

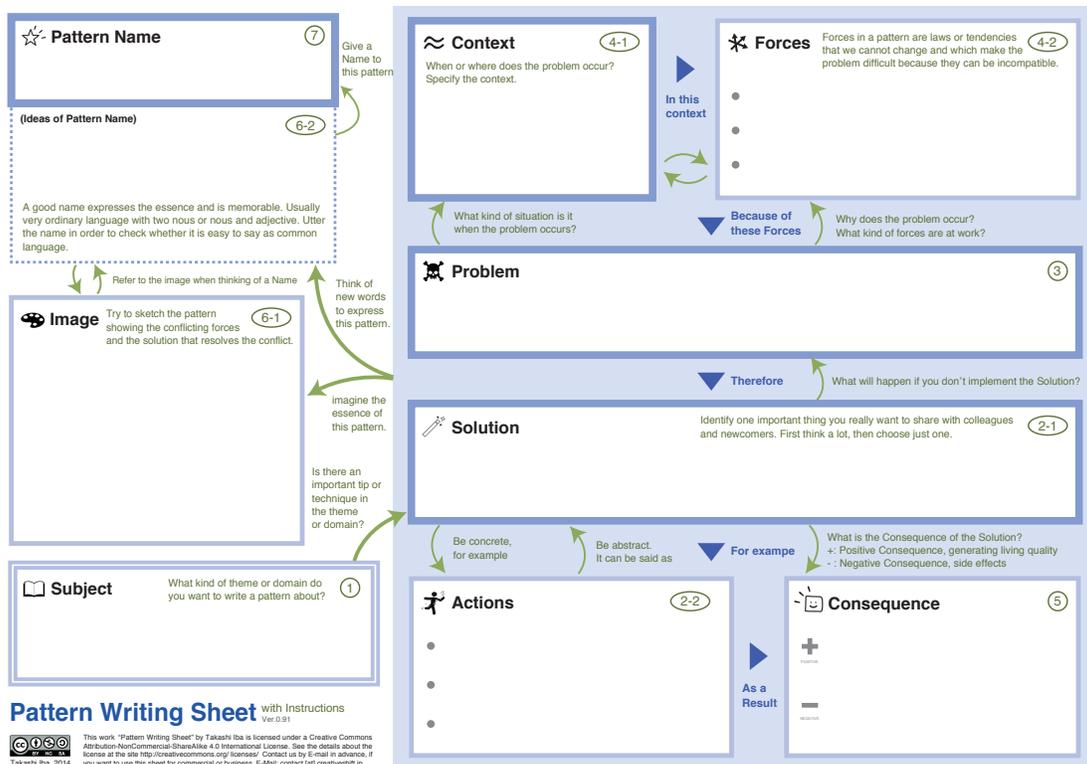
A Journey on the Way to Pattern Writing

Designing the Pattern Writing Sheet

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In this essay, I tell a story of my journey on the way to pattern writing, especially exploring the format of a sheet for pattern writing. This essay aims to show why the sheet takes its current format by sharing my thinking process and the trial and error of the design process. The Pattern Writing Sheet provides not only the space to write the contents of a pattern but also instructions on how to go about thinking about them. This sheet is available online under the Creative Commons license, and I have used it for several workshops, where businesspeople wrote their own practical knowledge into patterns in a 3-hour workshop.



Creating and Teaching Pattern Languages

Since my encounter with the idea of pattern language, I have, over the last 13 years, created many pattern languages with my students, supervised, over the last 10 years in my lab, many projects where the students created new pattern languages, and, for 7 years, taught the idea and method of pattern language in the course “Pattern Language” in my university.

My first encounter with the idea of pattern language or patterns was the GoF’s book of *Design Patterns* (Gamma, et al., 1995) in the late of 90’s, I was then writing patterns for modeling social simulation (Iba, 2003; Iba, et al., 2005). After that, I created the following pattern languages with my students: the *Learning Patterns* (Iba et al, 2009; Iba and Miyake, 2010; Iba and Sakamoto, 2011), the *Presentation Patterns* (Iba et al., 2012; Iba and Iba Lab, 2013), the *Collaboration Patterns* (Iba and Isaku, 2013), the *Policy Language* (Iba and Takenaka, 2013), the Pedagogical Patterns for Creative Learning (Iba, et al., 2011), *Dialogue Workshop Patterns* (Iba, 2012), and *Holistic Pattern-Mining Patterns* (Iba and Isaku, 2013).

I have also supervised many projects where the students created new pattern languages in my lab as follows: the *Facilitation Patterns* (Shimizu and Iba, 2006), the *Research Patterns* (Kobayashi, et al., 2008), the *Project Patterns* (Miyuko, et al., 2008), the *Generative Beauty Patterns* (Arao, et al, 2012), the *Change Making Patterns* (Shimomukai, et al., 2012a; Shimomukai, et al., 2012b), the *Personal Culture Patterns* (Nakada, et al., 2013), the *Survival Language* (Furukawazono et al., 2013a; Furukawazono et al., 2013b), the *Creative Education Patterns* (Shibuya, et al., 2013), the *Global Life Patterns* (Matsuzuka, et al., 2013), the *good old future Patterns* (Kadotani,, et al., 2013).

As well as teaching how to create new pattern languages in my laboratory, I have taught the course “Pattern Language” at Keio University for 7 years. There were about 70 undergraduates in the class every year, and they were assigned projects to write patterns.

Reflecting on these experiences, I always struggled with how to teach the way of creating pattern languages. Or perhaps I should say that I always struggled with the way of creating pattern languages and how to share it with others.

Inventing a New Process of Pattern Mining

Creating a pattern language consists of pattern mining and pattern writing. At first, my focus was on the mining process of patterns. When we started the *Learning Patterns* project in 2008, I invented a new process of pattern mining, which I called “Holistic Mining” or “Holistic Pattern Mining” later (Iba, 2012; Iba and Isaku, 2012), and put it into practice (Figure 1).

In this process, group members first go through an element mining session together. A member would write down rules, methods, tips, or customs that they thought are important about the subject onto a sticky note, talk about it briefly to the group, and then place the note on a large sheet of craft paper. Participants would take turns in no specified order talking about their notes until no one had any more ideas to be put out.

After collecting the ideas, they went on to organizing them by compiling similar ideas and dividing them into groups. The important thing to keep in mind here is that the notes must not be organized based on superficial similarities (Figure 2). We refer to this as a pattern, “Deep Connection,” in the Holistic Pattern-Mining Patterns (Iba and Isaku, 2012). To gain full advantage of the emergence that occurs in this step, a note must be brought close to another based on a one-to-one relationship, and not by the guidance of existing categories (Figure 3). We refer to this as pattern “Dyadic Comparison” in the Holistic Pattern-Mining Patterns (Iba and Isaku, 2012). For this purpose, it is prohibited to use words like “~ish” (“pattern-ish”) or “~y” (“collaborationy”) that talk about the superficial category of the notes. The process continues on to giving names to the emerged groups. Thus, the participants obtain the seeds of the patterns.

Certainly this process enables us to capture the potential solution for patterns that generate wholeness together, however there still remains an unanswered question. That is the process of pattern writing, namely how to identify patterns and write a pattern in the pattern form.



Figure 1 Holistic Pattern Mining

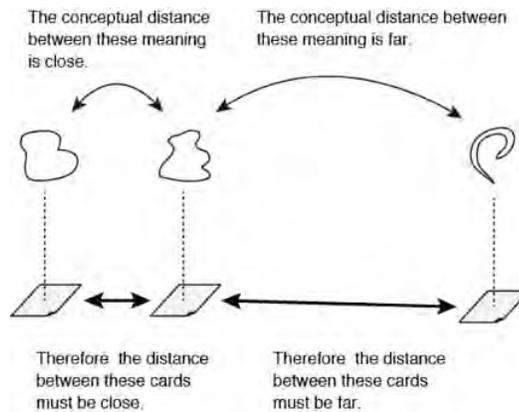


Figure 2 The rule of Deep Connection in the Holistic Pattern Mining (Iba and Isaku, 2012)

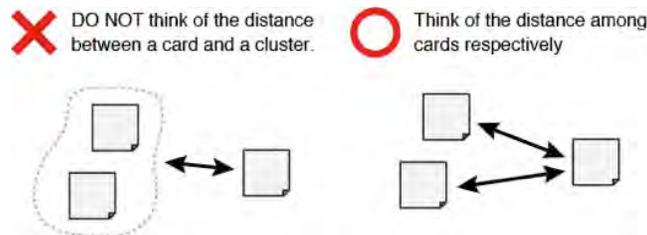


Figure 3 The rule of Dyadic Comparison in the Holistic Pattern Mining (Iba and Isaku, 2012)

Alexander's Instructions for Pattern Writing

Christopher Alexander, who proposed the idea of pattern language, mentioned the process to identify patterns and write a pattern from observation in Chapter 14 "PATTERNS WHICH CAN BE SHARED" in his book, *The Timeless Way of Building* (Alexander, 1979). I learned a lot from this chapter, and have basically followed this instruction when I wrote patterns.

Alexander said, "In order to discover patterns which are alive we must always start with observation." (*ibid.*, p.254) and "The process of observation does not proceed in linear fashion from the problem to the solution, nor from the solution to the problem . . . it is a global process, in which, by any means we can, looking at the matter from all directions at once, we try to identify a solid and reliable invariant, which relates context, problem, and solution, in an unchanging way." (*ibid.*, p.257) Based on my experience, I totally agree that the process is not linear. Nevertheless, it is also true that people who want to write patterns need a kind of guide or procedure for writing patterns.

Alexander introduced a procedure to identify and write patterns in the above book: *solution* first, then *problem*, and finally *context*. The starting point is to feel the quality of the target (place): “*Suppose that we are in a place. We have a general sense that something is “right” there; something is working; something feels good; and we want to identify this “something” concretely so that we can share it with someone else, and use it over and over again.*” (*ibid.*, p.249). To demonstrate the way of thinking, Alexander takes a beautiful old Danish house, the Ostenfeldgaaden house, as an example. He says that there are both “coziness” and “spaciousness” in the house.

The process is to identify the pattern of the target, “*What, exactly, is this something? Why, exactly, is this something helping to make the place alive? And when, or where, exactly, will this pattern work?*” (*ibid.*). The first step is to identify the solution. Alexander said, “*We must first define some physical feature of the place, which seems worth abstracting.*” (*ibid.*). In the case of Ostenfeldgaaden house, Alexander focus on the particular spatial relation like “there are alcoves round the edge of the main room,” “the alcoves have seats in them, that each one is big enough to hold one or two members of the family,” and “they both open into the common living room.”

The second step is to identify the problem, as Alexander pointed “*Next, we must define the problem, or the field of forces which this pattern brings intro balance.*” For finding the problem, the best way is to imagine what would happen if the solution didn’t exist. In the case of the Ostenfeldgaaden house, Alexander points out “Why is it a good idea? What is the problem which is solved by putting alcoves around a room? In answer to this question, I might propose something like: Living rooms *without* alcove don’t work, for the following reasons: the members of a family like to be together; but, in the evenings and on weekends, when they can, each one follows up on his personal hobbies --- sewing, homework ... Because these things are messy, and often need to be left standing, people cannot do them in the living room --- the living room is a place which mustn’t get too messy, since visitors might come at any moment, and it must be a suitable place to receive them. Instead the various members of the family go off to their own private areas to do these things --- the kitchen, the bedroom, the basement --- and the family cannot be together.” (*ibid.*, p.251).

In this step, it is also important to identify forces that lead to the problem. Alexander said, “*We must try to make explicit just which forces are at work; and we must formulate the pattern in terms which make it clear just why it helps resolve some system of forces that cannot be resolved without it.*” (*ibid.*, p.256). In the case of the Ostenfeldgaaden house, Alexander identifies three forces as follows: first, the family tends to spread out in a house because each person has his/her own hobbies and then needs a private area; second, communal places have to be kept tidy because visitors or family members sometimes come and stay there; third, the members of the family would like to be together. As you can

see easily, these forces are mutually incompatible.

The third step is to identify the context. “*Finally,*” Alexander said, “*we must define the range of contexts where this system of forces exists and where this pattern of physical relationships will indeed actually bring it into balance.*” (*ibid.*, p.252), because “*To make the pattern really useful, we must define the exact range of contexts where the stated problem occurs, and where this particular solution to the problem is appropriate*” (*ibid.*, p.252). In the case of the pattern about alcoves, the pattern focused on “the living rooms of all dwellings for large families” like the large families in United States and Western Europe.

The fourth step is to draw the diagram of the pattern. Alexander said, “*You must be able to draw it.*” (*ibid.*, p.267). It is because “*If you can’t draw a diagram of it, it isn’t a pattern. If you think you have a pattern, you must be able to draw a diagram of it. This is a crude, but vital rule. A pattern defines a field of spatial relations, and it must therefore always be possible to draw a diagram for every pattern. In the diagram, each part will appear as a labeled or colored zone, and the layout of the parts expresses the relation which the pattern specifies. If you can’t draw it, it isn’t pattern.*” (*ibid.*) The example of alcove is shown in Figure 4. Interpreting these criteria into the pattern language of human actions, we must visualize the human actions.

The fifth step is to give a name to the pattern. “*And finally,*” Alexander said, “*you must give it a name*” (*ibid.*), and “The search for a name is a fundamental part of the process of investigating or discovering a pattern. So long as a pattern has a weak name, it means that it is not a clear concept, and you cannot clearly tell me to make ‘one.’ ” (*ibid.*). In the example I took above, the pattern was named as “Alcove.” (Alexander et al., 1977).

Thus, the basic procedure to write a pattern is to identify *solution*, *problem*, and *context*; to visualize it; and to give it a *name*.

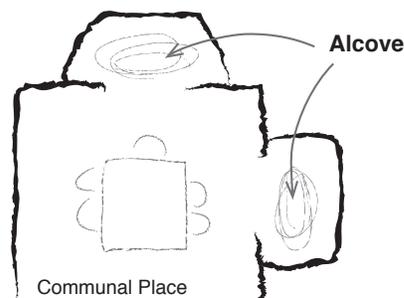


Figure 4 The diagram of “Alcove”

Struggle for Designing a Pattern Writing Sheet

When writing patterns of the *Learning Patterns* and the *Presentation Patterns*, we did not use any formatted sheet for writing. We always wrote the separator “▼In this context,” between context and problem, and “▼Therefore,” between problem and solution by ourselves.

After a while, I realized the power of format in the process of creating the *Collaboration Patterns* in 2012. I introduced the T-formatted card (sticky note) into the project, just after mining patterns (Figure 5). On the cards, we wrote information related to the seed of the patterns just mined: the summary of solution (top), the reasons why the solution is important (bottom left), and its examples (bottom right). I thought of this T-formatted card for writing the information for a pattern, when Masaya Ando, a researcher of user-experience design, introduced the T-shaped card of the KA method proposed by Kazumi Asada, where the elements on T-formatted card are Event, Keyword, and Value.



Figure 5 T-formatted card for writing some information for a pattern

The first version of the Pattern Writing Sheet was created in the spring of 2013, because I held a workshop for businesswomen. In this workshop it was required to write a pattern in just 1 hour. So I prepared the simple format that shows the elements of patterns explicitly (Figure 6): Pattern Name, Context, Problem, and Solution. In the workshop, I wrote the instructions of writing a pattern on the blackboard in the room. Based on the experience of this workshop, I realize that it is better to put the instructions on a sheet, not a blackboard.

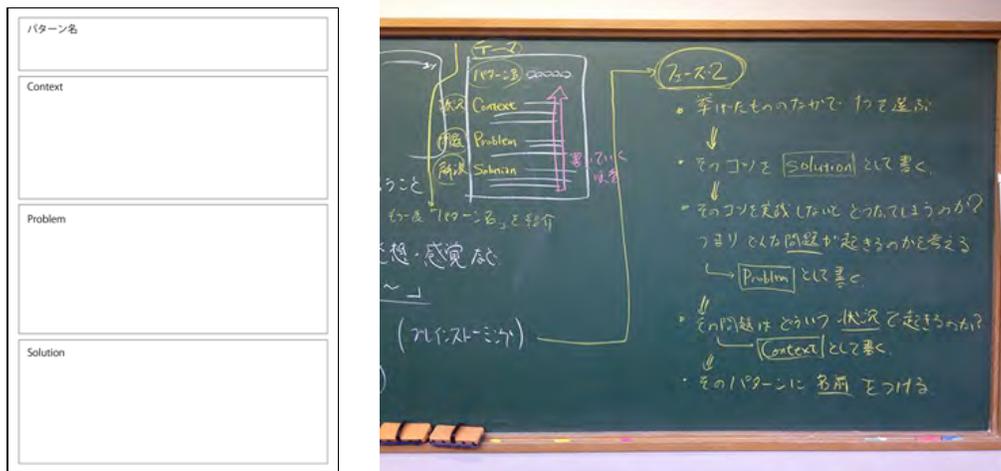


Figure 6 First Version of Pattern Writing Sheet and its Instructions on the Blackboard

In the summer of 2013, I created the second version of the Pattern Writing Sheet. This sheet contains the instructions for writing a pattern. At that time, two types of sheets were used for pattern writing: draft and clean copy (Figure 7). In the draft sheet, there are circles that emphasize the blank to fill.

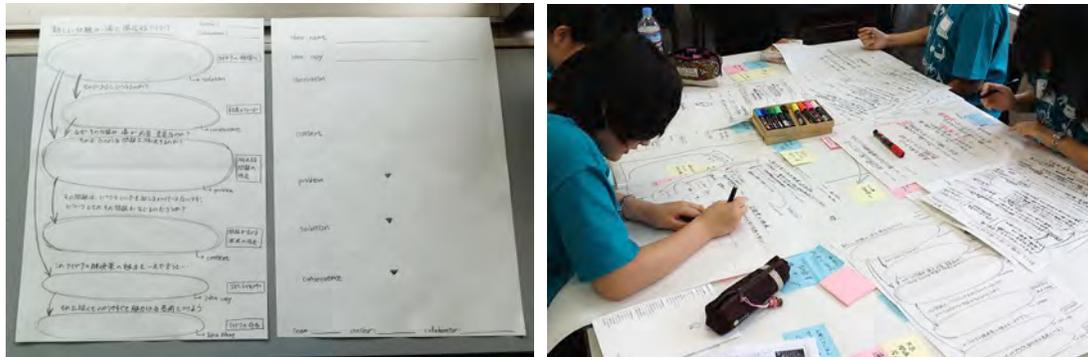


Figure 7 Third Version of Pattern Writing Sheet

The next version appeared in the fall of 2013. I created this version for the class to write their own patterns on learning. The sheet became more simple and combined into one page (Figure 8, 9). I created it with the word processor, so I omitted the circle that shows the blank to fill as a matter of convenience. At that time, I thought that the circles were trivial. Through this class, I realized that the speed required to write each element varies and therefore it is not good enough to provide the instructions for everyone at the same pace. I thought that it might be important to put the instructions on the sheet, so the participants can write at their own pace.

Pattern Writing Sheet

First Step: Clarification

[1] What is important point for the success of "learning"? [Clarify the SOLUTION]

[2] Why is it important? What problem could be happening if you don't do it? [Clarify the PROBLEM]

[3] When the problem is happening? [Clarify the CONTEXT]

↓

Second Step: Pattern Writing

Pattern Name:

Context:

Problem: ▼ In this context,

Solution: ▼ Therefore

Figure 8 Forth Version of Pattern Writing Sheet



Figure 9 Using the Pattern Writing Sheet for Writing Their Own Learning Patterns

I started to design a new version of the Pattern Writing Sheet in the end of 2013, because I had a plan to hold workshops for businesspeople to write their knowledge as patterns in the Spring of 2014. Based on what was learned in the previous experience, I decided that the sheet should be just one page; with

circles or rectangles that show the blanks to be filled; and the sheet contains the instructions for self-study. I designed a layout that meets all needs above (Figure 10), but I was not satisfied with this version because there are too many layers in the vertical direction.

The diagram shows a vertical form titled "Pattern Writing Sheet" with the following sections and flow indicators:

- Pattern Name** (top left)
- Summary** (below Pattern Name)
- Image** (top right)
- Context** (middle left)
- Forces** (middle right)
- Problem** (below Context and Forces)
- Solution** (below Problem)
- Actions** (bottom left)
- Consequence** (bottom right)
- Writer:** (bottom left)
- Date:** (bottom right)

Flow indicators include blue arrows and Japanese text:

- From **Context** to **Forces**: "この力が働いて" (This power works)
- From **Forces** to **Problem**: "これらの力が働くので" (Because these powers work)
- From **Problem** to **Solution**: "そこで" (So)
- From **Solution** to **Actions**: "実行" (Execution)
- From **Actions** to **Consequence**: "その結果" (As a result)

Figure 10 Temporary Version of Pattern Writing Sheet

In this situation, I read the paper “Pattern Canvas” written by Takeshi Kakeda in AsianPLOP2014 (Kakeda, 2014). The paper proposed a canvas for mining and writing patterns visually, which is inspired by the Business Model Generation (Osterwaler and Pigneur, 2010). The canvas consists of 6 parts as follows (Figure 11): Pattern Name (top), Context (left), Problem (middle left), Force (middle bottom), Solution (middle right), and Consequence (right). I really like Kakeda’s Pattern Canvas, and was influenced by it a lot. So when I participated in the writers’ workshop for the paper, I actively provided some ideas, for example, adding an icon for each title of elements.

名前 パターンの名前			
文脈 状況や前提条件を表現する。「～である」	問題 解決したい問題を記述する。なぜ解決したいかの理由もあろうとよい。「～ができない」 「～をしたい」という表現は、問題ではなく「状況(後)」に記述する。	解決策 問題の解決策を記述する。具体的な例まであるとよい。	結果 解決策を実施した結果の状況。「～ができるようになる」問題が解決され、制約が解消されているのかどうか。 逆に新たな問題が起きる場合は、そちらも記述する。
フォース 問題解決の際に考慮すべき点、制約を記述する。			

Figure 11 Pattern Canvas (Kakeda, 2014)

Influenced by Kakeda’s paper and the ideas generated in the writers’ workshop, I re-designed the Pattern Writing Sheet. There are several changes from the past version. I decided to use the paper in the landscape orientation, and added icons into the title of each element. After incremental changes, I finally got the current version of the Pattern Writing Sheet (Figure 12). This sheet is available online at <http://creativeshift.jp/> under the Creative Commons license. Figure 13 to 16 shows the respective parts of the sheet. The user starts from the left-bottom.

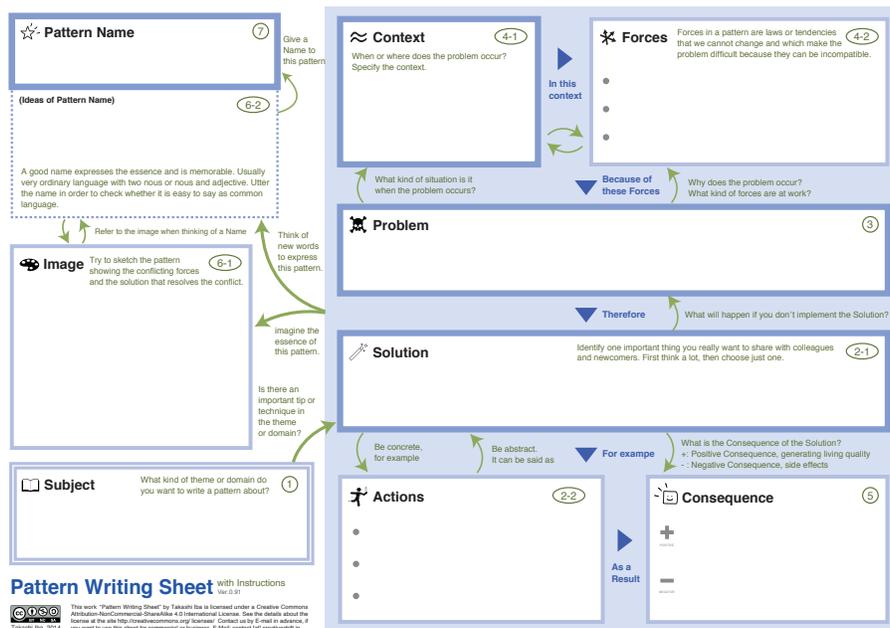


Figure 12 Pattern Writing Sheet (With Instructions, Version 0.91)

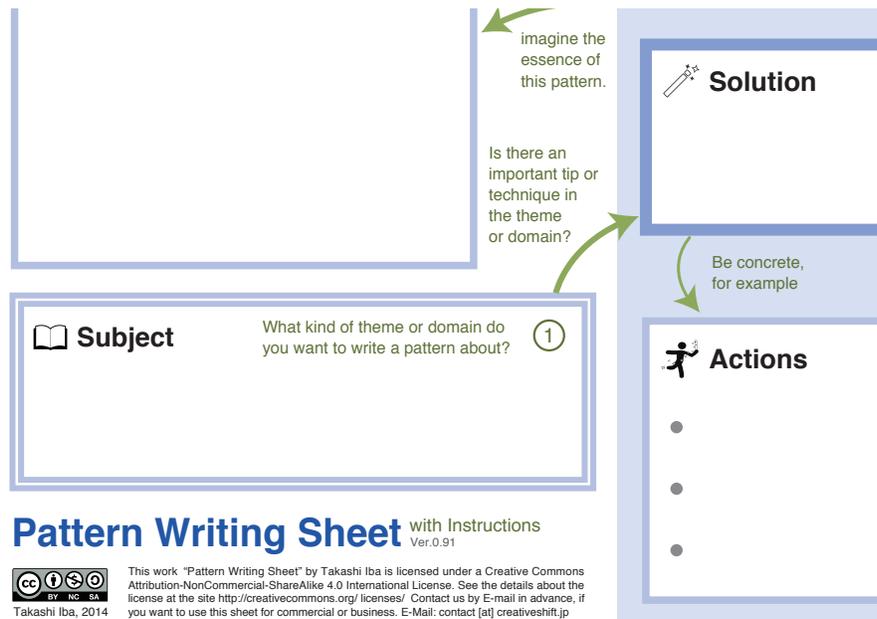


Figure 13 The left-bottom part of Pattern Writing Sheet, version 0.91

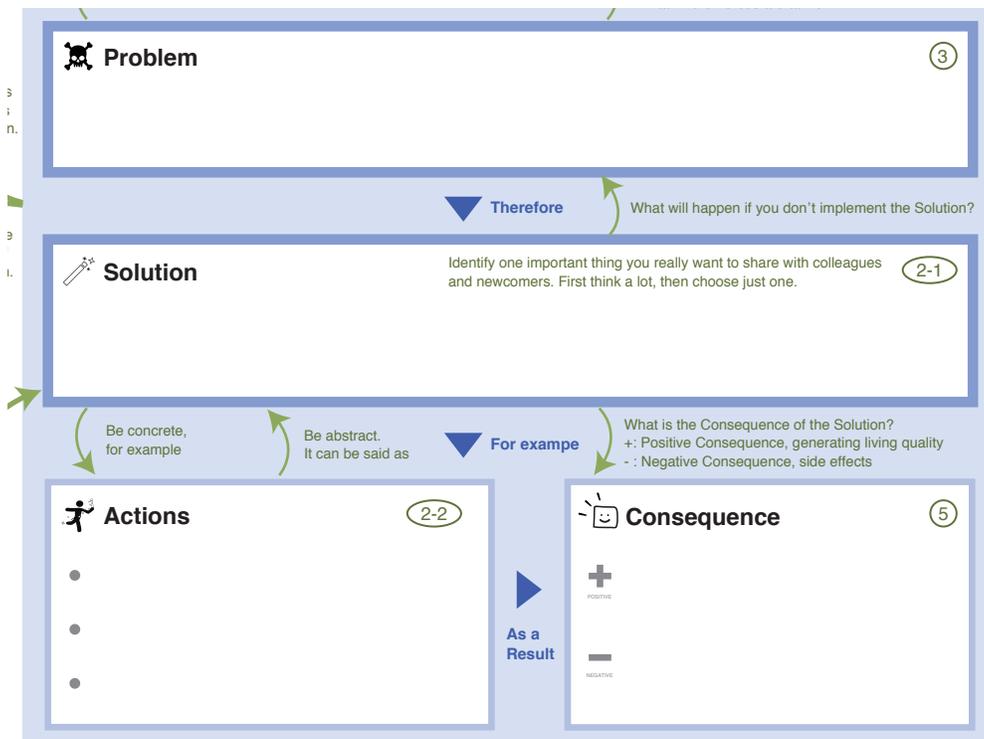


Figure 14 The right-bottom part of Pattern Writing Sheet, version 0.91

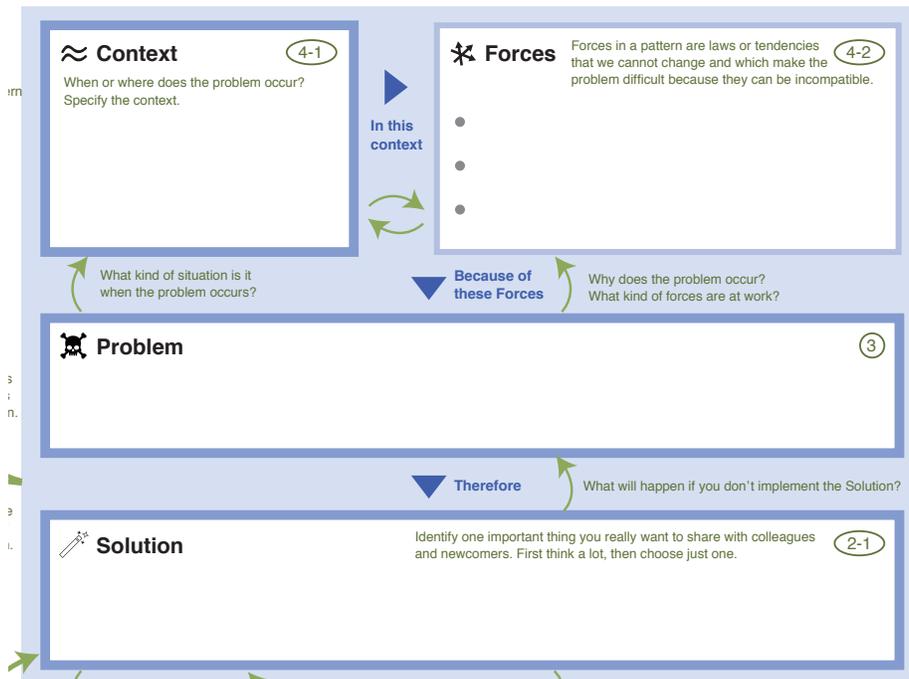


Figure 15 The right-top part of Pattern Writing Sheet, version 0.91

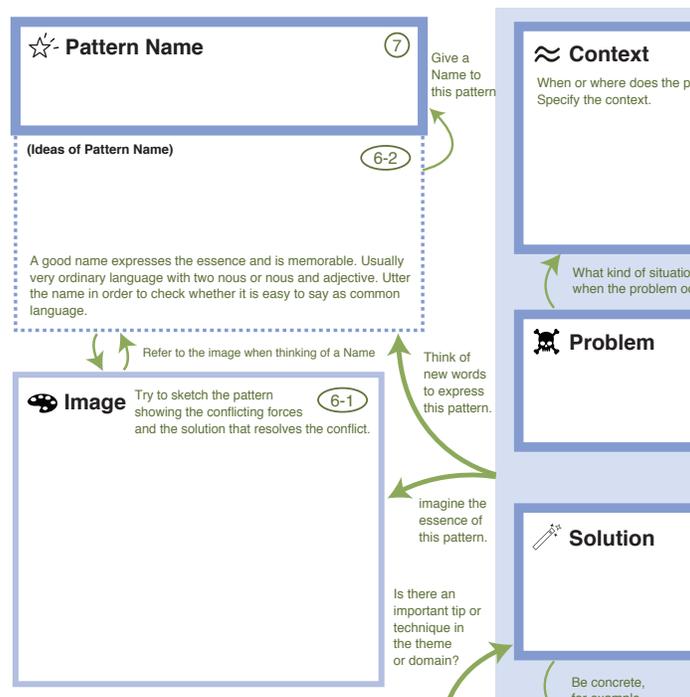


Figure 16 The left-top part of Pattern Writing Sheet, version 0.91

I have used it for several workshops, where businesspeople and students wrote their own practical knowledge about business, management, project startup, and regional community building into patterns in a 3-hour workshop (Figure 17). The number of users has been more than 200 as of July 2014. The participants could write a pattern based on their experience with using the sheet, and the feedback from them is quite good.



Figure 17 Workshops with Pattern Writing Sheet.

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7 **☆- Pattern Name**

Give a Name to this pattern

6-2 (Ideas of Pattern Name)

A good name expresses the essence and is memorable. Usually very ordinary language with two nouns or nouns and adjective. Utter the name in order to check whether it is easy to say as common language.

Refer to the image when thinking of a Name

6-1 **Image**

Try to sketch the pattern showing the conflicting forces and the solution that resolves the conflict.

Think of new words to express this pattern.

Imagine the essence of this pattern.

Is there an important tip or technique in the theme or domain?

1 **Subject**

What kind of theme or domain do you want to write a pattern about?

4-1 **Context**

When or where does the problem occur? Specify the context.

4-2 **Forces**

Forces in a pattern are laws or tendencies that we cannot change and which make the problem difficult because they can be incompatible.

In this context

What kind of situation is it when the problem occurs?

Because of these Forces

Why does the problem occur? What kind of forces are at work?

3 **Problem**

Therefore

What will happen if you don't implement the Solution?

2-1 **Solution**

Identify one important thing you really want to share with colleagues and newcomers. First think a lot, then choose just one.

Be concrete, for example

Be abstract. It can be said as

For example

What is the Consequence of the Solution?
 +: Positive Consequence, generating living quality
 -: Negative Consequence, side effects

2-2 **Actions**

As a Result

5 **Consequence**

+

POSITIVE

-

NEGATIVE

Pattern Writing Sheet with Instructions

Ver.0.91

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Takashi Iba, 2014

