# What is People, Places, Systems?

*IN A WORLD* full of acronyms and methods, what makes this any different? There is no intention that PPS (People, Places, Systems) is going to take over the world. In fact, one of its main assumptions is that there is no one way to look at, or understand, anything. The PPS perspective is one that is simply an extension of what you should have already learned in this program. That the world is made up of systems of systems, that working to understand these systems will make you better designers, and that Engineers have ethical obligations associated with their work.

Really the main question you will answer for yourself this term is how deep and how far does all of that go?

***What is the purpose of PPS?***

Its first purpose is to develop deep understanding; understanding that takes a significant amount of time to attain. Understanding that requires the development of relationships.

The second purpose is to document a current understanding of as much of the system and sub-systems which define the context in which you are working. These are always subject to change and improvement. They are not sacred or static.

Third, we are trying to communicate that understanding to those who are affected by our actions. We do this so we can ensure they understand the impact we may have on their lives and world with our work. The *they* here is a broad *they,* one that tries hard not to exclude.

Finally, the whole process intends to try to remove our bias to towards viewing our own worldview as being superior to others. That bias can exist in how we generate ideas and also the associated evaluations and decisions we make.

***How do we practice PPS?***

There are few key components in the PPS process. First is something you should be familiar with: system representation. Using system diagrams to begin mapping the interconnections and nodes that define the context we are working in will be the way we also start identifying and understanding where that map is incomplete, incorrect, or misunderstood. It is inherently iterative and approached with humility. If we are too afraid to ask tough questions, we aren't doing what we need to do as Engineers to safeguard the public welfare and the environment. If we are too arrogant to listen and learn, we'll make the same mistakes over and over again. Often the consequences of those mistakes aren't borne by us, and as a result it becomes that much more important to develop this respectful understanding of people and places.

The next step is to do research. To develop deep understanding to displace the shallow understanding you initially start with. Learning like this will come in many forms. It shouldn't favour one type of knowledge and understanding. It should embrace as many kinds as possible and try to incorporate those ideas with an open mind and the admission that there is much to learn from other ways of knowing. To learn from unfamiliar ways will be hard, but important. To remove a hierarchy of one form of knowledge sitting above another will also be a requirement.

That is very hard to do. For everyone. You won't be successful at first. You will get better at it, but you will likely find yourself often sitting comfortably in your own worldview; dismissing others as strange, or stupid, or some other way of being inferior to your own. A simple example are the words you are reading right now. Not all cultures pass knowledge down through marks and symbols on a page or a screen. Some pass

knowledge down through story, through community, and tradition. They aren't wrong or inferior.

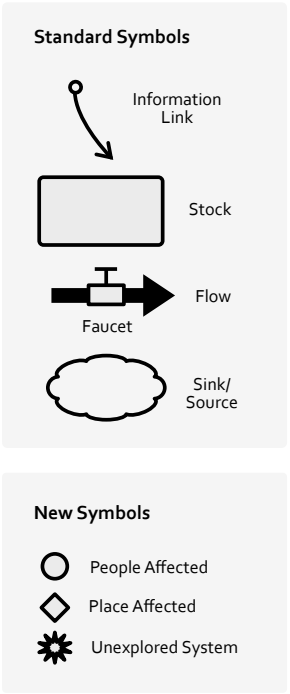
The last part of the PPS process is to intentionally engage and address as much of the system as possible when designing.

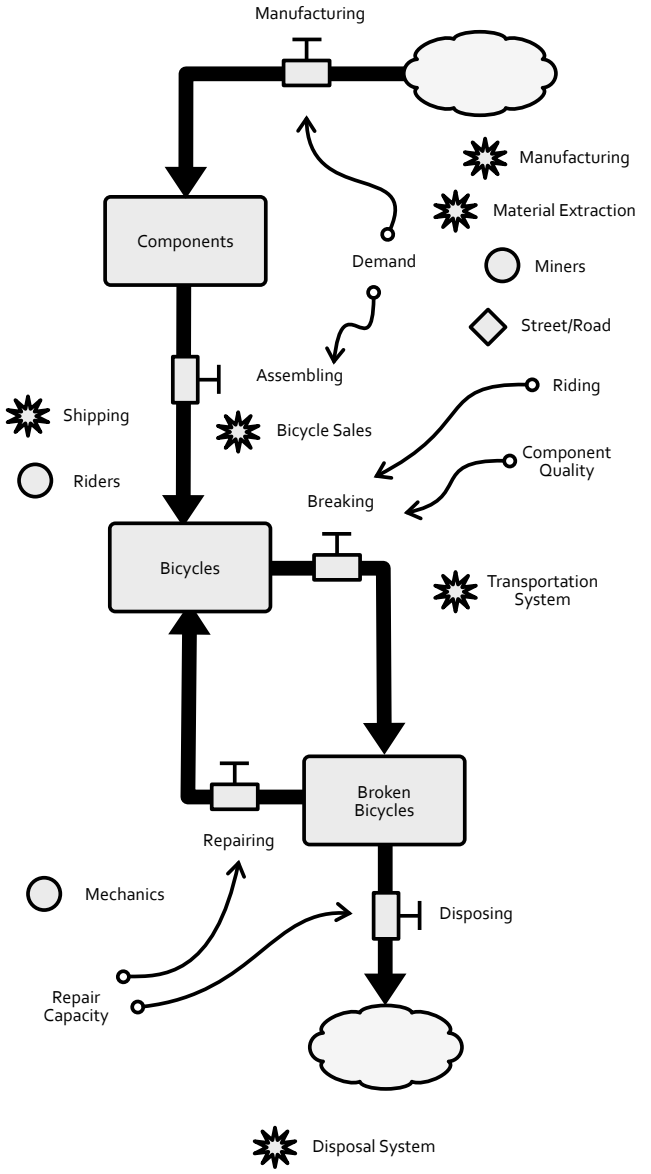
***To include.***

It is crucial to make the effects of your actions as clear as possible to those affected by them before they are forced to bear them. Once is not enough. This iteration is realized as the integration of the new relationships you have built in the first two steps into the way you work. Not forgetting about it. Not avoiding it when it's inconvenient. It's your choice to respect these relationships. It's part of the work.

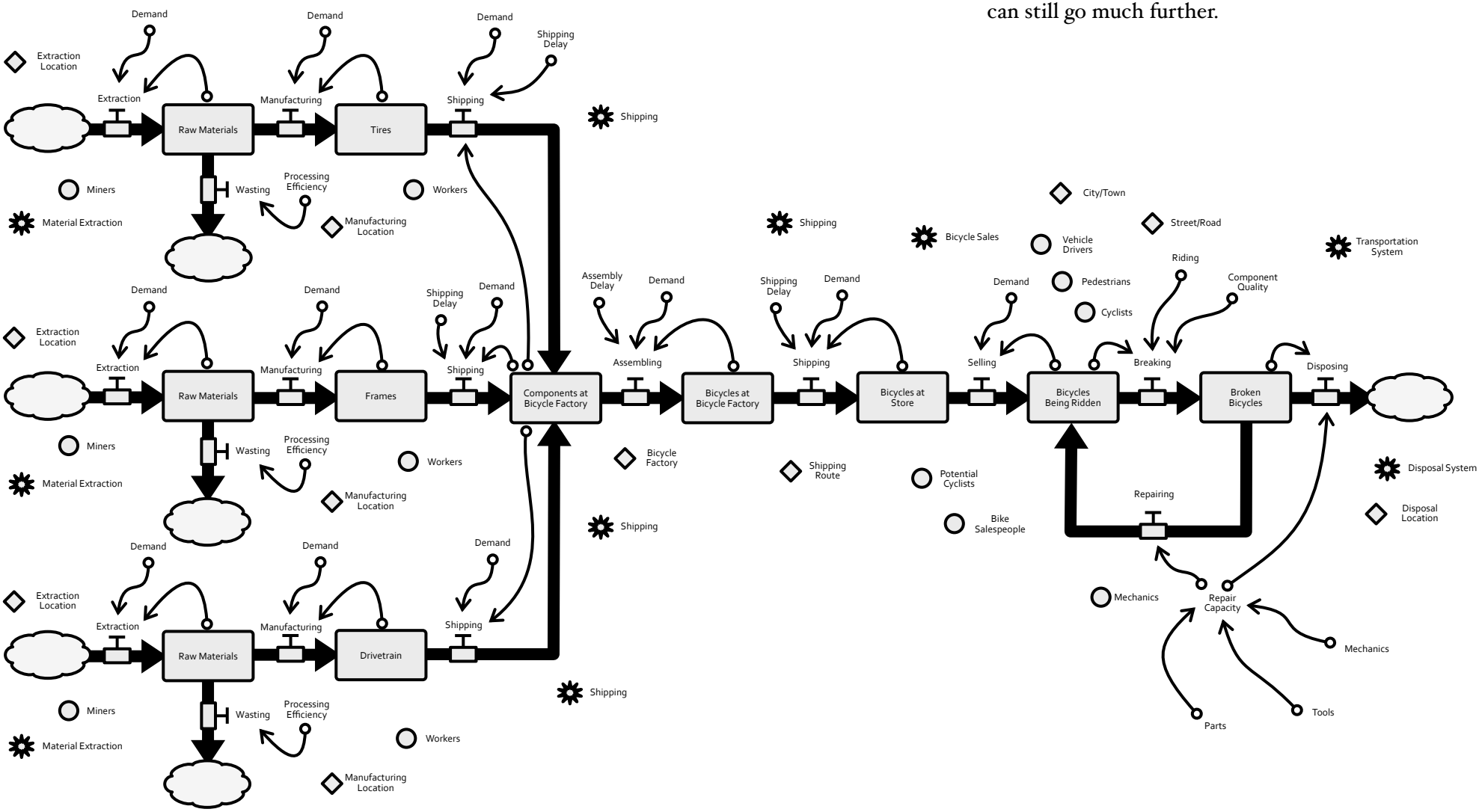
Let's take an example to see how this might work. We will go deeper in the coming weeks, but let's think about the design of a bicycle. Not a fancy bicycle, just the normal kind you might see in a large part of the world helping people get from one spot to another. The first step is to make an initial map of the system, knowing it will be incomplete and need to be improved. Doing this with others is best-practice, as the incorporation of many perspectives will be a key value of the PPS approach. The method of mapping is not set in stone, but in this course, we will extend the stock and flow method used by Donella Meadows in her book, *Thinking in Systems,* that you learned back in first year.

Here is our initial system representation, with new symbols identifying the people and places affected by its components and unexplored systems that need more development.

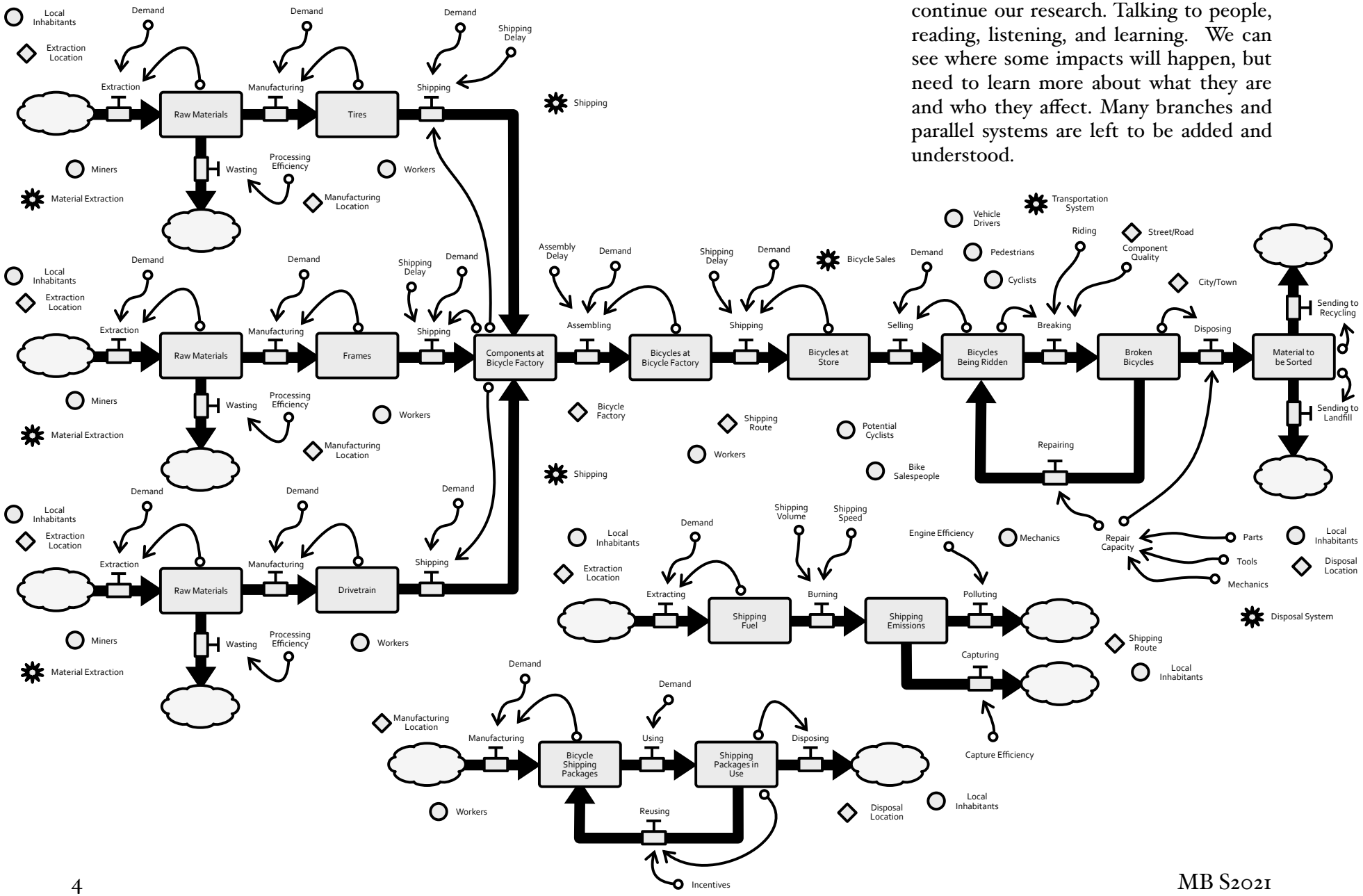


Version 2 is getting more detailed, but can still go much further.



Version 3 might be a good place to continue our research. Talking to people, reading, listening, and learning. We can see where some impacts will happen, but need to learn more about what they are and who they affect. Many branches and parallel systems are left to be added and understood.



This process is slow. It takes time. It seems almost endless. So where do we stop? That's a hard question. It depends on how you define "public" and “the environment”, which we as Engineers are by oath supposed to safeguard.

***Whose environment?***

***Who is part of the public?***

Just the people we interact with in our daily lives? Just the people in our country? The people with direct connections to the systems of systems we are designing and working within? Is it fair to stop? Do we go further to address the people and environments that are also indirectly affected by our actions? Do we stop at considering only "people", or does personhood extend to more than just human beings and Limited Liability Corporations? Are there other ways to understand personhood?

We are stopping here for the bicycle, but clearly there is much more work to do.

We will pick up that process in a different example, making natural ink. In the bicycle example you could imagine going to talk to people who ride bicycles, people who extract the materials, people who deal with the waste created by bicycles, the scientific literature on the materials science of bicycles and drivetrain efficiency. We could find the impact of shipping and how it is affected by manufacturing location. We could tie the mobility and freedom a bicycle gives its rider to the associated impacts on society and the economy. Maybe then we can start to think about designing for the bicycle with some confidence. There will be more to learn, but that is the process; to stay engaged and be open to learning more. Being open to learning that you made a mistake, or misunderstood something. Being open to reconsidering and restarting, or maybe even stopping.