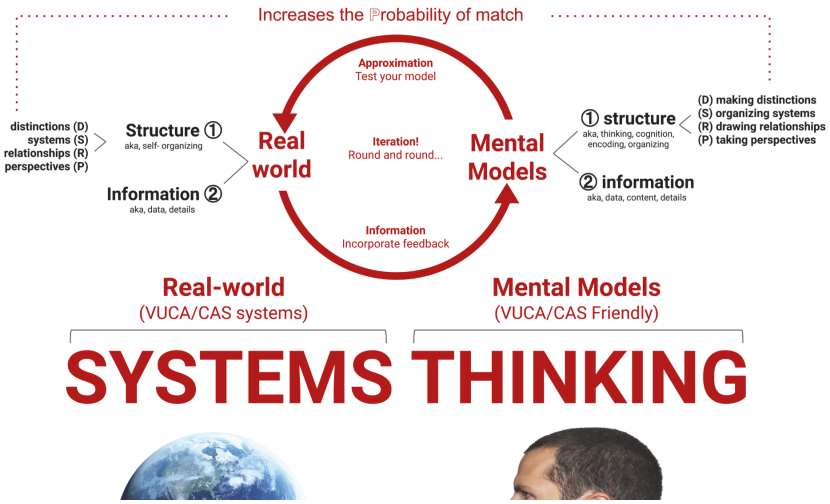
DSRP/Systems Mapping Worksheet

Step 1 Pre-flight Check

The purpose of DSRP Systems Mapping is to **UNDERSTAND THE SYSTEM,** not to solve problems, yet. In this step you acknowledge that you are building a mental model to understand a real-world system using the ST/DSRP Loop pictured below. You will also choose your mapping technique.

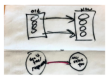


First, remember the ST/DSRP Loop by checking the boxes below.

Awareness	Confirm
I am not experiencing the system directly, but indirectly through my mental model of it. I am taking the *first* step in the Systems Thinking Loop—building a mental model.	☑
As a human, I am prone to cognitive *biases* (like confirmation bias). I will really try to look for evidence that supports my conclusions about the system.	☑
I am *not* solving a problem *yet*, I'm simply trying to understand a real world system by mapping it out.	☑
Once I have a fleshed out my mental model, I will remember to test it in the real world and then update it! I will ask myself things like: When was the last time I updated my mental model/systems map? How often have I changed my mental model/systems map? Is it possible I am seeing what I want to see? What is the evidence that my mental model/systems map is right? See this FAQ for ways to test your mental models.	☑

Next, there are multiple ways you can map your thinking, each with advantages and disadvantages. It helps to think about the technique you will use. Here are a few to choose from:

In your head



Using paper and pen/pencil

On a whiteboard/ blackboard

With post it notes

In software designed for DSRP like Plectica

In other software (Miro, Sketch, Powerpoint)

Using tactiles designed for DSRP like ThinkBlocks

Using other tactiles (e.g., sugar packets, marbles)

Step 2 Understanding & Mapping the System/Environment

Step 2a: Defining Framing and Stopping Rules

Next, outline (or map) a few framing and stopping rules (Fropping Rules) to help you determine the scope of your map and systems analysis. This step is roughly equivalent to military approaches to frame and bound problems. The table below includes *potential types* of fropping rules you *could* use. Create a list of framing and stopping rules to guide you as you build your systems map. Also consider suitability, feasibility, acceptability, and risk (SAF-R). Capture the list of rules for future reference.

Type of Fropping Rule	**Check the rules you will use:**
Scope (time and resources)	☐
Feasibility (what is possible)	☐
Influence/Concern (what you can or can't affect)	☐
Demographics (specific groups or samples)	☐
Goal/Purpose Orientation (stated goal as per, funder, climate, etc.)	☐
Desired Outputs (e.g., recommendations, new ideas, optimized solution, etc.)	☐
Solution Type (e.g., optimization, satisficing, reduced condition, etc.)	☐
Qualities (e.g., buy-in, unintended consequences, etc)	☐
S→P Jig (new perspective gleaned from a system or subsystem).	☐

Example Narrative: When examining and understanding System X to make policy recommendations, we will apply the following framing and stopping rules:

1. Scope: time (5 years) and resources ($100K)
2. Qualities: ability to get buy-in from Republican Senators
3. Desired Output: the recommendation should be innovative and new
4. Demographics: limited to a military population

Step 2b: Make Identity-Other Distinctions (D)

Start mapping using a "splat map" to identify the salient things (Distinctions) your systems map will include. Use the mapping technique you selected in Step 1 (Pre-flight Check) to capture the basic elements.

For example, if your map is about regional healthcare, capture the basic ideas that come to mind when you think about that system. Think of these things as identities with boundaries. You can use a rectangle  or any other shape to signify that the identity could be ***any*** thing. Remember that the border signifies that each ***identity*** creates a boundary that marginalizes an *other*. For now, just distinguish a few of your most salient identities in the table below:

OPTIONAL (SKIP IF NOVICE): Then, for just *two seconds* for each identity you made and get in the habit of considering the *other*. Consider an alternative or the opportunity cost of each *identity* you captured. Cut and paste up to four of the identities from the table above into the table below. Take a second to think about the *other* for each and add it to the table below. If you can't think of anything in two seconds, move on.

Identity from above	***Others***	***Identity from above***	***Others***

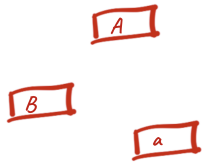
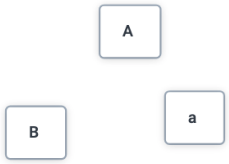
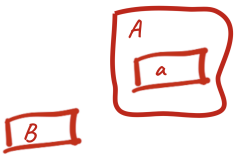
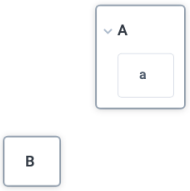
For now, don't worry too much about the *other*. It's something you will learn to do quickly and efficiently over time with practice.

Great job! You've completed Steps 2a and 2b. Now go to Step 2c.

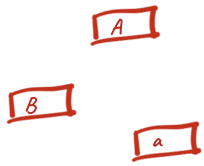
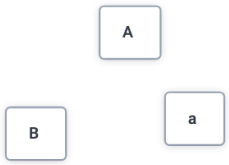
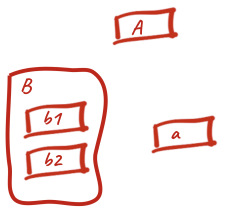
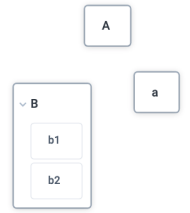
Step 2c: Consider the Part-Whole Systems (S)

Consider the systems of part-whole across the salient distinctions you identified in Step 2b. The examples below demonstrate how you might draw these part-whole systems on a whiteboard or in Plectica.

1. Does one thing fit inside another? If so, drag it over to be part of the other thing.

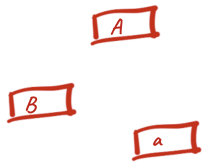
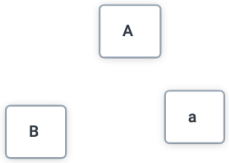
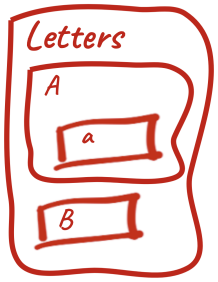
Before		**After**	
Whiteboard	Plectica	Whiteboard	Plectica
			
Little 'a' is a type of big 'A' so it can be mapped as part of it.			

2. Does one thing have parts (i.e., it is a whole with parts). If so, add some parts as a list:

Before		**After**	
Whiteboard	Plectica	Whiteboard	Plectica
			
"When I see 'B' I realize that it has two important parts: 'b1' and 'b2'.			

3. Is there something that exists in your current map that makes you think some larger whole *should* exist? If so, draw it in:

Before		**After**	
Whiteboard	Plectica	Whiteboard	Plectica

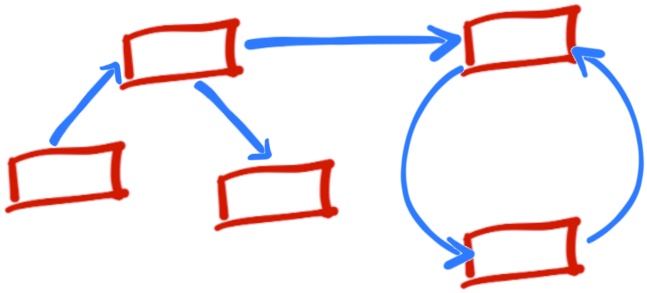
			
“When I see ‘A,’ ‘B,’ and ‘a,’ I can distinguish them as ‘Letters’ to make one part-whole system that contains them all!”			

Now, draw your identities into part-whole structure or add a link to your map below:

Great job! You’ve completed Step 2c. Now go to Step 2d

Step 2d: Draw Relationships (R)

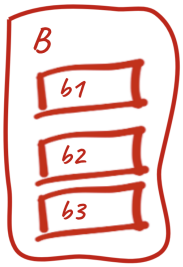
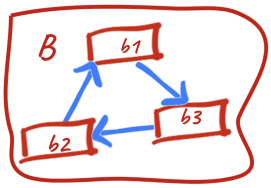
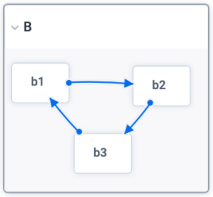
Consider the relationships between the critical elements you identified. Does one thing lead to or cause another? Are there stepped sequences? Feedback loops? If so, draw lines with arrows between them. Example:



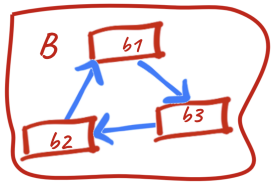
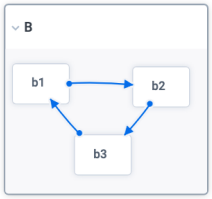
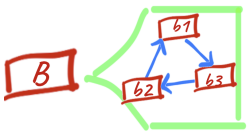
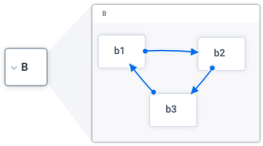
You can choose from the many line options below. But for starters, just use lines and arrows.

Endpoints	Color	Thickness	Style	Type
				

Next, consider the relationships between the parts. You already related the top-level concepts, but when you consider the part-whole systems (Step 2c), you can create two or more sub-levels. Look at the second level of parts and see if they can or should be related. For example:

A system represented as a list of part:		**Parts related in a specific way:**	
Whiteboard	Plectica	Whiteboard	Plectica
			
"That's good enough, no need to relate those parts, the list is enough."		*"It is important to understand and show how the parts of this subsystem interrelate."*	

Technical Note: You can draw parts directly INTO the whole or use a popout:

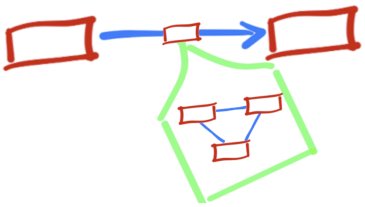
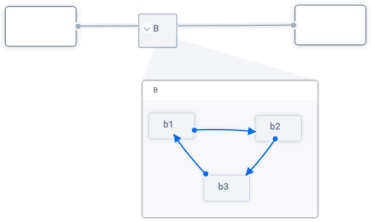
Parts drawn into the whole:		Parts popped out:	
Whiteboard	Plectica	Whiteboard	Plectica
			
"I want the parts to show inside the system where it is."		*"My map is getting too cramped and visually confusing, I'm going to pop these parts out over here..."*	

Draw the part-whole structures for each identity from Step 2c showing the second-level relationships in the space below or add a link to your map below.

Next, you should consider what we call an RDS. An RDS is something that starts out as simple **R**elationship line between two things and evolves into a better mental model of the nature and complexity of relationships. Before moving on, ask yourself "how might I **D**istinguish that relationship by giving it a name?" Next, you go even deeper into understanding that relationship by zooming into it to see if it is a relationship **S**ystem made up of parts!

RDSs are *extremely* important, because they help you understand how the system is related and what is happening within those relationships. Most of the complexities and problems in systems are hidden inside the relationships!

Step	Whiteboard	Plectica	Comment
R: Start with a relationship you think is important			*"I think these two things are related..."*
D: Can you label the relationship?			*"The relationship is so important is needs to be named."*

S: Does the relationship have parts?			*I need to zoom into the parts to understand the system better.*

Below, draw any RDS you decide to make explicit from the previous page or add a link to your map.

Great job! You've completed Step 2d. Now go to Step 2e.

Step 2e: Consider the Point-View Perspectives (P)

Now look at your map and determine:

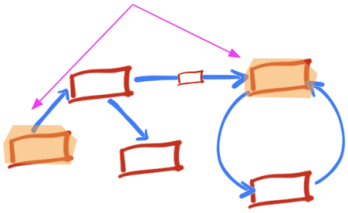
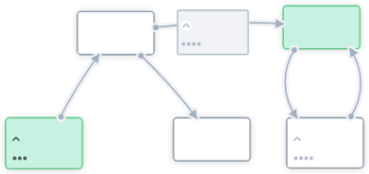
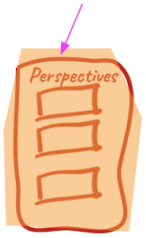
1. First, determine if there are things in your map that offer an important perspective. For example, these might be stakeholders, but they could also be non-human things like a regional perspective; an economic perspective; or a military perspective. When you identify an important perspective, consider what its view of the system looks like. You will especially want to consider:

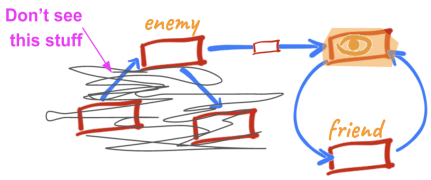
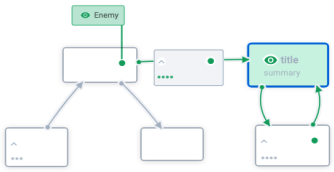
   What the perspective sees and does not see?
   What the perspective values and does not value?
   What is salient and not salient from that perspective?

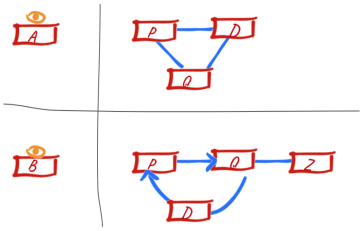
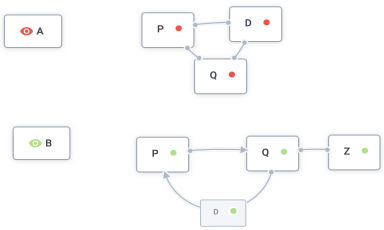
2. You may also notice that the perspectives you want to take are not in the map you've built and need to be added as overarching perspectives. For example, you might be looking at the military healthcare system and want to think of it from any one of these perspectives: technological, historical, social, health and safety, political, emotional, moral/ethical, security, ecological, cultural, legal, organizational, or economic.

3. You can add these perspectives to your map and think about the content from their point of view. You can think of perspective mapping in three ways as seen in the tables below:

***In* the Map versus *On* the Map**		
	Whiteboard	Plectica

In the map: Are the salient perspectives already ***IN*** your map?		
On* the map:** Are the salient perspectives an overarching view ***ON your map?		
Or, are the salient perspectives both ***IN*** and ***ON*** your map?		

One Map, Multiple Perspectives (and Annotations)		
	Whiteboard	Plectica
Map the point to the view and add annotations and in/out perspective boundary.		
Good for situations when as a result of perspective, most things remain the same, but a few things change.		

Multiple Perspectives, Multiple Maps		
	Whiteboard	Plectica
Make entirely separate maps where the view completely changes.		
Good for situations when perspectives are looking at the same thing but see it in dramatically different ways; a lot or everything changes as the result of the perspective.		

Identify your Perspectives below.

Great job! You've completed Step 2e. Now go to Step 2f.

Step 2f: Mix and match D, S, R, and P to create new knowledge.

You don't need to do this step in every map, but we would be remiss if we did not point out that there are simply no limits to where DSRP can take you in your analysis and synthesis. Here are some important considerations:

1. You can do identity-other boundary analysis on every single identity in your map/world. There are opportunity costs for every identity you choose and there is an "other" that represents an entirely alternative world.
2. Any identity can be an entire complex system made up of many interrelated parts each with their own perspective. **Remember**: this applies to every single relationship in your map as described in Step 2d (i.e., RDSs)!
3. The *way* you organize the parts matters. One way will lead to a totally different understanding than another.
4. You could have systems of relationships just like you have systems of "object" parts. A system of relationships is a set of relationships among three or more items that work together to form some output or outcome or dynamical property of the system.
5. Every identity, other, part, whole, and relationship can be a point with its own unique view. This point of view can affect the dynamic properties of the system itself and is therefore salient, whether it is wrong or right, whether you agree with it or not.
6. The point of a perspective can be a system of parts making up sub-perspectives. The view is also potentially a whole system.

Great job! You built the basis toward understanding the system.

Continue to iterate to create deeper understanding. In the meantime, proceed to step three to look at the system's current and desired states and build toward effective interventions.