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PURSUIT OF PATTERN LANGUAGES FOR SOCIETAL CHANGE

**A comprehensive
perspective of
current pattern
research and
practice**

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Welfare Pattern Languages by a Local Government

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This paper presents two pattern languages, “Employment of the Disabled Patterns” and “Welfare Innovation Patterns”, designed to enrich co-creative interaction relating to welfare issues among stakeholders. “Employment of the Disabled Patterns” generates working styles for persons with disabilities. It contains 30 patterns describing positive and practical wisdom to help individuals with disabilities to work within a company structure. The “Welfare Innovation Patterns” also contains 30 patterns and describes tacit knowledge for creating products and services that achieve more human-centric welfare. These pattern units were created by the City of Kawasaki, a local government organiza-

tion in Japan. These two pattern languages are intended to work as a methodology and a process to encourage a supportive social environment. The role of the city is to connect the industrial arena and the welfare fields. In this paper, we describe the intentions of the City of Kawasaki, provide a detailed description of two pattern language, and discuss the benefits of using pattern language ideas in local government agencies.

Pattern Language; Local government, Achieve the Enforcement of Policy

1. Introduction

Although our society is heading towards improving welfare, it is not easy to create a supportive social environment. Some of the staff create a very positive environment, but their knowledge and actions are not shared with others. The City of Kawasaki recognizes that there is much tacit knowledge in this field, and that the sharing of such information would be very important in the creation of a more inclusive society. It also recognizes that the experiential know-how of welfare workers would be very helpful in preparing for the upcoming super aged Society in Japan (Cabinet Office, Government of Japan., 2017).

To promote and bring into reality a better, more inclusive, welfare society, it is necessary to enrich people belonging to different backgrounds. In 2014, the City of Kawasaki formulated the Kawasaki Welfare Promotion Plan (Kawasaki, Welfare Promotion Plan, 2014, 2017). It aims to advocate for a new vitality and inclusive social values through the fusion of the domains of industry and welfare. The city has started a forum involving about 300 companies to stimulate cooperation among people belonging to both domains.

One of the issues targeted by this plan is the employment of persons with disabilities. Although there are laws such as the “Act for Promotion of Employment of Persons with Disabilities” (Ministry of Health, Labor and Welfare, 2017) which encourages companies to sustain an employment rate of 2.0% or more of individuals suffering from disability, companies and persons with disabilities in reality do not know how to work together. It is necessary to share the tacit knowledge available in the welfare sector in the hiring, managing, and retention of persons with disabilities in workplaces.

Another goal of the plan is to promote the development of new products and services through cooperation between industrial organizations and welfare workers. This task is not as easy as it sounds, because the perspectives of the two sectors are very different. For the city of Kawasaki, the fusion of the two stakeholders is a big challenge as it faces a super aging society.

In order to disseminate knowledge widely and to share the wisdom of experienced care and welfare, the City of Kawasaki planned to use a pattern language which was proposed by Alexander (Alexander et al., 1977). We, including other members of the city of Kawasaki, developed two new pattern languages, followed by “Words for Journey”, a pattern language for living with dementia (Iba, et al., 2015a), and the first pattern language in the welfare sector.

The two new pattern languages are designed to promote the city's intentions regarding welfare issues. Pattern languages should be useful and should stimulate mutual under-

standing through discussion. To achieve this aim, one must first fill the gap between the industrial norm and welfare sensitivity. Pattern language can be utilized as an appropriate tool to mitigate misunderstandings between industrial custom and the feelings of persons who need welfare support. Second, the role of local government must be broadened from merely encouraging dialogue to becoming an agency that creates opportunities and induces continuous positive change.

In the following sections, we present detailed descriptions of two pattern languages related to social inclusion and welfare: “Employment of the Disabled” and “Welfare Innovation” and present case studies of the use of these pattern language sets by the city.

2. “Employment of the Disabled Patterns”

2.1. Overview of the pattern language

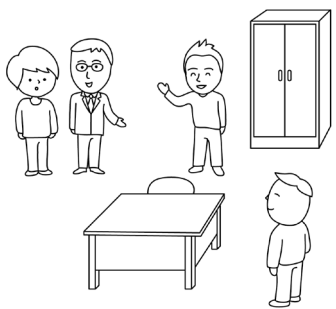
“Employment of the Disabled” is a pattern language designed to build working styles for persons with disabilities. It comprises 30 patterns describing positive and practical wisdom to help individuals who face the challenges of disabilities to work within a company. These patterns were extracted from interviews about the experiences of three kinds of people: those that hire persons with disabilities and exploit their abilities productively in the workplace; staff members of a support agency that helps persons with disabilities to get jobs, and the persons with disabilities.

The main intent of these patterns is to empower both companies and the persons with disabilities to create a workplace where everyone can work enthusiastically. Therefore, these patterns are aimed at two different groups of readers. The first are members of companies that hire the persons with disabilities. The second are people who face the challenge of living their life with disabilities.

The contents of patterns are planned so as to draw positive motivation. The patterns do not impose an obligation to act in a particular manner. On the contrary, they are meant to encourage everyone to generate feelings such as “I can work well together with a person with disabilities in the same workplace”. In addition, those with disabilities can solve problems they may face in work situations by looking back at the pattern name and reconsidering their behaviors objectively on their own. Furthermore, the pattern language itself can be the trigger that generates communication opportunities, when the communication is not generated in the workplace.

Each pattern is written in the Pattern Language 3.0 format: *Pattern Name, Introduction, Pattern Illustration, Context, Problem, Solution, and Consequence* (Iba, T., 2015). The Pattern Name defines the pattern with a short memorable word or phrase for easy reference. The Introduction helps readers to imagine how patterns fit into their daily lives. Pattern Illustration shows the pattern's essence, and characters that express human movements and feelings. The Context describes the situations in which the pattern should be used. Next, a Problem that is likely to occur in the context is presented. Then, a Solution to the problem is described. Finally, the Consequence describes how things can be changed when this pattern is put into practice (Figure 1).

Please note that the *Pattern Name* is not just a headline or summary for the pattern but a new word or phrase that can be used in conversations (Shibata et al., 2016). Furthermore, *Pattern Illustration* is not just a complementary figure illustrating the pattern but an important element which represents the essence of the pattern. Therefore, we elaborated on the name and illustration. Figure1 shows an example of the pattern *Welcome Sign* from the “Words for Employment of Companies” group.

Number & Category	A22 team communication
Pattern Name	Welcome Sign
Introduction	We create an atmosphere where we work together as members of a team in the workplace.
Pattern Illustration	
Context	<p>The persons with disabilities have started working, but the workplace somehow makes an isolated atmosphere for those with disabilities.</p> <p>▼ In this context</p>

Problem	<p>If there are few greetings and little conversations in the workplace, it is difficult to enter the team and a psychological distance and feeling loneliness will be born. Those with disabilities will feel there is no place in this company. If workers are unable to have a sense of belonging, even required communication on the job becomes difficult. Even if there is some trouble, it would be difficult to discover the problem in such an atmosphere.</p> <p>▼ Therefore</p>
Solution	<p>Express warm feelings by colleagues to make persons with disabilities feel comfortable and they can behave as usual. For example, it is important to create an atmosphere that makes a new member feel welcome by preparing desks and lockers on the first day of assignment, to listen attentively to their questions, and to continue casual oral conversations on topics that do not cause stress such as hobbies, hometowns, favorite sports and subjects that build common ground.</p> <p>▼ Consequently</p>
Consequence	<p>An anxiety is reduced, and the environment becomes light and they feel easy to talk to people at the workplace. Even when you want to consult about working, the mental barrier will be low, and you will be able to work forward with ease. By supporting informal communication, the atmosphere of the whole team will also improve.</p>

Figure 1: Format and Content of the Welcome Sign

“Employment of the Disabled Patterns” is available as a booklet and as a set of cards (Figure 2) in Japanese. The booklet contains the full contents of the patterns. The card set consists of the same patterns but contains only the summary of each pattern. The card set is intended to be utilized in workshops where people talk about their experiences using patterns. Each pattern is printed on one side with the Pattern Name, Introduction, Pattern Illustration, Context, a key sentence of the Solution, and Pattern Number. The omission of the details is quite important because it makes people initiate conversations rather than merely read during workshops.

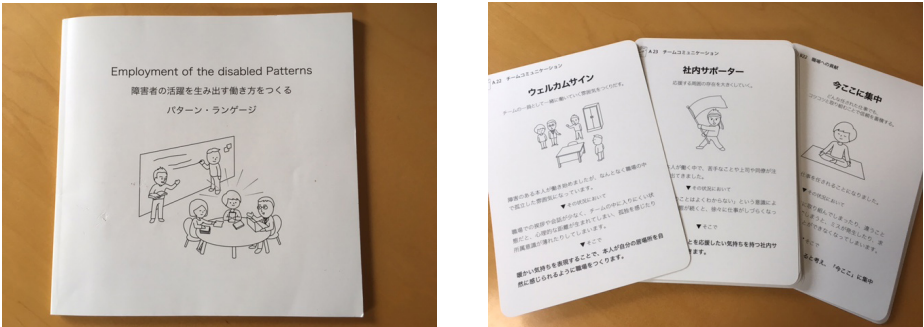




Figure 2: Book and Cards of “Employment of the Disabled Patterns”

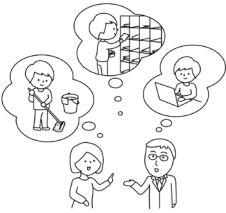

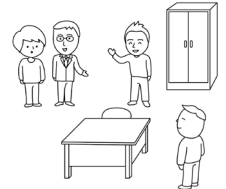

2.2. Patterns in “Employment of the Disabled Patterns”

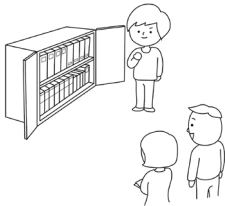

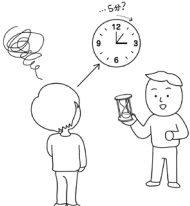

“Employment of the Disabled Patterns” is categorized into two different sets: Words for Employment of Companies, and Words for Those with Disabilities.

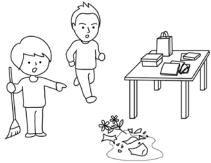



The first set of patterns, *Words for Employment of Companies*, contains 18 patterns: *Top Declaration*, *Understanding Seeds*, *Workplace Arrangement*, *Find a Discovery*, *Welcome Sign*, *Co-workers Supporters*, *Pride of Work*, *Confirming the Okay*, *Avoiding Weak Points*, *Transmitted Words*, *Objective Vision of Failure*, *Watching over as One*, *Top Boost*, *Accept Burden*, *Three-Legged Race of Dialogue*, *Refer to the External Viewpoint*, *Two Perspectives*, and *Pursuit of Open Workplace* (Table 1). These are patterns for companies to help people work successfully with colleagues who have disabilities.

The second set, *Words for the Persons with Disabilities*, contains 12 patterns: *Take a Step*, *Small Success Experience*, *Consideration List*, *Send a win-win Relationship*, *Concentrate Here Now*, *Accelerator and Brake*, *Box I Can Do*, *Snuggle Buddy*, *Release and Spread*, *Motivated Switch*, *My Recovery Method*, and *Choose the Way by Myself* (Table 2). These are patterns for the persons with disabilities to become more active and to help them contribute more to the workplace.

For Employment of Companies			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
1	Top Declaration		You are hiring persons with disabilities as employees. In this context, when you hire to just follow the legal obligation, it will be a burden to work together when problems occur. Therefore, managers change company policies to encourage the employment of persons with disabilities and create positive values within the whole company.
2	Understanding Seeds		You decide the jobs to assign to persons with disabilities and prepare to work together. In this context, if you ask for too much consideration from your colleagues, their sense of burden and anxiety will increase, and they will not feel like working inclusively. Therefore, select important points of consideration to transmit to your colleagues in order to make them ready to work with the persons with disabilities.

3	Workplace Arrangement		You are thinking about how to work together with the persons with disabilities in the workplace. In this context, if you judge them with bias, the possibility of them working as a member of the company will be closed. Therefore, arrange your workplace by knowing the prejudice so that the persons with disabilities can work together and use their own characteristics effectively.
4	Find a Discovery		You start working with the persons with disabilities. In this context, having a prejudice about disabilities or denying consideration for those with disabilities will not provide opportunities for them to work actively. Therefore, understand that there are differences in personality and position, so try to find the differences between you and those with disabilities.
5	Welcome Sign		You start working with the persons with disabilities, but the workplace somehow makes an isolated atmosphere for those with disabilities. In this context, if there are few greetings and little conversations in the workplace, it is difficult to enter the team and a psychological distance and feeling of loneliness will be born. Therefore, express a warm feeling to make your colleagues with disabilities feel comfortable and they can stay natural.
6	Co-workers Supporters		You encounter situations where superiors and colleagues pointed out missing parts to the persons with disabilities while working together. In this context, it is difficult for you to work gradually if you do not pay attention to them due to the feeling of not knowing about those with disabilities". Therefore, increase the number of in-house supporters who have the desire to support working with the person with disabilities.

7	Pride of Work		You are thinking about how you can work positively with persons with disabilities. In this context, if you do not know how those with disabilities are contributing to the workplace, they will not know whether they can keep working, and their willingness to work will disappear. Therefore, show their accomplishments and announce „for whom and for what“ and make them proud of their work.
8	Confirming the Okay		You feel it seems like the persons with disabilities continue to be doing well on track by themselves. In this context, when the situation in the workplace is busy, there is no time to talk. If you discontinue regular discussions, you will not be able to notice the fact that they are in trouble. Therefore, make sure to spend time talking to those with disabilities regularly and to check their work, even if there is nothing wrong.
9	Avoiding Weak Points		You are urging the persons with disabilities to work on various tasks. In this context, as the work increases, they may be entrusted with a task that they are not good at, and it becomes easy for them to feel stressed. Therefore, devote thought to your way of working in the office. Organize the workplace in a manner that avoids causing of weakness as much as possible and try to not make your colleagues with disabilities feel stressed.
10	Transmitted Words		You are trying to teach the persons with disabilities a new job. In this context, depending on how you tell it, you may not be able to proceed with your job because of misunderstanding. Therefore, prepare to be able to imagine what you want to convey clearly. In addition, find a way to communicate clearly and create an understanding between you and those with disabilities.

11	Objective Vision of Failure		You encounter a problem while the persons with disabilities are working. In this context, when you automatically assume that the problems are caused because of the disabilities, it would be impossible to find the real cause. Therefore, analyze the factors of failure based on facts. Understand correctly whether or not it is due to the characteristics of the disabilities.
12	Watching over as One		You try to get the persons with disabilities to work alone, but the results were not as positive as you expected. In this context, if you disturb their own pace of work, they will feel impatient and stress, make mistakes easily and cause trouble. Therefore, try to create an environment where they can grow by deciding the period without hurrying the outcome.
13	Top Boost		You are creating a structure capable of working positively with persons with disabilities. In this context, if there is a gap between the company policies and the workplace realities, the entire company will feel negatively about the employment of persons with disabilities when a problem occurs. Therefore, create a place, including among top executives, to confirm the efforts of employment of persons with disabilities. Act as an organization by sharing the thought with the whole company.
14	Accept Burden		You are encountering a situation where you work with persons with disabilities, and your colleagues are feeling a sense of burden. In this context, if colleagues are feeling weighed down, those with disabilities will not be able to work comfortably. Therefore, make opportunities for colleagues to talk and find out why they are feeling encumbered by working in an inclusive structure.



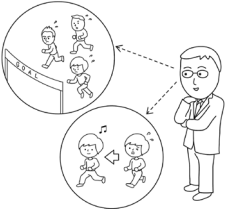
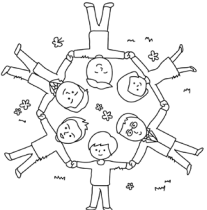

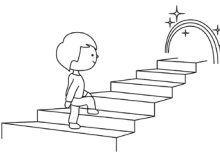



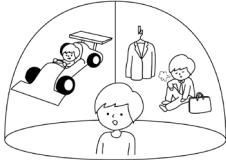


15	Three-Legged Race of Dialogue		ou hesitate to ask persons with disabilities, „May I know about...?“ In this context, just because there are obstacles, you cannot say what you want to say, and if you cannot ask what you want to know, your sense of discomfort in working together will increase. Therefore, respect each other's position and listen and talk directly without setting taboos.
16	Refer to the External Viewpoint		You start working with persons with disabilities and encounter various problems issues. In this context, when you try to determine actions without having adequate information, you cannot find the right way to exploit their abilities and you cannot find a solution. Therefore, listen to the opinion from a person who has a new perspective and find the way you can productively use their abilities.
17	Two Perspectives		You have figured out that the persons with disabilities get used to the workplace and want to work as much as other colleagues. In this context, those with disabilities lose opportunities to work better and if you do not adequately evaluate their accomplishments even when they do their best, their motivation to work may decrease. Therefore, create opportunities without bias, evaluate everything based on results, and check their growth carefully.
18	Pursuit of Open Workplace		You are thinking about the significance of hiring persons with disabilities. In this context, if you make judgments by just following the existing rules and obligations of the company, you will be unlikely to exploit their abilities. Therefore, evaluate that you will continue to change your business and rules little by little, to make a comfortable and flexible workplace.

Table 1: Patterns for Companies in "Employment of the Disabled"

For Those with Disabilities			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
19	Take a Step		You want to work in a company. In this context, even though you desire work, if you do not act on that feeling, only time will pass and your goal will be lost. Therefore, imagine what you want to be and try and move first.
20	Small Success Experience		You want to work in a company. In this context, even though you desire work, if you do not act on that feeling, only time will pass and your goal will be lost. Therefore, imagine what you want to be and try and move first.
21	Consideration List		You are going to participate in a recruiting interview. In this context, you explain the things that you can do for the company and the aspects you would want the company to consider. If you cannot express them convincingly or take too much time to explain, it will be hard to tell your thoughts and feelings to others. Therefore, prepare the necessary consideration for yourself so that you can explain yourself to others, and arrange for an easy transmission.
22	Send a Win-Win Relationship		You have started working in a new workplace. In this context, you cannot ask for consideration and as a result, you are unable to demonstrate your strengths. Therefore, ask for considerations that are feasible and that will be positive for the entire workplace and not just yourself. In addition, have a respectful dialogue with your opponent.

23	Concentrate Here Now		You are assigned to the workplace. In this context, if you are doing work somewhat lazily or working distractedly, you will make mistakes or get results you didn't want. Therefore, see that this work is important, try to focus on the „here and now“ and work steadily.
24	Accelerator and Brake		You are getting used to the workplace, and the number of tasks you are entrusted with have increased. In this context, you are in difficulty when you make a mistake in the pace of achieving results and you struggle to keep working. Therefore, understand your characteristics of feeling stressed when you work too hard, and you will be extra careful.
25	Box I Can Do		You have become accustomed to the workplace, so you would like to look back on your work. In this context, when you see eyes on your work, you feel depressed by seeing what you could not do rather than something you can do and you think that you are not suited for this job. Therefore, enjoy finding what you can do and divide it into „Can do boxes“ and „Challenge boxes“.
26	Snuggle Buddy		You are losing Positive feelings that you had on the first day of your employment. In this context, it is painful for you to hold your problem to yourself because you feel it would be difficult for your colleagues to understand the challenges those with disabilities face. Therefore, find a good buddy who works efficiently in the workplace despite having disabilities and talk to each other.

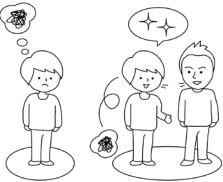
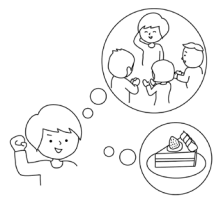


27	Release and Spread		You are wondering how you can work in your way. In this context, if you are stuck with the stereotype, such as; you should be like this and you will not be able to break down the current situation. Therefore, try to separate from the situation that continues to worry you and think about improvement measures from a different perspective.
28	Motivated Switch		You do not feel like going to work today. In this context, if you continue to work without motivation, you will tend to make mistakes and your relationship with your environment will get worse. Therefore, practice telling yourself that you can switch your focus towards putting in more effort and to working hard.
29	My Recovery Method		You feel tired of working. In this context, when your mind and body are tired, and if you do not understand the cause of the weariness, you will not be able to continue working at the requested pace from the company. Therefore, try to regain your energetic feelings in your own way.
30	Choose the Way by Myself		You are visualizing how to become an active figure in the workplace. In this context, if you just rely on someone's judgment without thinking yourself, you will only be able to move in passive mode. Therefore, decide small things based on your own thoughts in order to keep yourself active.

Table 2: Patterns for Those with Disabilities in "Employment of the Disabled"

2.3. Applications of the "Employment of Disabled Patterns"

"Employment of Disabled Patterns" was created in 2016, and the City of Kawasaki has already utilized these patterns in city events such as the "KAWASAKI Halloween". The Hallow-

een event is held by the City of Kawasaki annually, and more than 1,000 people attend the parade. During this event, two patterns were utilized. The Welcome Sign helps the expression of a warm feeling so that the workplace projects a good atmosphere so that people with disabilities can naturally feel that they belong. Small Success Experience makes it possible for someone to feel a sense of accomplishment, confidence and joy from small successful experiences. The City of Kawasaki utilized Welcome Sign, by having persons with disabilities leading a long parade line and guiding a large number of attendants and everyone walked together to show the collaboration of citizens. It also utilized Small Success Experience and two boys, who had mental disabilities, led the long parade line. This small accomplishment made them feel proud of themselves, and they started to gain confidence (Figure 3).



Figure 3: Scenes from the Halloween event

Another example utilizing patterns is related to professional soccer games. There is a professional football team named "Kawasaki Frontale" and its games are held once in two weeks at the Todoroki Stadium in Kawasaki. As in the previous example, two patterns, Welcome Sign and Small Success Experience were utilized. All people, regardless of their circumstances, including the elderly, the youngsters and those with disabilities, were welcomed to work together for their hometown team. In addition, they work together to clean and organize their stadium every two weeks, so they always feel success and share the feeling of satisfaction. The purpose of Welcome Sign is to visualize social inclusion. The objective of Small Success Experience is to help persons with disabilities become more confident of working within society by having a daily successful experience (Figure 4).



Figure 4: Scenes from the football stadium

“Employment of the Disabled Patterns” is used at employee training seminars in Kawasaki. The seminars are free and have been held since 2016. The seminars utilize the World Café Method. The attendees include persons with mental disabilities and the staff members from Hataraku Shiawase JINEN-DO who work as facilitators in the discussions that are held. The patterns work as cases that often occur in workplaces. For example, through dialogues inspired from using the pattern, *Find a Discovery*, attendees understand that there are differences in personality and position. *Pride of Work* gives attendees the opportunity to reconsider that all jobs are valuable to those who do them. *Watching over as One* creates triggers to review their environment as workplaces, and let attendees notice how important people's growth is.

The purpose of holding these seminars is to make people aware of the importance of working along with persons with mental disabilities. Participants feel that there are many issues that they have to keep in mind when working with persons with mental disabilities. In the process, they discover the essence of hiring and managing workers regardless of mental disabilities because everything is basically founded on human relationships.

Over 170 people participated in the seminars that began in October 2016, and the average satisfaction rate was about 96%. Many participants said that they wanted to use similar training sessions with colleagues in their workplaces to support people with disabilities. In addition, they said that they felt they could conduct similar training sessions by utilizing pattern language in their workplaces. This means that “*Employment of the Disabled Patterns*” can be utilized even further in many areas and especially in the workplace (Figure 5).



Figure 5: Scenes from the employment seminar

3. “Welfare Innovation Patterns”

3.1. Overview of the Pattern Language

Welfare innovation aims to create new vitality and social value through the fusion of the fields of industry and welfare. It is necessary for Japanese society to create sustainable innovation in order to overcome the challenges stemming from factors such as a declining population, a fast-decreasing birth rate, an increasingly aging society and, at the same time, to realize sustainable economic growth. For the City of Kawasaki, preparing for a super aged society, promoting active and diverse participation, and promoting the employment of the persons with disabilities are very important issues.

“Welfare Innovation Patterns” delineates the tacit knowledge required to create products and services that achieve more human-centric welfare. The design is meant to stimulate cooperation between the domains of industry and welfare. Although there is much tacit knowledge in areas of developing products and services, especially for welfare purpose, such information is not shared with the industrial domain. This lack of cooperation causes much misunderstanding and friction between the two sides. Therefore, we interviewed people who are doing well in both fields, and summarized the tacit know-how of those people as a pattern language. The patterns are contributing well-designed products or services for welfare purposes, and promote superior processes by encouraging the accumulation of people involved in promoting welfare innovation.

The composition of each design in this set as well as in the “*Employment of the Disabled Patterns*” consists of the Pattern Language 3.0 format: *Pattern Name, Introduction, Pattern Illustration, Context, Problem, Solution, and Consequence*”.

"Welfare Innovation Patterns" is also available as a set of a booklet and cards. The purpose of combining the two methods is same as for the "Employment of the Disabled Patterns" and it encourages dialogue between companies and people who work in the welfare domain (Figure 6).

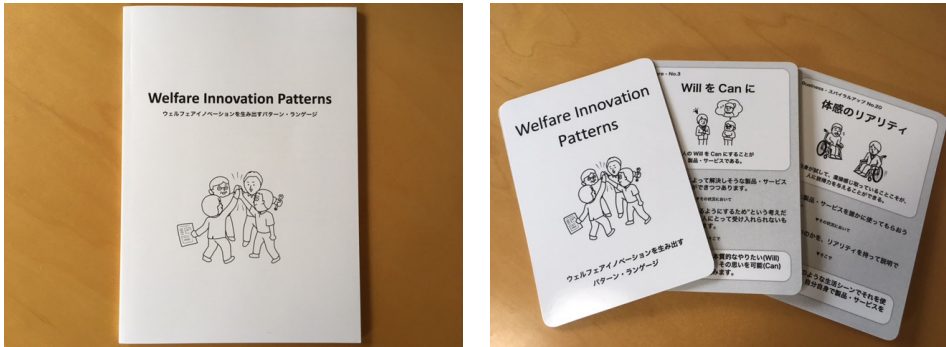


Figure 6: A booklet and cards of "Welfare Innovation Patterns"



3.2. Patterns for "Welfare Innovation"

In "Welfare Innovation Patterns," there are three Core patterns: *Value for Users*, *Sense of Unity with Everyday Life*, and *Will to Can*. Table 3 shows the summaries of Core patterns: *Pattern Name*, *Pattern Illustration*, *Context*, *Key Sentences of Problem and Solution*. The rest of the patterns are organized into three sets, each containing 9 patterns: *Exploring the Needs*, *Supporting Life with the Power of Business*, and *Pursuing Possibilities*.

The first category, *Exploring the Needs*, contains the following configurations: *Sense of the Place*, *Listen to the User*, *Partner on Site*, *Acquaint your User*, *Behavioral Background*, *Match Pace*, *Bring a Contribution*, *Point where the Feeling Moves*, and *A Story beyond Expectation* (Table 4). These are patterns for suppliers to understand the specific needs of users. This set focuses on the stage of grasping needs and of discovering further possibilities.

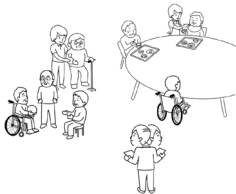
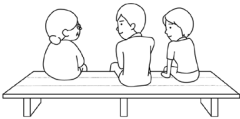
The second category, *Supporting Life with the Power of Business*, includes: *Communicating the Future You Want to Realize*, *Revisiting Strengths*, *The Other' Point of View*, *Revealing the Feeling*, *Convincing Data*, *Collaborating to Solve Problems*, *Familiar Consultant*, *Reality of Bodily Sensations*, and *Determining the Likeable* (Table 5). These are patterns for people trying to support life as a business. This set is intended to draw forward positive and active motivation to create new products and services. To achieve this, people can learn and discuss how to create positive relationships with those who work in the domain of welfare. These approaches make it possible to merge the thought processes of both the fields of industry and welfare.





The third category, *Pursue Possibility*, comprises: *If I were you*, *Watching Other Areas*, *Reserve Needs*, *Accommodative Design*, *Only What is Necessary*, *Delivery Speed*, *Point and Line*, *Ease of Use Feeling*, and *To be Loved* (Table 6). This set of patterns focus to pursue possibilities for a daily life.

CORE			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
1	Value for Users		You are in charge of planning new products / services. In this context, you do not know how to proceed with the planning of the development of products and services based on thought processes of the care and welfare field. Therefore, try to view the world from the point of view of the person using the products / services and think: "What kind of value can we create by the use of these products / services."
2	Sense of Unity with Everyday Life		You are thinking about what kind of value you can add to the lives of people who will use your products / services. If you focus too much on the trouble they face in their daily lives and produce a product / service that your intended users will hesitate to utilize, people's feelings will be further depressed and their desire to be active will decrease. Therefore, plan such products / services that can fit naturally into people's lives and will make people feel positive and active by using them.

3	Will to Can		You think your products / services can solve problems. However, if you create products / services based just on the idea of „making possible things they cannot do“, your products / services may become unacceptable to the end users. Therefore, focus on the essential desire (Will) of people who will use your products / services, and develop products / services designed to achieve their desires (Can).
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Table 3: Patterns in the Core Category of Welfare Innovation

Needs			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
4	Sense of the Place		You are gathering information in order to proceed with your project. In this context, you cannot understand the actual situation and the essential needs of your end users by being satisfied with only superficial impressions and information gained from the public. Therefore, go to the sites where the products / services are regularly used and make your own first-hand evaluation.
5	Listen to the User		You try to delve further into your end users' needs and consider the deeper questions you want to ask from your target consumers. However, you hesitate to ask your intended end users directly and try to understand their requirements by listening to their families and friends. Therefore, meet directly with the persons who will use your products / services and talk to them in as much detail as possible.

6	Partner on Site		You find that there are many people who want a regular engagement in site projects. If you vaguely gather information from many people, the plan will go out of hand, and cannot develop anything. Therefore, find a working partner who can give you useful feedback and who is willing to create something together with you.
7	Acquaint Your User		You have come to the site to find out the needs of your end users. It is difficult to get people to open their hearts to you immediately and this rectitude makes you unable to get the information you want. Therefore, candidly share your purpose of intruding into the life and work of your consumer. In addition, you must respect the life and work style / pace / values of the individuals and reduce their feeling of discomfort of being in the spotlight.
8	Behavioral Background		You are gathering information in order to judge people's needs by stepping into the context of your users' ground realities. However, you cannot quite grasp their real needs and desires. Therefore, explore and deconstruct the background of the words you hear and you should carefully observe behavioral features, however small they may be.
9	Match Pace		The user and the company are collaborating on the development of the products / services. However, it is becoming difficult to keep the collaboration going since the two sides are not quite in sync. Therefore, share each other's circumstances and make progress by gradually adjusting to each other's pace.








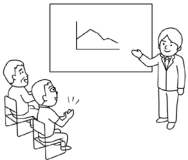


10	Bring a Contribution		You are operating your projects by including other members. However, if only some of the members are overloaded with things to do, the team relationships will become frayed. Therefore, reconfirm each members' respective areas, express relative strengths and interdependencies, so all members can participate in the project with equal motivation and create a win-win relationship.
11	Point Where the Feeling Moves		You are thinking about people who will use your new products / services. However, you have pushed the conceptions of the developer side, and you cannot connect to the active feelings of the end users. Therefore, find the points of interest of your consumers and make a carefully considered connection between your products / services and your end users. It is important to give your consumers the opportunity to meet with the product / services being developed, so that they can try and discover what they really need and have the chance to gain a solution that will make a difference to their lives.
12	A Story beyond Expectations		You are trying to get people to use your products and services at the prototype stage. In this context, even though you have attained an evaluation regarding your innovation, you cannot obtain the direct voice of intended users. Therefore, reflect on both the direct changes that products and services can bring about and also the lifestyle transformations that the developers did not expect, and you must share that story with others.

Table 4: Patterns in the Needs Category of Welfare Innovation Patterns

Business			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
13	Communicating the Future You Want to Realize		You want to advance the creation of products and services by getting help from many people other than yourself. You think you have a good idea and that there are tasks you can accomplish, but other people are not interested in them. Therefore, clearly and persuasively communicate your thoughts about the world you want to realize with your words.
14	Revisiting Strengths		You are trying to create products and services that solve issues related to care and welfare. However, you cannot demonstrate the company's own original strengths and you cannot achieve your potential. Therefore, eliminate your existing ideas about how you can make use of your company's strengths. Imagine a specific life scene from various perspectives in both vertical and horizontal directions.
15	The Other Point of View		You want to talk to the people in the field of care and welfare about the technology you want to bring to reality for people to use. You find it difficult to build good relationships with the people in the domain of care and welfare because you cannot maintain adequate dialogue with them. Therefore, try to understand the characteristics of the worksite, the values of the organization, the ideas and feelings that are not verbalized, and learn the perspective of the discipline while engaging in conversation with the people involved in the field.

16	Revealing the Feeling		You have created a framework for what you want to do and have made a plan for the future you want to realize. In this context, you are proceeding with the plan by yourself and cannot clarify who uses the products and services or how to use them. Therefore, ask your colleagues and family and also request a lot of people who have not worked with you to respond to a summarization of your ideas and projects and record their reactions.
17	Convincing Data		You want to get approval for your project from the people who are involved in care and welfare situations. You illustrate to them the image of the future that you want to realize and demonstrate the positive features of the products and services. However, you cannot appeal to the emotions of the field workers in care and welfare. Therefore, respond to their needs and prove that you can meet their requirements. In doing so, use your own data which you have gathered in the field.
18	Collaborating to Solve Problems		You encounter problems that require solving as your plan advances. In this context, the more you try to impose your authority, the worse situation will become. Therefore, do not try to solve issues forcibly. Find friends who can complement your plan, and collaborate to solve problems.
19	Familiar Consultant		You are building a team of developers and users. There may be pitfalls that the team cannot determine on its own, and may overlook the potential areas where it can perform better. Therefore, get opinions from someone who has a fresh perspective, or from experienced and trustworthy people.






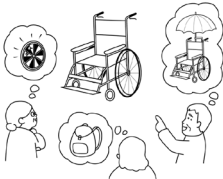

20	Reality of Bodily Sensations		You are trying to make someone to use the products / services which are ready to use. However, you cannot explain the real perspective of how useful it is in the area of care and welfare. Therefore, try using the products / services yourself while thinking about who can use them and in what kind of life scenarios.
21	Determining the Likeable		You test the product / service in the care and welfare field and receive good comments. If you are satisfied with just having a good review, your efforts towards growth and development will gradually stagnate. Therefore, carefully consider how the empathetic element is connected to the future you want to realize, and keep improving.

Table 5: Patterns in the Business Category of Welfare Innovation Patterns

Possibility			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
22	If I were you		You want to provide new value in the field of care and welfare. In this context, you can think of an extension of the current product / service and cannot find the premise that you really want to work on. Therefore, imagine what you would feel and which part of the product / service would feel unpleasant to you if you or someone close to you were to use the products / services of care and welfare.

23	Observing Other Areas		<p>You are trying to create valuable products and services in the field of care and welfare. However, you cannot discover breakthrough ideas for new developments if you only regard the features of the care and welfare field. Therefore, have an interest in new technology applied to other fields or methods and think about whether you can link those products and services to the field of care and welfare.</p>
24	Reserve Needs		<p>You have ascertained a lot of needs by delving into the circumstances of the people who need some kind of support. If the needs you have determined cannot be resolved immediately and have to be excluded from the scope of your effort, the potential of helping people achieve what they can accomplish will be lost. Therefore, keep all the possibilities of resolution open, even if you cannot solve the problems in the short-term.</p>
25	Accommodative Design		<p>You are designing the functions of products and services. If you try to satisfy the needs of all people, the products / services are likely to become over specified and in actuality, they will become difficult to handle for people who really need to use. Therefore, design products and services with basic requirements that make them accessible to everyone's characteristics and abilities.</p>
26	Only What is Necessary		<p>You are planning to develop products and services that complement the ability of the people. The excessive dependence on products / services in daily life would deprive users of maintaining what they can do and may cause them to lose their abilities. Therefore, keep users' strengths intact, design products / services that support only and exactly what they really need.</p>




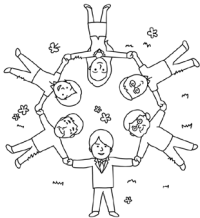
27	Delivery Speed		You are developing products and services steadily. In this context, it has become impossible to judge how much function can be added to services / products. Therefore, expect that the lives of a certain number of people may be transformed by your products / services, make the decision to deliver your products / services faster.
28	Point and Line		You are trying to test your products and services at the prototype stage. You were told that it was hard to use the products / services in the context where they are actually used. Therefore, think carefully about the usage circumstances before and after the product / service is used. To generate products / services of value, design not only the change in one moment (point) of life, but also the transformation of the context (lines) before and after that point.
29	Ease of Use Feeling		You want to make a product that can be used by many people. Even if it fulfils the function, people do not want to use it. Therefore, make efforts to make it easier to use and to match the price and the desires of people who use the product in everyday life.
30	To be Loved		You want to provide products and services that can be used by many people. Products should not be created by paying attention to superficial features, and you should not be satisfied with temporary attention or gradual usage. Therefore, continue to pursue the comfort of use, build products with features that may be used for a long time, focus on quality so that everyone can enjoy your product with confidence.

Table 6: Patterns in the Possibility Category of Welfare Innovation Patterns

3.3. Application of “Welfare Innovation Patterns”

“Welfare Innovation Patterns” were created by the City of Kawasaki in 2017, in the year following the development of the “Employment of Disabled Patterns”. Right after the release of the “Welfare Innovation Patterns”, the City of Kawasaki began to utilize it to create new services. They applied two patterns: *Point where the Feeling Moves and Bring a Contribution for a service using “WHILL”*.

“WHILL” is a so-called electric wheelchair that is very innovative. It is comfortable to ride and easy to handle. It has also received the Good Design Grand Award in 2015. This recognition is given to a product that is original in design and that enhances the quality of life of people. However, although this wheelchair is an innovative product, it is very expensive and is difficult for an individual to purchase and that is a huge problem. The city of Kawasaki felt there were more possibilities for this wheelchair and tried to figure out how to make the most of it.

The city of Kawasaki utilized the pattern, *Point where the Feeling Moves*. The city and the wheelchair company decided to cooperate with a nursing service for the aged people. They set a mini course at a gymnasium and asked the elderly to be test-riders at the course. They collected the real voices of the mature participants such as “It is so much fun to ride” or “I want to go outside riding on it”. The city of Kawasaki then applied the next pattern, *Bring a Contribution*. The city arranged a collaboration with the wheelchair company and a universal design taxi company. They discussed how they could work together to make the vocalized desires of the test-riders come to life. They found that although it was difficult for the taxi company to buy expensive electric wheelchairs, if the wheelchair company rented its products to the taxi company, they could collaborate and start a new service such as Monitor Touring (Figure 7).



Figure 7: Application of Patterns to the Test-Ride Event and to the New Service.

4. Conclusion

In this paper, we presented two pattern languages, “*Employment of the Disabled*” and “*Welfare Innovation*” and introduced the ways in which the patterns language concepts may be used. In order for many people to be involved, it is necessary to reflect on how the pattern language programs may be employed in various situations; how such opportunities may be created and what actions can be undertaken. There will be possible opportunity to encourage further behavioral change. In addition, since we are looking for innovative words that can create tacit knowledge towards solving problems in the field of care and welfare, we will continue to work on creating pattern language solutions. We believe that this process itself is one of the activities to build a society in which people, especially individuals other than professionals in the field of care and welfare, support each other naturally. Last, we hope that our research will become a catalyst for the formation of a sustainable society in a super aged society.

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We live in a time of social and cultural change.

Old patterns are losing their validity and relevance new patterns are needed and in demand.

We need a new approach which can formulate, generate and engage such patterns.

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