaist.ac.jp/library/jaist-press/index.html</a> , IFSR 2005 : Proceedings of the First World Congress of the International Federation for Systems Research : The New Roles of Systems Sciences For a Knowledge-based Society : Nov. 14-17, 2111, Kobe, Japan, Symposium 4, Session 5 : Meta-synthesis and Complex Systems Knowledge Creation and Transfer

# STUDY IN MUSEUM KNOWLEDGE MANAGEMENT IN THE FIELD OF PLANNING EXHIBITION BY APPLICATION OF ISM

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## ABSTRACT

In recent years, the state of the Japanese museums is described as "the wintry era" by decreasing visitors and increasing dissolution. Furthermore we can judge that the present condition of the museum is a social problem, with the point that some improvements and solution must be needed. Then, the first purpose of the main discourse is to present the vision that breaks blockage state of the museum by the methodology of the systems science especially by application of ISM (Interpretive Structural Modeling) as an introduction knowledge enabling to the exhibition plan.

In addition, it aims to present the strategy that contributes to the improvement of social issues by clarifying the structure.

**Keywords:** ISM museum knowledge enabling, decision support systems, systems science

## 1. Problem situation

### 1.1.1. Constantly decreasing visitors

Peaks of the number of museum visitors are around in 1995 and the decreasing tendency continues. In one side it is judged that there are a lot of exhibitions that acquire visitors by exceed 100,000 people too, and the blockage situation of the museum by decreases of visitors originates in the management posture of the museum. It is a current state, having aimlessly managed, without development of seeds and the creation of needs thought either including the grasp of a general demand.

### 1.1.2. Promotion of management efficiency

The restructuring of management was urged on a lot of

enterprises since the economic bubble popped, and the flow reached the country and the local government. And, the tendency to evaluate the management of the museum from the index of the public sector evaluation became strong, and only revenue and expenditure and the number of visitors came to be closed up. On the other hand, the ditch in the administration and the museum that introduces the setting of numerical targets, and evaluates it oppositely is large though the museum side is repulsed if the culture cannot be measured by economy.

Then, the museum should show not a simple economic effectuation but posture in which earnings are given more culturally. Neither improvement of the current state by the respect nor omitting uselessness never becomes a denial of the culture.

### 1.1.3. Correction of authoritarianism posture

A general, negative image of the museum is dark according to the questionnaire surveys to visitors and unable to read the explanation easily furthermore the content is difficult. It relates to the impression that such the element authoritarianism, and the exhibition causes the criticism that is a mere curator's satisfactorily at the same time. It overemphasizes it to the material that the curator's research connects directly with the exhibition such as works and artists, and this respect originates in the lack of aspect to public interest of curator's own knowledge. Therefore, a methodological research on the exhibition project from visitor's standpoint is necessary.

## 1.2. Social request

Ashiya City authorities stated that the art museum in the same city came up with the policy of selling off or closing to if it was not found from the stringency of the

management situation the private organization consigning in November, 2003. The discussion over right or wrong of the necessity of the museum where the edge was originated in this was actively done on a nationwide scale in 2004.

Thus, social issues with the museum now have developed into the problem of rolling the citizens more widely. For instance, the direction where the responsibility whereabouts was clarified as the discussion by the secret room and the citizens also participated as a committee like the citizens museum improvement committee in Kawasaki City and the content of proceedings was disclosed in the Internet. Thus, the situation in which the citizens who do various demands to the target side of those who set it up from the citizens like the administration etc. that evaluate the museum for the evaluation and the administration, too are requested to participate more concrete and to respond the organization of NPO etc. , too has become clear.

### **1.2.1. Social mission and clarification of significance of existence**

The significance of existence of the museum being consented in tacit knowledge in the society if it thinks the museum echoes the art museum in becoming for ten years social issues, and case of Ashiya City, furthermore 21st century museum of the Kanazawa city, doesn't wait for one year in attaining 1.5 million of visitors is clear. Then, the goal of a social mission of the museum of the future and the clarification of the significance of existence for those who set it up, the museum, and the user to share sense of values, and to have to correspond to the revolution of a present society flexibly. If those who set it up do not enumerate a formal, abstract objection like a past installation ordinance, it is not a summary of the insistence that there wants so to be only a museum either. In addition, it is not the one that the user evades own responsibility and fine phrases were arranged either.

This problem is the one dividing into authoritarianism posture by the museum's clarifying the fundamental meaning of an activity indicator and an individual business putting with an important meaning in the

infiltration plainly. In addition, it is necessary to discuss it deliberately so as not to obscure the point what where in what responsibility you concretely consign when the administration will consign the management of the museum to the private organization in the future.

### **1.2.2. Conversion to customer intention**

Authoritarianism posture of the museum is a problem that the reforms are requested most today as frequently described. Then, a lot of tendencies to produce the place of a friendly rest are seen by aiming at the enhancement of the restaurant and the cafe as a breakthrough plan from the museum, and developing the business of the participation type such as holding the workshop. In addition, the project of the exhibition according to the visitor's request etc. are newly tried.

However, when an essential significance of existence of the museum is considered, the doubt remains though such an activity might be now effective. Of course, it is an important additional value to taste the dish refined by the person who visited the museum while enjoying reverberations of appreciation. Then, are only the accompanying facilities enhanced, and can it be said that it is a museum when an essential exhibition is claptrap and rude?

I am sorry to say, I cannot help feeling the current state become strong the flow of such mistaking the means for the end by me. It is thought that visitors are looking back such a flow are negative, and the demand for the exhibition that gives the starting point recurrence, that is, impression and enhancement feeling rises.

### **1.2.3. Denial of easy blockbuster route**

The transformation into independent administrative institutions of National Museum in 2001 was received, and each museum worked desperately on raising collection guest's results. As a result, the project that caused the criticism that it was only traveling exhibition of the powerful buddhist temple treasure for instance continued though the improvement of the mobilization results was admitted. The case where such posture of becoming and falling and not caring is symbolized is Art of Star Wars exhibition held in Kyoto National Museum

in 2003. Up to now, the aim of holding in Kyoto National Museum in which it dares to boast of high results in storing and the exhibition of the cultural asset of Japan and the Orient is to have infiltrated the layer where it has not visited the museum the existence of the pavilion.

It seems not to have become even infiltration of a social mission of the museum though it concluded successfully certainly in this respect. I wonder whether it is a minus that the criticism of the museum's abandoning an original mission oppositely and having reduced a mere event site came out one after another in that sense for the museum.

When it was transitory, the effect of the Star Wars exhibition can put the conclusion even if the visitor's trend afterwards is seen.

The museum compared with a tacit knowledge significance of existence of the society by the easy temporization to populism, and walking in the blockbuster route, and, thus, became a situation not permitted.

### **1.3. Vision to problem solving**

It is necessary to start from the recognition of the museum of the importance of the exhibition as the interface with the society first of all to improve the above issue situation. Especially, holding of the exhibition and infiltrating a social significance of existence from the existence of a lot of museums without the collection either pushing become keys to the fate for Japan.

The museum should none the less do the effort to improve the appeal power of the exhibition for that.

Then, I want to present the vision to which this problem is solved by the system scientific approach in the main discourse. To the principal object be to analyze the composition of the project of the exhibition that the museum attendant has held experiencing somehow so far qualitatively and to understand systematically. I want to do the ISM(Interpretive Structural Modeling) method as the concrete methodology. When the exhibition is planned if the solicitation element of the exhibition can be structurized, and be hierarchized by this method, the best solicitation method corresponding to the situation

in which the museum like the range of the selection and the financial picture etc. of the work is put can be found. As a result, the improved management by self-reliant efforts that suit a modern, social mission can be achieved.

In addition, because the structure of the exhibition becomes clear, the evaluation index of the exhibition can be shared. As a result, a system reform that evaluates a qualitative, more cultural achievement level like the composition ability of the concept that changes into quantitative indices of the number of those who come to a library and revenue and expenditure, etc. with a lot of criticisms so far can be brought about the evaluation from those like the administration etc. who set it up. Moreover, communications of more higher-order with the museum of the work standard that gets rid of an appreciation pattern so far at the time of be restrained to textual information after it comes to a library by being able to understand the sales point of the exhibition easily for potential those who come to a library can be done.

That enables the mass communication smoothly to introduce of the exhibition and to report it in the point that the content of the exhibition can be made an objection further concisely and adequately. Thus, the exhibition can be expected and the effect of well-known infiltrating widely be expected.

### **2.1. Component of exhibition**

I want to think constituent of the exhibition to which a lot of visitors have been acquired referring to the case analysis first. The case in that case referred to exhibition of the first place in successive spectator mobilization and the annual report of three years in the past of the museum and the museum in whole country 11 by the questionnaire of 85 theaters in the whole country that had been published in feature " a desirous /museum, and an unnecessary museum" of the May edition in 2004 Art pocketbook Bijutsushuppansha (pp.29-33) .

Note

Hokkaido municipal modern museum, National Museum of Modern Art, Tokyo, National Museum of Western Art, Edo-Tokyo Museum, municipal museum in Nagoya, Kyoto National Museum of Modern Art,

Kyoto Municipal Art Museum, Kobe Municipal Museum, National Museum of Art, Osaka, and Hiroshima Prefectural Museum of Art, municipal museum in Fukuoka, and Ishikawa Prefectural Museum of Art

As a result, "Barnes collection" at National Museum of Western Art (1994) got 1 million 71 thousand people, "Tutankhamen" at Kyoto Municipal Art Museum (1965) got 1 million 74 thousand people, "Mona Lisa." at Tokyo National Museum (1974) got 1 million 505 thousand people can be enumerated as an exhibition mobilized by one million people or more. The exhibition continuously mobilized by 500,000 people or more includes "Gogh" (2005) 500,000 people (round numbers) at National Museum of Modern Art, Tokyo. 590,000 people "200 years in Grand Louvre" (1993) at Yokohama Museum of Art, 640,000 people "Orsay Museum" (1996) at Tokyo Municipal Museum, 790,000 people "MoMA The Museum of Modern Art, New York" (1993) at Tokyo Metropolitan Art Gallery of Ueno Forest Museum.

In the feature of these exhibitions, a well-known key word is an exhibition title. In addition, it is possible to classify it into the one trying to solicit by the eminence of the artist or more of the one that the exhibition of the masterpiece is implied in evidence with the one, the museum, and the collection of a single work and an individual work in the key word. A scarce implication of opening to the public is paid to attention as a solicitation of value on that. Actually, the exhibition of the mobilization results that exceed one million people has not been held afterwards. (However, the content is another though the Barnes collection has been held. ) Moreover, the case where the scarcity at the appreciation chance is still solicited from the reality such as museums in the foreign country that cannot go out readily for a lot of those who appreciate and the mobilization results are raised is interesting.

The above-mentioned element is admitted in the case with the exhibition to which other mobilization results are raised. Moreover, the number of mobilizations paid attention to the element to which the result was obtained in each museum though it was not a lot. Then, it was put that it made comparative study easily of the solicitation

element of such an exhibition on the mind, and consolidated it in 10 pieces as follows by the discussion by the group of one journalist of the charge of the art and science of 3 curators. The one planned by the aspect what exhibition held from the element when the solicitation element to which a concrete case is combined is divided is included in the thing presented as an example.

1 Using key word of high degree of popularity for the title

Example: Impressionist school, Silk Road, Gogh, *Sesshu*, British Museum

2 Exhibition of masterpieces as the sales point

Example: Atelier of painter, Mona Lisa

3 Emphasizing rarity of exposition

Example: new discovery, the first public exhibition, next be 50 years later

4 Posing a far temporal distance

Example: ancient civilization, the Stone Age

5 Posing a far geographical distance

Example: craftwork of Hokkaido, modern Mexican art

6 Giving a directly unrelated title

Example: PASSION to the exhibition of The Tale of *Genji* picture scroll

7 Emphasizing an identity of the community

Example: arts and crafts, of *Kaga* feudal clan

8 Giving a difficult title

Example: Kalokagathia to the exhibition of Greece sculpture

9 Referring to gender

Example: woman who was painted

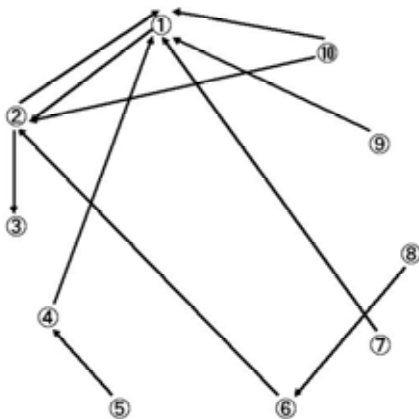
10 Emphasizing of monetary worth

Example: aggregate market value of the exhibits is worthy of one hundred billion dollars

Next, I want to think about binary relation of these elements. A scarce element of never open to the public in Japan joins, and the appeal power has never increased on the element of the master piece opening to the public remarkably as for "Mona Lisa" exhibition as confirmed by the exhibition case. The third scarcities at the chance of opening to the public contributed to opening the second great goods to the public in this case, and the

directed graph will be written usually as  $3 \rightarrow 2$ . However, to the assumption of all elements for the scarcity of opening to the public to create value that it is big evident. Therefore, when the scarcity of opening to the public is required as the first powerful element, a continuous exhibition project is restricted. Then, when ISM is applied as a methodology to construct the exhibition project model with the viewpoint of realizability, the scarcity of opening to the public cannot be made the first assumption. Then, first of all, when it is assumed that it writes in  $b \rightarrow a$  and the directed graph when thought that the appeal power by the characteristic of  $b$  increases when a certain element  $a$  is put on the high rank of another element  $b$  when the exhibition is planned, and the adjacent procession displays the relation between these in addition, the relation of the above-mentioned element is as follows.

### Directed graph



### Adjacency matrix

	0	1	0	0	0	0	0	0	0	0
	1	0	1	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0	0	0
	0	0	0	1	0	0	0	0	0	0
	0	1	0	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	1	0	0	0	0
	1	0	0	0	0	0	0	0	0	0
	1	1	0	0	0	0	0	0	0	0

**Interpretations of the relation are enumerated as follows.**

- to :If the exhibition is titled after the name of a masterpiece, it will be known widely.
- to :Outline of the exhibition is decided easily by the exhibition of a masterpiece.
- to :If the restriction of exhibiting a masterpiece is severe, the rarity of the opportunity is emphasized.
- to :Historic key word generally gets high interest.
- to :Exhibition on far parted region tends to get high interest.
- to :By adding a knotty unrelated title, sophisticated contents more than a mere exposition of masterpiece is suggested.
- to : Contents on the same region are easy to get sympathy of the community.
- to : A difficult title stimulates intelligence of the potential visitor and promotes knotty affect .
- to :High interest is easy to be attracted in favorable, critical both sides.
- to :Monetary worth is the clue that obtains the understanding of the social significance of exhibition most easily.
- to :Monetary worth of a masterpiece gains topicality easier than the aesthetic value of that.

Through a reachability matrix, finally arrive at a

hierarchical structure that indicates strength of appealing ability. The table of the level supports making decision over exhibition policy.

**Reachability matrix**

	1	1	1	0	0	0	0	0	0	0
	1	1	1	0	0	0	0	0	0	0
	0	0	1	0	0	0	0	0	0	0
	1	1	1	1	0	0	0	0	0	0
	1	0	0	1	1	0	0	0	0	0
	1	1	1	0	0	1	0	0	0	0
	1	1	1	0	0	0	1	0	0	0
	0	0	0	0	0	1	0	1	0	0
	1	1	1	0	0	0	0	0	1	0
	1	1	1	0	0	0	0	0	0	1

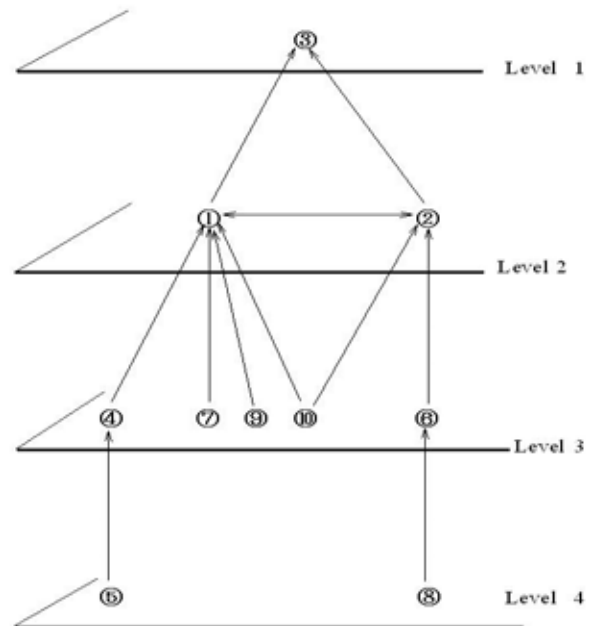
**Ri:** Sets of all elements that can reach from element Si (Reachability set)

**Ai:** Sets of all elements that can reach element Si (Antecedent set)

**Ri ∩ Ai =** Sets of elements that fill Ri are uppermost levels.

Si	Ri	Ai	Ri ∩ Ai	Level
1	①, ②, ③	①, ②, ④, ⑤, ⑥, ⑦, ⑧, ⑨	①, ②	level 2
2	①, ②, ③	①, ②, ④, ⑤, ⑥, ⑦, ⑧, ⑨	①, ②	level 2
3	③	①, ②, ④, ⑤, ⑥, ⑦, ⑧, ⑨	③	level 1
4	①, ②, ③, ④	③, ⑤	④	level 3
5	①, ④, ⑤	③	⑤	level 4
6	①, ②, ③, ④	③, ⑤	③	level 3
7	①, ②, ③, ⑦	⑦	⑦	level 3
8	⑤, ⑥	③	⑥	level 4
9	①, ②, ③, ⑤	③	⑤	level 3
10	①, ②, ③, ⑤	③	⑤	level 3

The above-mentioned element is graphed as follows.



**2.2. Exhibition project model**

The effect of the combination of elements is evaluated from the above-mentioned layered structure to five stages. Highest evaluation 5 is element ⑤, and the following evaluation 4 is from ⑥ to ⑧ and ⑩ to ⑦, to ④. Evaluation 3 is from ③ to ⑤ and from ③, ⑤, ⑥, and ⑧. And evaluation 1 is from ③ to ⑤, to ⑥.

The total of the evaluation was 9 in the one that one million people or more were mobilized when the exhibition case with the whole country was seen from this viewpoint, and the one having been composed by the element of Level 1 and 2 all. Then, the indicator that plans the exhibition with strong appeal power can be obtained by combining elements that the total of the evaluation grows.

I want to think in conformity with a concrete case. "RIMPA" exhibition held in National Museum of Modern Art, Tokyo in 2004 is crown as for the title of sect thought to be to be dare a generally irrelevant to Matisse and Klimt's masterpieces on the history of the art. Therefore, this exhibition can be analyzed that the total of the evaluation becomes seven by composing

, , and of the element, and 160,000 people or more were able to be mobilized. In such a background to which the combination effectively functions, there is a situation in which a remarkable increase of the concern is invented by the artist and the masterpiece with a well-known acknowledged disharmony caused by emphasizing the irrelevance.

Next, when a concrete initial condition is given, I want to introduce "Eyes and hands to Kokutani" Kitade Fujio's world "for 55 years career- as a case with the exhibition project that uses this layered structure in Ishikawa Prefectural Museum of Art in June, 2005.

The following conditions existed when this exhibition was held.

1. In Ishikawa Prefectural Museum of Art, Kitade Fujio's exhibition decided to be planned.
2. A lot of exhibition of Mr.Kitade has already been held.
3. 2005 year is hit in 55 year's career as a ceramic artist of Mr.Kitade.

It thought about the following correspondences for these conditions first.

1. The point that it is necessary to note the first upon the project is a clear differentiation with past exhibition.
2. Mr. Kitade is an artist in local, and it is effective to solicit the identity in the region.
3. Oppositely, the element that is not too high on a nationwide scale, and solicits the person in the whole country is necessary for the eminence of Mr. Kitadeshi.

Then, it paid attention to of the exhibition component connected directly with the above-mentioned correspondence 2. This element selected the key word from demonstrating a stronger appeal power according to the key word of element . Mr.Kitade is a successor of the kiln that succeeds the tradition of Kokutani, and also is researcher. In addition, key words of Kokutani was decided for its nationwide eminence. And, to attempt the differentiation of a past exhibition, the masterpiece of Kokutani selected by Mr, Kitade decided to be exhibited additionally. Finally, the effect of belonging to the scarcity at the chance of opening to the public can be given to visitors for 55 years by emphasizing it

as a turning point though it is not the one with a special meaning. (In this case, the score of evaluations is assumed to be 1/10. )

Thus, "Eyes and hands to Kokutani" Kitade Fujio's world "for 55 years career- were planned and held. This exhibition mobilized about 3500 people by having assumed element , , , and over Revel 3-1 to be number 6.5 of combination evaluations at the session of one month, and put the reasonable success. Moreover, the clarification of such a component led to the clarification of the sales point of the exhibition, understood the content easily as a result, and was able to achieve the exhibition that understood easily.

Actually, 89.3% answers the impression of the entire exhibition according to the questionnaire done for 439 people in the latter half of the session as very good or good. The exhibition composition including the method of exhibiting Kokutani is answered as 85.2%'s evaluation very much or the evaluation. And, the concept of the exhibition is answered as being able 80.8% good understanding or being able understanding. It can be interpreted that it is shown that communications of the museum and visitors by depressing because of sharing also of such an evaluation the exhibition composition procedure by one step function effectively.

### 2.3. Conclusion

The exhibition project of the museum is greatly restrained to an initial condition of limiting the object from a content of the work that can be exhibited and a financial situation, the region or assuming a nationwide scale. Moreover, there is an example of having already decided the exhibition of the title to be held only by the reason of being listed in the long range planning settled on without passing a deliberate discussion for years , too.

This research can consider which elements should combine to demonstrate the appeal power in the maximum in such a condition, and expect effectiveness as an indicator to which the intention is decided. Especially, from the hardening point such as the action plan has already concreted in local public museum., as the indicator to the maximization of the effect.



In addition, a deep discussion on the content or more can be achieved by presenting a clear examination indicator in the decision-making organization like the museum management committee. For instance, there is no clear initial condition at all, and I want to think about the case where the business scheme is purely settled on. Then, the best business scheme for the mission and the activity situation of the museum can be settled on with an enough alternative proposal if the combination and the effectiveness of the element are verified from viewpoints of the cost and time, etc. and the decision making is done with Level of realizability. It is at the point that the project process becomes transparent by clarifying such an indicator, and the door of authoritarianism of museum can be opened greatly that want to emphasize at the end. The interaction with the citizens is induced by introducing

such a methodology, and the blockage situation of the museum that was social issues for years can be improved greatly.

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