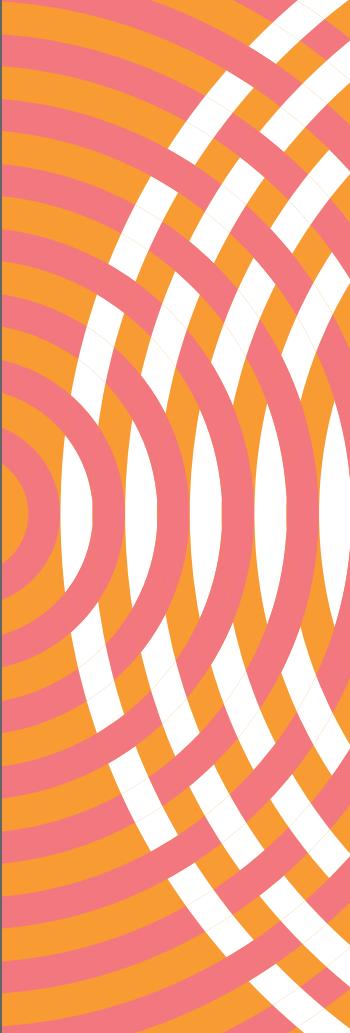


Visualizing Social Values to Solve Social Issues

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Introduction

ESG (Environment, Society, and Governance) investments are increasingly becoming mainstream in global investment markets. In Japan, there are active discussions on social impact bond, which is a financing method based on public-private partnerships, SDG financing, and social impact investment. In the European Union (EU), the popularization of sustainable finance is positioned as an important policy, and in Japan as well, the flow in which financial institutions promote the social and environmental activities of enterprises is rapidly accelerating. We can also tell the trend from the increasing number of enterprises that support the TCFD proposal.

The Sustainable Development Goals (SDGs), adopted by the 193 member states of the United Nations in September 2015, has become a starting point for the movement to address social issues. The SDGs consist of 17 major goals and 169 specific targets, set with a long-term perspective of achieving universal and inclusive “Global Goals” by 2030.

The SDGs (or the goals SDG insists) are so grand and lofty that they cannot be achieved by following conventional approaches. It is important to design an ideal social system via backcasting (deciding on the goal first and working backwards to identify policies and programmes) while acknowledging unavoidable societal constraints and assumptions. Additionally, in order to address social issues, in which complex causes and problems are intertwined, all social actors, including national and local governments, enterprises, financial institutions, and non-profit organizations, are required to come together in both developed and developing countries to take initiatives in the form of unprecedented collaboration. Overseas, some companies have already created new businesses as social innovation by collaborating with multi-stakeholders to transform society in response to social and environmental issues, and as a result, have achieved excellent economic performances while also enhancing their reputation.

Our purpose at PwC is “To build trust in society and solve important problems”. This is what PwC relies on to make important decisions on complex issues amid the ever-changing global situation and business environment, and plays an important role in working with PwCs around the world.

At PwC, people across departments and positions who want to create a better society spontaneously launched “Social Impact Initiative (SII)”. The mission of SII is to help build models that can solve social issues while demonstrating business advantages. The mission of SII is to support the construction of a model that shows superiority in business while solving social issues, and the whole company is involved in this initiative which forms the core of PwC's Purpose. It is inevitable in the future to consider the shift from conventional business models that emphasize “risk and return”, which is economic value, to sustainable business models that pursue “impact”, which is social value. We would like to go beyond the framework of one company/one industry and lead rule changes by cooperating with various organizations through a “collective impact approach”

Currently, a major reason for the lack of progress in solving social issues in Japan is that social issues are not structured. In order to solve social issues, it is necessary to create a social impact, but the mechanisms for creating those impacts are not clear, and many companies and organizations do not know how to make the mechanism clear. Even though economic outcomes can easily be predicted and managed we need to overcome the difficulty of measuring social impacts. It is necessary to clarify the mechanism for improving “social impact”, and to shift from a perspective of providing services/products to one of providing social impacts. We are convinced that there would be more significant progresses that can be made by visualizing the structure of social issues and their impact on society.

We are promoting “Social Transformation”, encouraging companies and financial institutions to take part in solving the social issues, that have been mainly handled by government agencies, public institutions, and non-profit organizations up to now. Toward achieving the SDGs by 2030, Japan needs to transform itself from an advanced country in terms of having social issues to an advanced country in terms of resolving of social issues. We have to actively disseminate cases of Social Transformation to the world and increase Japan's international presence after achieving the SDGs.

2

Social Issues Surrounding Japan

Many leaders in society are already working to improve or solve social issues. Both the national and local governments are implementing a number of measures, and a number of non-profit organizations are also active throughout the country. However, there are still many social issues in Japan that need to be tackled, and the situation is becoming more complicated and serious.

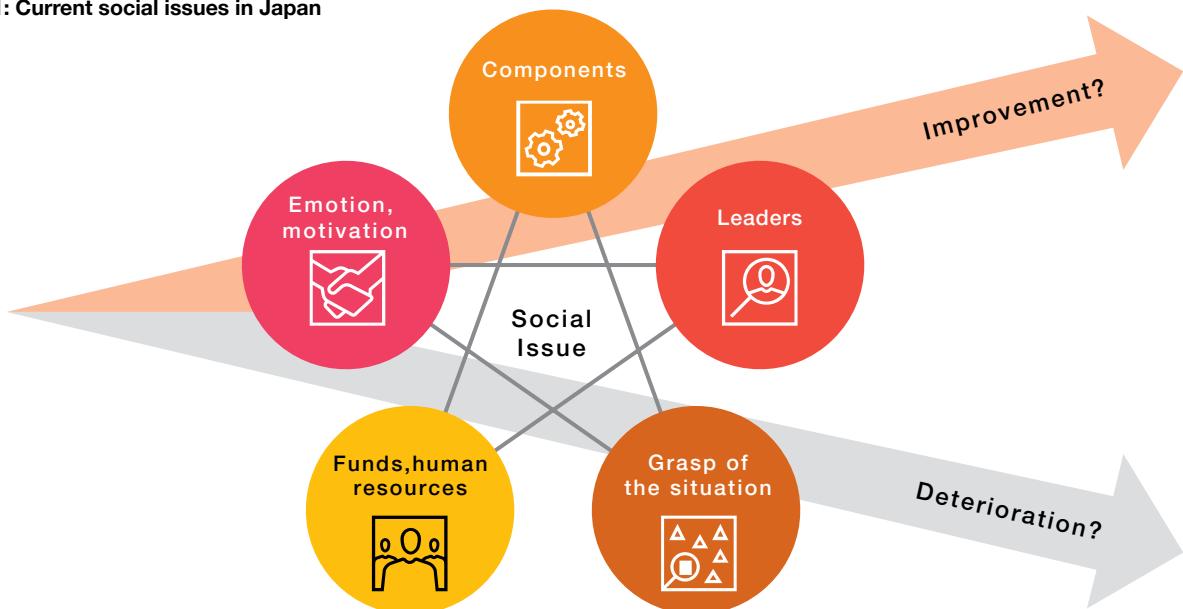
Social issues are issues that have not been effectively addressed by policies or measures within the framework of public institutions, and have not yet been incorporated into the market. In other words, they are issues that have been left behind. The following are reasons why they are difficult to solve.

- Components... Complex causes and problems are intertwined, and it is not possible to know where or how to improve them.
- Leaders... The area of social issues is wide and cannot be dealt with by activities of leaders with certain specialized fields or specific skills and knowledge.

- Grasp of the situation... The seriousness of the social issues themselves, and the extent to which improvements have been achieved as a result of efforts, are not clearly understood.
- Funds, human resources... Enough funds cannot be raised to tackle a challenge and there is a shortage of human resources needed to effectively handle the issue.
- Emotions, motivation... Not just logical rationality, but people's feelings and motivations also have an impact on issues.

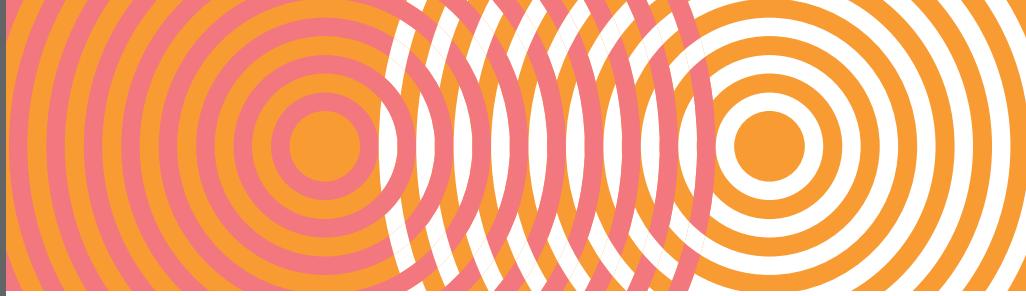
We are keenly aware of the importance of the followings: (1) Creating systems as a whole society where social issues are shared more so that people who can deal with can move, and (2) Creating systems in which the necessary funds and human resources can be invested and effectively utilized in combating a social issue.

Figure 1: Current social issues in Japan



3

How Should We Deal With Social Issues?



3-1.Understanding the social system

In order to build a sustainable society, it is necessary to view our society as a “social system” in which various elements are intertwined in a complex manner.

Regardless of the complex interconnections among the various constituent elements, attempting to pick out only those parts that are conspicuous and treating them in a suboptimal way may not produce the desired effect but rather may create new challenges. It is necessary to understand the causal relationships and structures of various phenomena, and to effectively produce the necessary changes in the necessary parts by drawing the series of flows of the social system.

As we enter an era of uncertainty and instability, we need to be able to read the “social system”.

3-2.Working toward the SDGs (Sustainable Development Goals)

We aim to create social values and social impacts while solving social issues, and so we must advance our full-scale initiatives toward the SDGs.

The SDGs, which were adopted by the 193 UN member countries at the UN Summit in 2015, tend to draw attention to the 17 goals and 169 targets. But the most important point is the concept of “Aiming for a world

where no one is left behind”, as stated in the preamble. In order to make this idea realistic, it is necessary to have a greater ability to see things from the viewpoint of others.

The SDGs feature 17 colorful, visual panels with goals, but each goal is not independent of the others. For example, because there is no well to draw clean water close to home, people travel to distant places to get water, taking several hours each way (Goal 6). The time required for these long distance trips puts pressure on people's lives and leaves them unable to go to school (Goal 4), and because they cannot acquire academic abilities, finding work becomes difficult, leading to a negative chain reaction of poverty and hunger (Goals 1 or 2). This concept is based on the aforementioned “social system thinking” and it is necessary to deal with social issues based on this way of thinking.

The SDGs are a set of targets to be achieved by 2030 and take the unconventional approach of involving governments and businesses in UN operations. The goals of the SDGs are so grand and lofty that they cannot be achieved by an extension of conventional approaches, so major changes to the rules are required.

Figure 2: SDGs (Social Development Goals)

SUSTAINABLE DEVELOPMENT GOALS



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3-3.The role of companies in creating social value

Corporations are growing more aware of SDGs and the importance of social value creation. There are two main reasons behind this success.

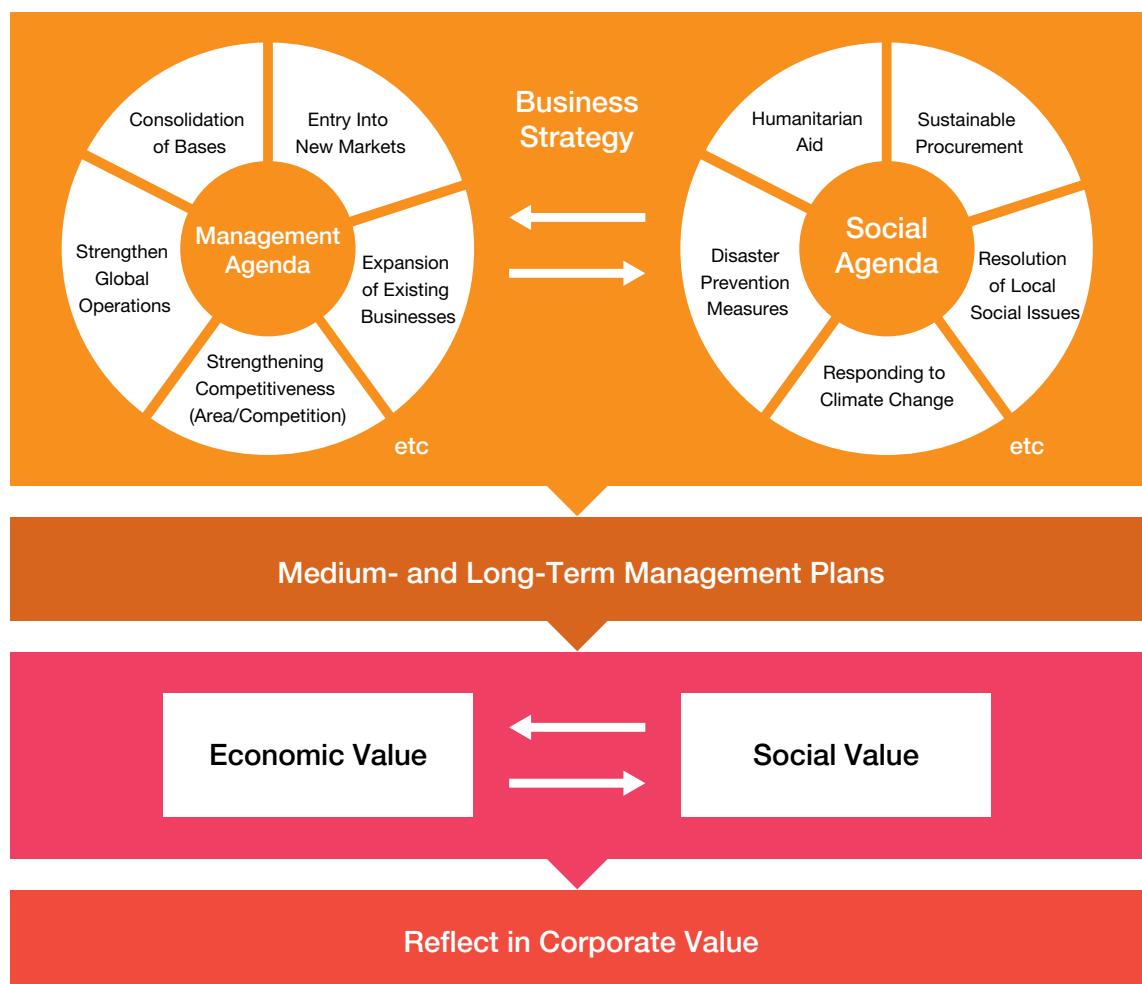
The first reason is the growing social and environmental awareness of the investment market. In 2017, the GPIF revised its investment principles and declared that ESG factors should be taken into account in a wide range of investments and loans. This expanded support for the TCFD recommendations and accelerated the trend of financial institutions encouraging corporate social and environmental activities.

The second reason is the rise of millennials and Generation Z. The consumer behavior of these generations and the selection criteria for employment tend to emphasize the degree of social contribution. We consider that the evolution of digital devices has improved the tendency to see events happening around the world as “personalized”.

Companies need to change to a sustainable business model that balances economic value with social value from both a risk and business opportunity perspective. However, the reality is that many companies believe that they're “doing SDGs right”. What companies will be required to do in the future is not to improve the presentation by categorizing and presenting SDGs, such as linking them to existing businesses, but to make essential changes in their core businesses themselves. The idea is to create an ideal image of what society should be, and then transform that into a bold and innovative business model.

Going forward, companies will be required to integrate their management and social agendas to formulate business strategies. Based on the commitments of top management, the divisions responsible for corporate planning and strategy must incorporate these social agendas into their medium- to long-term management strategies to create both economic and social value while permeating the strategies throughout the entire company.

Figure 3: Integration of management and social agendas (Image)



4

Visualizing Social Impact

4-1. What is social impact?

The goal in solving social issues is to bring about positive and major changes to important issues. These changes are commonly referred to as "social impact". In this document, social impact is defined as "social and environmental changes generated by activities and investments".

There are a number of factors that have an effect on social impact. These include the capital necessary for companies and organizations to continue their activities, the economic and macroeconomic megatrends that are influential enough to shape the future of the world, and various regulations that should be considered as preconditions. The diagram below shows the classification of capital through the six definitions of the International Integrated Reporting Council (IIRC).

Based on these inputs, companies and organizations carry out activities to create social impact. The input changes its shape, increase and decrease as converted through the activity and ideally create an impact. The ultimate goal is to create a virtuous cycle in which the impact generated recursively contributes as inputs to activities.

Figure 4: Items that have an influence on social impact



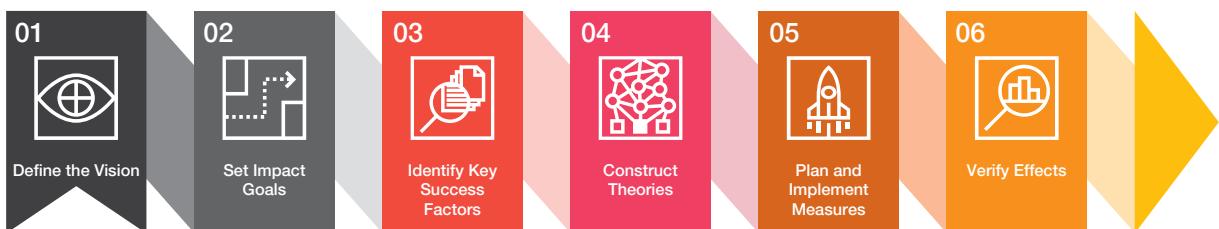
4-2. How do we create social impact?

To date, a large amount of money has been invested toward various issues under the banner that social activities create positive social impact. However, most of these focus on the delivery of products and services, and the magnitude of the social impact created is not discussed or even understood.

In principle, it is best to aim for the minimization of social issues themselves in addition to verifying whether effects

have been achieved in line with the amount of funds invested, while simultaneously and efficiently creating social impact. Thus, in order to create social impact, in addition to the implementation steps, it is important to visualize the impact and to present the generated effects to stakeholders.

Figure 5: Steps for creating social impacts



[1] Define the Vision

Re-examine the purpose of the company or organization to formulate a vision for the future. Define “an ideal society” in relation to your main business.

[2] Set Impact Goals

Based on the vision, define impact goals (what social changes will hopefully occur). In order to realize an ideal society, examine “what social issues should be solved” and “how those ideals can be achieved”, and derive an impact KPI that quantitatively indicates the degree of achievement from those defined impact goals.

[3] Identify Key Success Factors

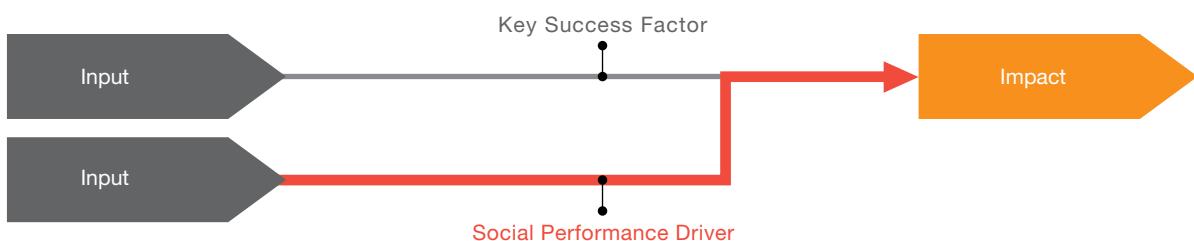
Identify key success factors to make the impact KPI positive. Of the factors that contribute to solving problems, those that contribute significantly are called “social performance drivers”. It is necessary to narrow down the points of key success factors, but we do not need to select single KSF for each impact KPI. It is important to identify and focus on multiple factors that are particularly effective.

If the scope of impact generation is clearly delineated or the root-cause structure is not complex, social performance drivers can be identified based on field knowledge. On the other hand, when a large number of factors are involved in the creation of an impact or when a separate negative impact may be generated in order to create a desired impact, it is necessary to identify drivers from a comprehensive perspective. Regarding such complex issues, it is necessary to derive drivers that have a significant effect in creating impact through objective analysis using statistical methods, while also being aware of the relationships among constituent elements.

Additionally, drivers identified through evidence based approach, as well as impact assessment report at the completion of impact creating activities, can be useful in justifying activities for stakeholders.

Figure 6: Defining social performance drivers

We define the key success factors which contribute most to maximize positive impact as Social Performance Driver (hereinafter referred to as “SPD”).



[4] Construct Theories

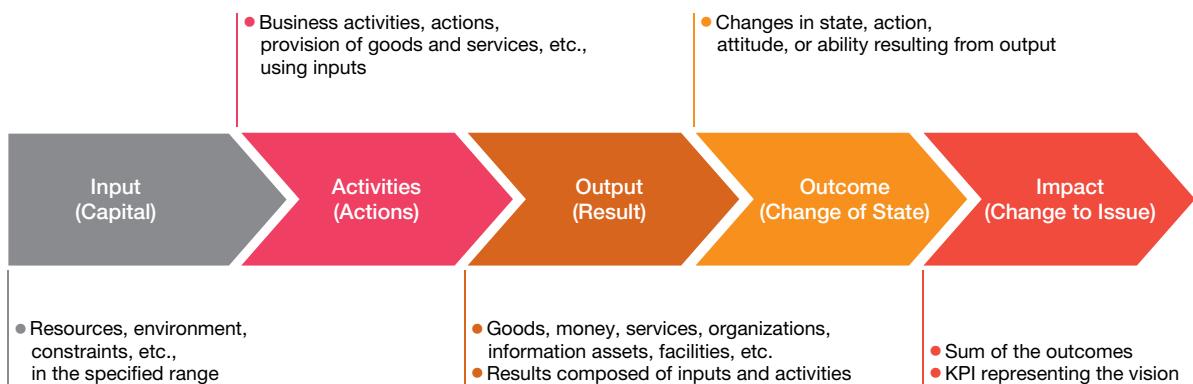
Determine which actions and activities will best achieve the impact goals and develop a “theory of change”.

First, a “logic model” is used to identify the mechanisms that create the desired social impact. Organize the processes required to make impact KPIs positive, using the aforementioned social performance drivers as a focal point. The constituent elements are reasonably back-calculated from the target impact, and then the outcomes, outputs, activities, and inputs are taken into account.

The point is to use a backcasting method, in which

the impact goal is set first and then the process is back-calculated. This approach is different from the conventional idea of seeking impact on an extension of existing processes and is effective in the case that cannot be solved by existing processes such as SDGs where backcast thinking or a moonshot, a more unconventional way of thinking, is required.

Figure 7: Logic model process



Logic models are more than just a tool for visualizing how inputs and activities translate into impacts. They are also effective as a method for verifying logical rationality when thinking about the process up to the impact goal based on the vision using a backcasting method. In doing so, insufficiencies regarding inputs and activities may become apparent, which can lead to considerations of external procurement.

By clarifying the logic model for achieving the impact goals outlined above and the social performance drivers, which are the key success factors for achieving the goals, we will flesh out the theory in the next process to make change realistic.

[5] Plan and Implement Measures

An implementation plan is made considering the feasibility from the constructed logic model. It is important not only to pay attention to the latest output, but also to pay attention to the final impact KPI. In addition, among the social performance drivers that influence the impact KPI, there are positive drivers that contribute to solving the problem through improvements, and negative drivers that hinder the ability to solve the problem through enhancements. Appropriate measures need to be planned after grasping the attributes of the drivers.

[6] Verify Effects

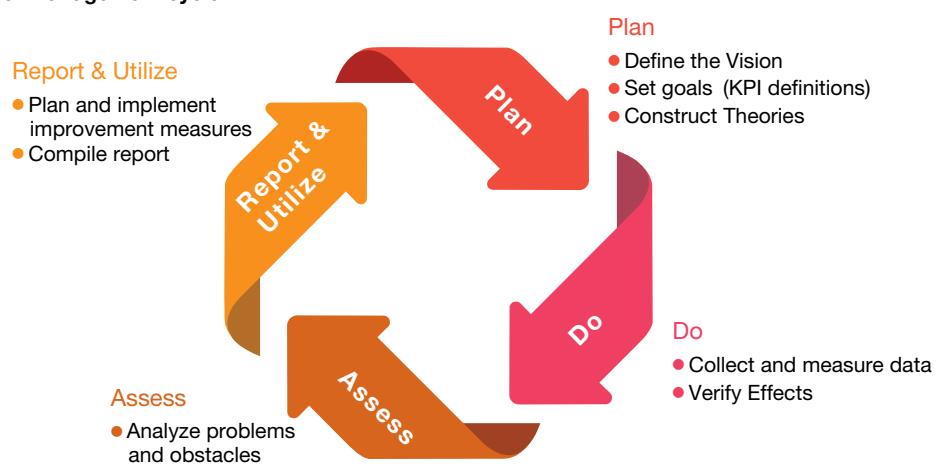
After implementing the measures, the social impact generated is measured and compared with the preset impact KPIs to verify the effectiveness of the activities. For certain cases, it is difficult to measure social impact. For example, lack of immediate effect after the implementation of measures, uncertainty on whether the measurements should be done in qualitative or quantitative terms (or if there is a need to convert impact KPI from qualitative to quantitative), or unclear contributions to activities make it harder to measure social impact. For this reason, verification of the effectiveness may be conducted by a third-party organization with expertise.

4-3.How do we manage social impact?

Social impact measurement refers to collecting and investigating information on the progress status and results of projects and initiatives, including "social impact", and showing how far they have achieved their goals. There is an idea of "impact management" before "impact measurement", aiming to maximize current positive impacts.

The social impact management cycle is conducted in four steps, similar to the conventional business management PDCA cycle. The scope and method of evaluation are determined, and actual measurements are performed, allowing issues to be identified, and the results of the analysis of impediments are then reflected in improvement measures, with those results reported both internally and externally.

Figure 8: Social impact management cycle



4-4.How can the results be used?

Test hypotheses

Hypotheses testing refers to the act of reviewing the completed series of activities and usage of the information to verify whether the impact goals set at the planning stage have been achieved. In order to improve the efficiency of activities, in addition to verifying the maximization of impact, it is also important to conduct verification that eliminates the waste of input resources without sticking to existing methods. Similarly, parallel execution and direct comparison of new and existing methods is also effective for verification. The continuation of such trial and error activities will lead to the expansion of long-term impacts.

Another example of internal use is the quantitative evaluation of results, which increases the learning potential available to the subject and can be applied to facilitate non-intuitive decision-making based on performance. In addition, from the standpoint of the performer, it can be used as a means to improve motivation and confidence by evaluating performance.

Report and disclose the results of activities

Results are reported through "integrated reports", "impact reports", etc. This communication is important in order to inform external stakeholders of the results and obtain continued support and further business expansion. When presenting performance, the impact KPIs achieved can

be presented using parameters that can be compared with quantitative and known indicators to suggest that performance is reliable and not arbitrary. Another advantage of reporting the results to the public is not only to improve the brand of the actors, but also to attract social interest in the field and induce investment for the social impact. This is an important action to foster a climate that encourages the creation of impacts.

On the other hand, even when the expected results have not been achieved, communicating on the status of activities based on appropriate evaluations can prove transparency and promote understanding regarding activities. Just as ordinary companies attract investment by disclosing financial information such as management strategies and settlement reports, it is equally important to show an attitude of improvement through validity and evaluation of impact creation logic when obtaining support for social activities.

Build relationships

Reporting positive results not only strengthens the trust of existing stakeholders, but can also be used to build new relationships with new stakeholders and entities with similar visions. These relationships expand the range of resources available. In addition, by sharing knowledge with other actors, including not only the evaluation results but also the impact creation process, it can become a scheme that dramatically creates impacts beyond the framework of a single actor.

5

What Should We Do?

5-1. Reforming the social system

We view society as a complex, interconnected “social system” and take steps to improve the social performance drivers that lurk in the points of leverage where challenges exist.

However, it should be noted that it is impossible to solve all social problems. With regard to the constraints of Japanese society, such as the inevitable decline of the population, we must keep an eye on these “known preconditions”, and it is necessary to devise an ideal future based on those preconditions, considering the actions to be taken in the present through backcasting.

In addition, measures that have produced a certain degree of effect can be horizontally developed in different areas and layers, and can grow into discussions on the establishment of policies in order to transform the social system into one that minimizes the issues themselves while expanding the scope of problem solving.

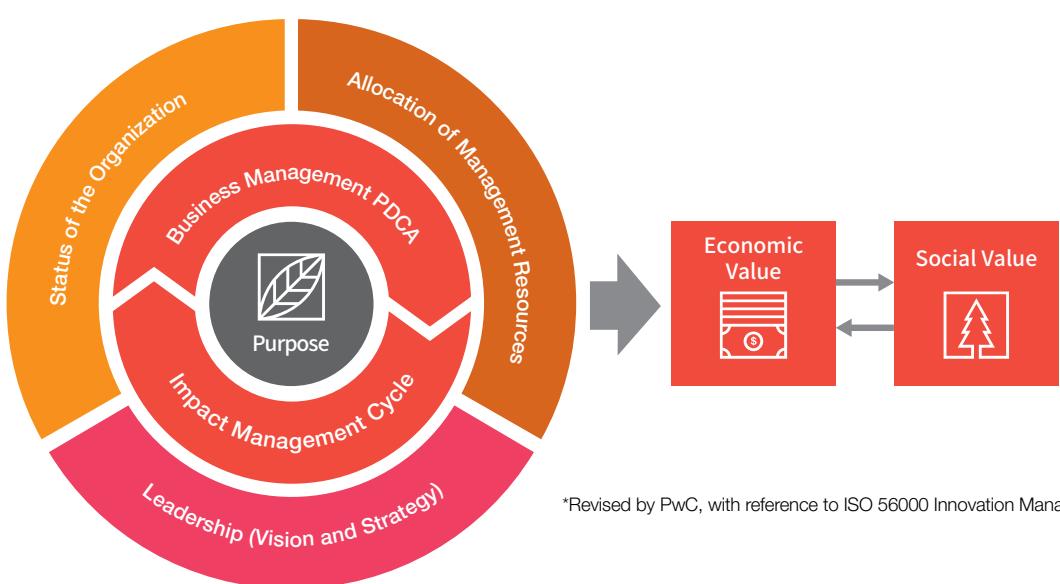
5-2. Aiming to maximize social impact

While the creation of social value and the importance of the management cycle have been discussed above, other elements are also needed to establish business models that pursue both economic and social value. These include “leadership (vision and strategy)”, the “status of the organization”, and “allocation of management resources”.

In particular, company troubles may be related to organizational situations, such as “awareness of SDGs is high among young employees, but low among experienced employees”, or it could be related to leadership, such as the Corporate Planning Department saying “Management told us to work on the SDGs, but we have no idea what to do. We have no vision”. In addition, in the area of acquisition and allocation of management resources, companies face the dire situation of “a lack of human resources with the skills to innovate” and the “inability to create a sufficient system”.

While resolving these factors, it is important to place SDGs at the core of corporate management and to update the corporate structure from the start of social issues (Social Transformation).

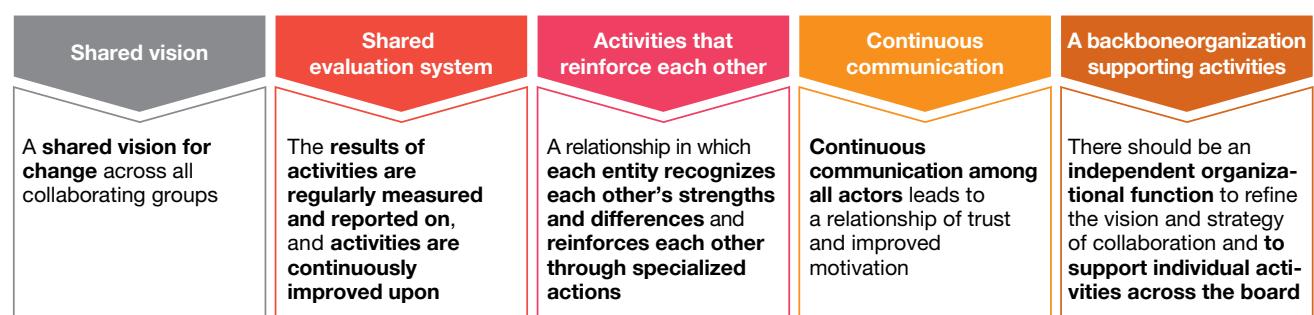
Figure 9: Components required for social transformation



*Revised by PwC, with reference to ISO 56000 Innovation Management System



Figure 10: The Five conditions of the collective impact



Source: Fay Hanleybrown, John Kania, & Mark Kramer, 2012.
"Channeling Change: Making Collective Impact Work", Stanford Social Innovation Review, Jan. 26, 2012.
(https://ssir.org/articles/entry/channeling_change_making_collective_impact_work)

5-3.Taking a collective impact approach

Up until now we have discussed corporate social transformation. But it is also important to note that stakeholders who have not been involved in the process of social issue solving on a large scale in the past can also play an important role in solving social issues. There is an urgent sense of crisis and we need to work with national and local governments, non-profit organizations, and many others to achieve tangible results on major or fundamental issues that have not been remedied.

We therefore believe that the "collective impact approach", which has started in many areas of social system reform around the world, is effective.

The collective impact approach starts with gathering all important stakeholders across sectors to build mutually complementary and reinforcing relationships on issues that may be complex and difficult. It is an approach that considers how to create a larger collective impact while forming a common understanding of issues, and then specifically designs and implements the activities that each stakeholder can do.

Although collaboration itself is not particularly new, traditional collaboration mainly involves a small number of companies, organizations, and individuals with similar interests, while the collective impact approach is characterized by a process of gathering diverse stakeholders from the entire social system, understanding the current situation through dialogue, and working together toward solutions. It is clear that complex social issues cannot be solved by partial responses. We believe that collaboration among stakeholders involved in a range of social systems will help reduce social problems.

As many as 250 cases of the collective impact approach have been reported, primarily in North America, and it is drawing attention as a new program management methodology for solving social issues. For example, there have been achievements in preventing population outflow through community revitalization, conserving water resources, and reducing the rate of young pregnancy.

One of the most important factor of success is the existence of a “backbone organization(intermediate support organization)” which supports communication among stakeholders and coordinates the activities of each stakeholder, contributing greatly to maximizing the impact. In order to incorporate this concept into Japan, it is necessary to carefully localize and explore new forms of cooperation, taking into consideration the social structure, high-context culture, legal development, and maturity of non-profit organizations.

Figure 11: Collective impact approach scheme (image)



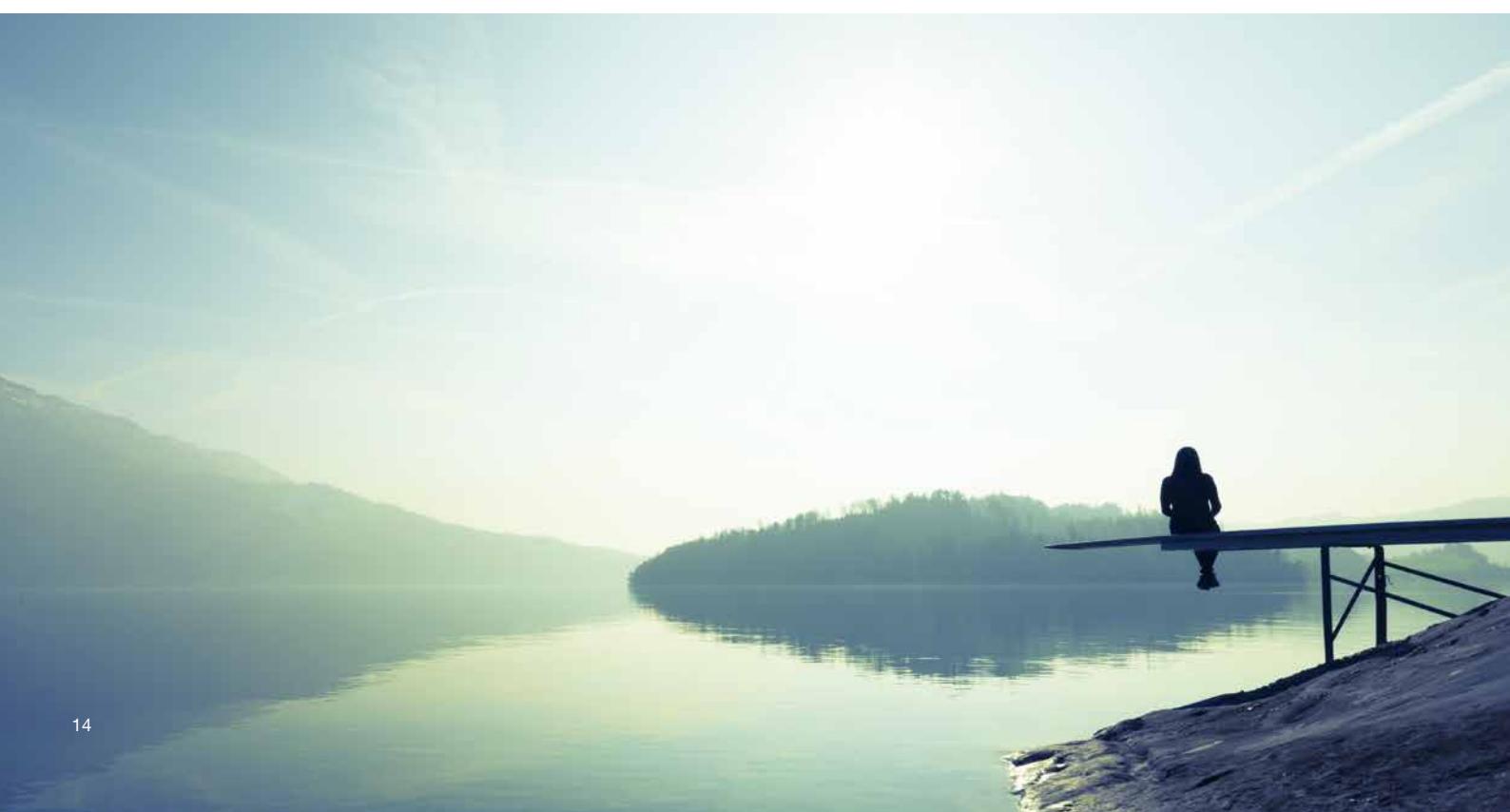
Conclusion

As the paradigm shift originating from the SDGs accelerates around the world, in Japan, a country with advanced social issues, there is a strong demand to implement rule changes.

In order to face the current situation, it is important to clarify the structure of social issues, visualize social impacts, and consciously select the items that should be addressed at the highest priority. At the same time, it is necessary to develop new forms of cooperative abilities in Japan based on the collective impact approach, and to promote “social transformation” that encourages not only the national and local governments, which have traditionally been the main players in social issues, but also companies and financial institutions to participate in earnest.

Based on this, we intend to build and develop a foundation for change to solve social issues.

We hope that this report will guide companies and organizations dealing with social issues and lead to a society where social value is created along with economic value.



Appendix

[Examples] Use in solving community problems

1.The future state of regions in Japanese society

Looking at regional economic trends in Japanese society, it is predicted that the situation will become more serious as a result of changes of the social structure because of declining population and an aging society with fewer children. In addition to the roles played by local governments, we believe that the roles played by financial institutions and local businesses are also important in local communities. Local communities should be visualized and involve more stakeholders related to clarify each role of the stakeholders towards resolutions of local issues and revitalizing the community.

However, although there are similar issues in every area, there are many differences in the current situation in terms of degree of seriousness and characteristics of each area. The difficulties cannot be addressed in a straightforward manner, such as whether measures that were effective in one local government will be effective in another and whether they even have the strength to implement such measures.

2.Meeting between the town of Onagawa, Miyagi Prefecture and PwC

At PwC Consulting LLC, approximately 30 employees, including the CEO and other partners, regularly visit social issue sites to conduct experiential field studies and consider what they can do. In the spring of 2019, we visited the town of Onagawa, Miyagi Prefecture, which was severely damaged by the tsunami caused by the Great East Japan Earthquake, but was miraculously restored at an incredible speed through public-private partnerships.

Through dialogue with residents of the town, the mayor of Onagawa and other officials, the public-private

partnership office, the reconstruction liaison council, and members of non-profit organizations acting as a catalyst in the town, we realized the need to logically show what was happening in the town and the social impact that would arise from it. Although there is no doubt that the creation of economic, and social value is compatible as a whole in Onagawa, we felt frustrated that it could not be shown logically. However, we also felt that if we could show the creation of economic and social value there, this situation could serve as a reference for other public organizations.

3.Efforts to visualize social value

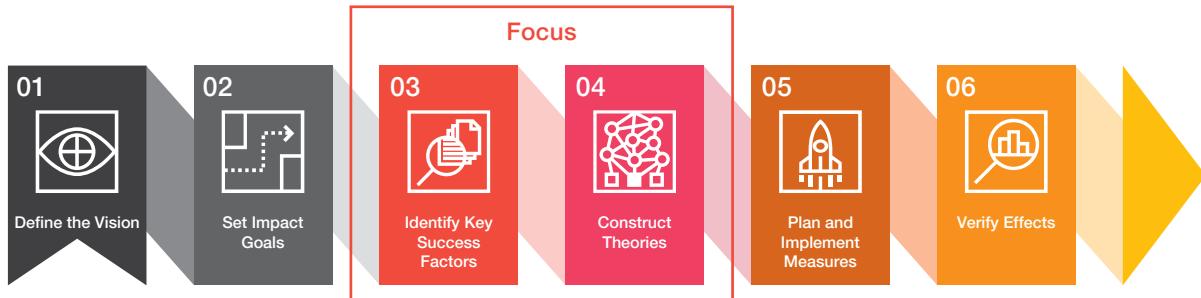
Summary

Based on Onagawa's basic policies, comprehensive strategies, the SDGs, etc., the impact goals to be achieved were set as "the number of net migration divided by habitable areas" and "improvement of the financial strength index". In order to identify the social performance drivers, in addition to field interviews, clustering analyses of 1,724 local governments were conducted to statistically identify the social performance drivers of local governments sharing a common social structure with Onagawa.

We were able to visualize future issues and tacit knowledge that were not visible in the field interviews, as well as quantitative trends in social performance drivers, and verify whether the identified social performance drivers were unique to Onagawa or if they were applicable to other local governments. The derived results will be utilized in the management of the local government, such as with Onagawa policy review, and PwC is considering development into other local governments.

Of the steps for creating social impacts, points for "[3] Identify key success factors" and "[4] Construct theories" are described below.

Figure 12: Steps for creating social impacts

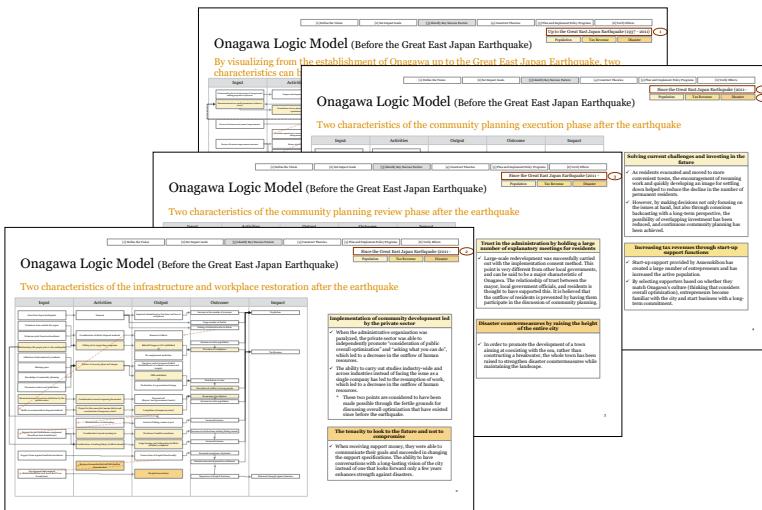


Keeping the visions and impact goals that the town strives for, we visualized how current inputs could be connected to outputs, outcomes, and impacts through various activities with the "logic model.". For some initiatives, we

have identified an autonomous virtuous cycle in which the outcomes and impacts created can be transformed into inputs for other initiatives.

Appendix

Figure 13: Construction of logic models based on on-site interviews



Local government clustering was carried out in order to externalize the tacit knowledge that is not visible in field interview bases, to improve the accuracy of social performance drivers, and to determine whether these drivers are unique to Onagawa. The local governments are categorized into eight clusters. It was found that Onagawa belongs to the industrial zone cluster. A relative analysis of Onagawa was performed in the same cluster.

Figure 14: Local government clusters



Figure 15: Characteristics of industrial zone clusters (Overview)

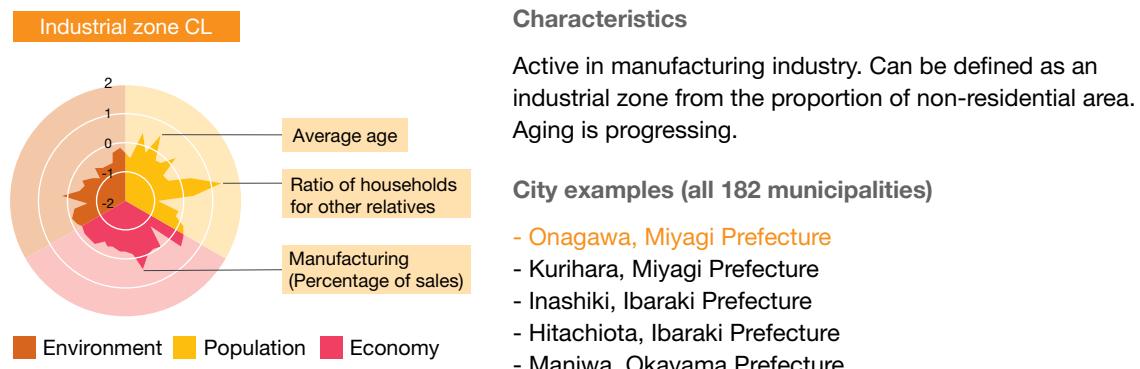
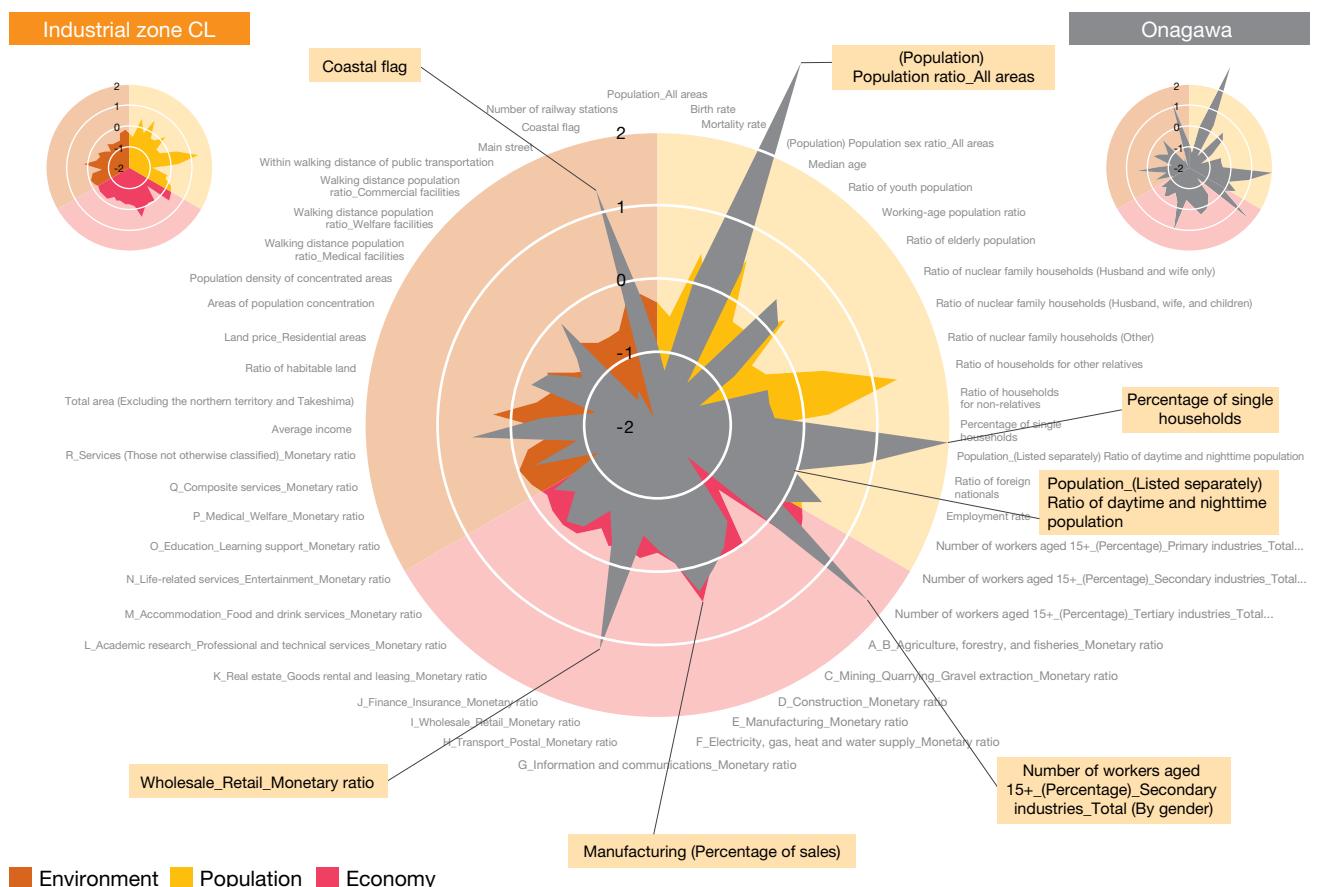


Figure 16: Onagawa analysis



Appendix

Suggestions from this case

The aim of this project was to identify social performance drivers in order to achieve Onagawa's impact goals of "the number of net migration divided by habitable areas" and "improvement of the financial strength index". It should be noted that the industrial zone cluster that Onagawa belongs to and a separate average model city cluster are quite different. Compared to the average for all municipalities, they are even further apart.

Figure 17: Differences between clusters (financial strength index)

Industrial zone CL			Average model city CL			All cities, towns, and villages		
Ranking	Statistical Data With a Positive Correlation	Correlation Coefficient ¹	Ranking	Statistical Data With a Positive Correlation	Correlation Coefficient ¹	Ranking	Statistical Data With a Positive Correlation	Correlation Coefficient ¹
1	Semi-residential areas	+0.56	1	Per 100,000 people Base financial income	+0.60	1	Land price_Commercial areas	+0.53
2	Population_(Listed separately) Ratio of daytime and nighttime population	+0.55	2	Average_For the last 3 years_Per 100,000 people Base financial income	+0.59	2	Land price_Residential areas	+0.53
3	Employment ratio by employment location	+0.53	3	Ratio of habitable land	+0.54	3	(Population) Population sex ratio_All areas	+0.51
4	Sales amount (Privatization) (Transport and postal activities)	+0.46	4	Ratio of Nuclear family households (Husband, wife, and children households)	+0.51	4	Shipments of manufactured products, etc.	+0.47
5	Per 100,000 people Athletic parks	+0.46	5	Land price_Residential areas	+0.49	5	Average_Last 3 years_ Shipments of manufactured products, etc.	+0.47
6	Average_Last 3 years_ Average income	+0.43	6	Recreation areas	+0.45	6	Exclusive residential area	+0.45
7	Per 100,000 people Shipments of manufactured products, etc.	+0.43	7	Land price_Commercial areas	+0.44	7	Average_Last 3 years_ Exclusive residential area	+0.45
8	Number of commuters from other municipalities	+0.42	8	Working-age population ratio	+0.38	8	Per unit area Main street	+0.44
9	Value added (Privatization) (Transport and postal activities)	+0.42	9	Shipments of manufactured products, etc.	+0.37	9	Exclusive industrial area	+0.44
10	Land price_Residential areas	+0.42	10	Average_Last 3 years_ Shipments of manufactured products, etc.	+0.37	10	Average_Last 3 years_ Exclusive industrial area	+0.44

*1: Correlation coefficient between 2017_financial strength index and each explanatory variable in FY2015 (For industrial clusters, partial correlation is calculated using "Revenue and expenditure balance per 100,000 People_(A) - (B)_(C)" as an adjustment variable) Items with an absolute value of the correlation coefficient exceeding 0.8 are treated as identical items and deleted.

Social performance drivers include “positive drivers”, which have a positive correlation with the impact goal, and “negative drivers”, which have a negative correlation with the impact goal. The stronger the correlation, the more positive the impact will be for positive drivers, while the more negative the impact will be for negative drivers. It is therefore necessary to weaken the effects of negative drivers.

In other words, measures that are effective for a particular issue in a local government of a cluster are not necessarily effective for the local governments in the other clusters, and the effective measures differ greatly depending on the demographics and industrial structures of individual local governments.

Figure 18: Extraction of positive and negative drivers

Ranking	Statistical Data With a Positive Correlation	Correlation Coefficient ¹	Onagawa deviation ²	Ranking	Statistical Data With a Negative Correlation	Correlation Coefficient ¹	Onagawa deviation ²
1	Semi-residential areas	+0.56	41	1	Base financial demand per 100,000 people (*Difficult to consider due to overlap with impact KPI)	-0.49	59
2	Population_(Listed separately) Ratio of daytime and nighttime population	+0.55	92	2	Ratio of households for other relatives	-0.48	33
3	Employment ratio by employment location	+0.53	93	3	Average_For the last 3 years_Per 100,000 people Base financial demand	-0.48	60
4	Sales amount (Privatization) (Transport and postal activities)	+0.46	46	4	Average_For the last 3 years_Per 100,000 people Municipal bonds outstanding	-0.41	46
5	Per 100,000 people Athletic parks	+0.46	90	5	Per 100,000 people Municipal bonds outstanding	-0.41	46
6	Average_Last 3 years_Average income	+0.43	69	6	Change_For the last 3 years_Per 100,000 people Revenue and expenditure balance_(A) - (B)_(C)	-0.40	-81
7	Per 100,000 people Shipments of manufactured products, etc.	+0.43	48	7	Change_For the last 3 years_Per 100,000 people Financial resources to be carried forward to the next fiscal year_(D)	-0.40	-82
8	Number of commuters from other municipalities	+0.42	51	8	Change_For the last 3 years_Per 100,000 people Number of high schools	-0.39	-69
9	Value added (Privatization) (Transport and postal activities)	+0.42	45	9	Change_Last 3 years_Financial resources to be carried forward to the next fiscal year_(D)	-0.39	-76
10	Land price_Residential areas	+0.42	55	10	Per 100,000 people_Debt service	-0.38	47

*1: Correlation coefficient between 2017_financial strength index and each explanatory variable in FY2015 (For industrial clusters, partial correlation is calculated using “Revenue and expenditure balance per 100,000 People_(A) - (B)_(C)” as an adjustment variable). Items with an absolute value of the correlation coefficient exceeding 0.8 are treated as identical items and deleted.

*2: Deviation value of Onagawa in the cluster ((Onagawa - Cluster Average) / Standard Deviation × 10 + 50)

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Published: 4 2020 Control No: I202002-5

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