WSP062/762,CW3: Learning Journal

Week Ending 19/10/2025

Applied Systems Thinking taught week.

The intensive week of teaching for the Applied Systems Thinking module (WSP062). During this the fundamentals of Systems Thinking were taught and the Soft Systems Methodology was presented. Time was given to apply these foundations in groups and to develop them with supervisor guidance. Additionally, a very strong critical thinking lecture was given and we were then encouraged to apply this with daily analysis of selected papers.

Insights:

- I was struck by my tendency to be convinced by a paper by its simplicity and elegance and be unconvinced by its complexity or what I deem "superfluous" information (e.g. Cynefin framework). The week helped remind me to ask who is writing the paper, funded by whom, to what end? A lot of information can be hidden in this that can change a critical view on a paper and its applicability.
- I was caught out in one exercise by not having numbers to back up my argument. Whilst it was a time-pressured exercise, it drove home the importance of being evidenced and having a leg to stand on.
- Interrelations and interactions are something that has always been in my mind when thinking about systems, but understanding that everything is a system (or could be argued to be a system) and expanding my understanding of elements, interconnections, and emergence to soft systems was a paradigm shift.
- The teaching solidified my focus on system boundary, with the additional guidance of asking what can be controlled or influenced.

Helped:

- Smaller groups with flipped learning was a good way for me to learn, as I found it very helpful to have the material in advance and then work on solidification in class.
- Learning alongside other professionals was enlightening, as many of them had insights and experience that is invaluable at this stage of my career, which I found enhanced my ability to learn.
- A friendly and competent group to work with throughout the week was excellent as it fostered a culture of fearless learning and security to ask questions. It also made the assignments less stressful and a better learning experience.

Hindered:

- The intense, packed schedule was challenging, as a significant amount of information was given in that time. I am competent and understanding lots of things quickly, but having to apply what was learnt so quickly (often the same day) was difficult.
- Returning to university was a little daunting, as I did not entirely enjoy my undergraduate degree (mostly due to the pandemic) and was glad to have left it behind. This made being in the environment at the beginning more stressful than I would have liked, though this improved throughout the week and I no longer feel this way about the taught weeks.

Future Strategy:

In the future, I would prepare more in advance. Some elements would have been more useful if I had done some reading around the topics beforehand, not just that which was prescribed. Additionally, asking more questions in the class would have been an excellent way to deepen my understanding and get more out of the week. I however thought that my enthusiasm for the course was a boon that I would like to encourage

again, and that a "do what you can in the time you have" mindset was key to me performing well during the week.

Week Ending 26/10/2025

PDR Preparation Work

This week focused on preparing the slide deck for a PDR, with systems engineering content from colleagues coming in and needing to be added. It was the first chance to understand what development of the project looked like, and I took a critical view of their work to ensure that it flowed properly for the review.

Insights:

- This was the first chance as well to see systems engineering in anger through the systems thinking lens. I found this exciting and also a great learning opportunity. It showed the parallels between what was learnt and what happens in the workplace.
- Understanding and editing my colleagues' work with respect to boundary and intended outcomes of the review was directly applying what was taught. Asking what our priorities were and what other projects took ownership of was crucial to managing work levels and slide deck size.
- The intended audience includes multiple key stakeholders, so predicting their worldviews and using that to see the project different and answer expected questions was a useful exercise in reacting to environmental and wider system of interest factors.

Helped:

- Oversight and guidance from experienced colleagues allowed me space to understand their work at my pace and to reflect properly on what I was learning.

Hindered:

- Not knowing the stakeholders well proved challenging as worldviews can only be made through other my colleagues' impressions of them in prior work. This divorces the worldviews from the project in some cases.
- Project lead is out on leave, making it difficult to answer some questions and causing a backlog of work.

Future Strategy:

- I think spending more time understanding the stakeholders would allow me to tailor the presentation more to them and constrain the work needed, reducing the backlog and streamlining the process - showing the importance of stakeholders in a system's development.

Week Ending 02/11/2025

Moderating the Sub-System Specification (SSS)

This week, I was tasked with moderating a very large requirements set. It contains all of the requirements for the project and as such concerns multiple different domains and stakeholders. It is also a mature document, with multiple changes having already been made to it. This was a push to issue 1 of the SSS, and there were many comments from different reviewers that needed checking.

Insights:

- Going through the different comments showed the different reviewers' priorities clearly, which gives an indication as to their worldviews. For example, the reviewer from the safety team did not have comments on things not relating to risk of injury or death. It made it quite clear what these reviewers are looking for in the requirements set and in the project at large.

- Being a sub-system specification, it helped to show how the system's elements interact and helped me understand the behaviour that we are trying to elicit. Beyond that, it helped me see what changes to certain elements could cause as knock on changes, as some comments were relating to these knock on changes.
- It was also an opportunity to see the team as a system, with each team member acting as elements in the system. Doing so showed how interactions between team members can lead to emergence, such as a disagreement over two solutions resulting in a third solution that then needed to be integrated into the requirement set.

Helped:

- I was greatly helped by a senior systems engineer being able to guide me through the process of moderation, and by them explaining certain parts of the requirement set that I didn't understand.

Hindered:

- Issues with access to the requirement set meant that I was working off exports from DOORs to Word and Excel, which are clunky for this task and lose a lot of information. I am also unable to make any quick changes (typos etc.) myself, leaving some easy wins outstanding. This slowed down my moderation and took time from other things, including assignment work this week.

Future Strategy:

- Now that IT issues have been ironed out, I would use DOORs to full effect and hopefully be quicker in moderation, and also gain practice in writing good requirements considering the system and the team as a system.
- With a better understanding of the peer review process, I think I would be able to perform the task quicker and give more time to reflection.

Week Ending 09/11/2025

Assignment: Research on Systems Thinking Methods

A key learning opportunity this week was researching different systems thinking methods that were not taught during the taught week. I encountered different domains in which systems thinking is used to better practice and to aid in communication, especially in risk management. This informed much of the method selection process of the assignment.

Insights:

- Systems thinking has applications outside of systems engineering and systems science. Safety-critical disciplines such as healthcare and occupational health benefit greatly from a systems thinking approach, and understanding what parts of systems thinking they focus on in their toolkits was useful in expanding my own understanding.
- Some systems thinking methods are quite august and have a history of use. Ishikawa diagrams have been used in manufacturing for a few decades, and they seem very useful to work I am doing both for the assignment and in the workplace.
- I have also been able to use the critical thinking taught to vet the different techniques and the research I have found. Often, material has been produced to target specific elements of a domain, for example muscular-skeletal injuries due to manual handling, which are too specific to be applicable to my applications.

Helped:

- Being able to print documents helped me read them quicker and understand them better.

- Set time during the week to understand the material and apply the lessons I have learnt is very important, as during the work week there is little time to work on university coursework.

Hindered:

- That set time is reduced due to the high workload as the project approaches review, leaving less time for research and critical review.

Future Strategy:

- Doing a wider search for systems thinking techniques could provide further toolkits and techniques that are useful to me and immediately applicable.

Week Ending 16/11/2025

Preliminary Design Review

The project went to PDR this week, with multiple key stakeholders and other interested parties present. The completed slide deck that I had helped compile was presented, and the stakeholders made their comments and decisions. This was the first V-cycle review I have been to, and my first time interacting with many of the stakeholders.

Insights:

- It was a great opportunity to see all the team's work come together, and gave me a view of the whole project as a system which I had been missing (due to focusing on specific sections at a time).
- It was also interesting to see how the project lead presented the work, picking out what he thought best as points to present and what he felt were the biggest challenges we face.
- Seeing the stakeholders' actual questions, concerns, and decisions against the ones we had predicted was enlightening as they had many that we got right, but many we got wrong. To me, it shows how and understanding of a system and stakeholder worldviews can change and be iterated upon.
- The interaction between the different stakeholders also resulted in new actions and requirements emerging, solidifying the view that the project overall is a system, with individuals acting as elements within it.

Helped:

- Good interest in the project led to many people being present in the review, showing a wide range of worldviews and allowing me to understand better their concerns with regards to the project.
- The chair and the project lead are both competent and ran the review well, allowing for it to run to time despite a smaller slot due to availability.
- My knowledge of the slide deck and project helped me keep up with the conversation and gave me the chance to reflect on my learning in the context of the review.

Hindered:

- I took actions during the review, limiting my ability to sit back and think on the systems at play. Instead I had to focus on what the project needed to do, and who raised the actions (particularly hard as I had not met most of the stakeholders before).

Future Strategy:

- Taking more of a step back in the review would be a benefit, as I would be able to relax and take time understanding the project and seeing the interactions between different stakeholders and the project.

Week Ending 23/11/2025

Outcomes of PDR

This week was used to understand what was needed coming out of the PDR, and also to realign work with new priorities set. This came with a change in personal tasking, architecting a system for use in trials as part of the project.

Insights:

- Participating in more formal systems engineering tasks was a great way to see the parallels between it what was taught. Considering the boundary of the system is vital as I do not have infinite time or resource to architect everything, and more realistically some parts are not within my remit and should be left to their owners. Instead, a focus on developing the interface between those parts and my system was required.
- Debriefing after the review helped to solidify the insights above, and provided further insight in that stakeholders outside of the team also had their worldviews changed due to realignments of project priority, further showing their mutability.
- As the system is safety related, understanding emergent behaviour is key to ensure that the system performs in a safe manner. Thus I am focus on prediction and on cause-effect chains.

Helped:

- The system is not particularly complex, allowing me time to learn what to do, learn the processes I must go through, and also to apply what I have learnt in a straightforward manner.

Hindered:

- It is a domain that I am not familiar with (electrical design) and poor documentation of the platform we are integrating into sometimes makes for challenging and slow progress.

Future Strategy:

- I would perhaps put effort into understanding electrical design more, so that I am not tripped up by that element and can instead focus on architecting and designing the system.

Week Ending 30/11/2025

Presentation of work to safety experts

As the system is safety related, safety experts will need to review the work I have done. This presentation was a quick, informal one to get their immediate comments and change anything that sticks out to them as an issue.

Insights:

- Despite it being an informal meeting, understanding their worldviews was very important and allowed me to present what I thought to be the biggest wins and their most likely concerns first. This was on the whole accurate, telling me that I have my priorities right and that I am in the right ballpark with my understanding of the problem.
- Development of the system reinforces the lessons on what we can effect, what we can influence and what is without our control but still impactful. The reviewers were able to point out a few areas of control that I had missed and a few environmental concerns that I would have to work around.

Helped:

- Being given the time to work with these experts was good in developing my understanding and in nipping some potential issues at the bud.

- Support from the project lead was very useful, allowing me to go to the meeting confident that I was not going to waste anyone's time with my work.

Hindered:

- Busy schedules meant that the meeting was only 45 minutes long, so it had to run quickly and we left with questions unanswered.

Future Strategy

- Continuing to seek expert advice on the systems I architect seems to be a sensible thing to do.
- I would try and get a longer meeting with experts, to ensure all questions are answered and I can carry on at full speed.

Week Ending 07/12/2025

Analysis of my application of systems thinking methods

As part of coursework 2, I applied the systems thinking methods I had found and this week spend time analysing their findings to draw insight and guide my recommendations.

Insights:

- Seeing how these methods can help widen and then constrain the problem space to drive towards a solution was very good to see. It impressed upon me the value of applying these methods and in just taking the time to focus on the problem space, as it can help streamline and inform the solution space.
- Proficiency in these tools allows me to apply systems thinking in everyday work, and helps solidify the systems thinking mindset in my work. Additionally I feel it makes me better at communicating as part of analysis is the presentation of it, and forming a convincing narrative to a party that is not necessarily familiar with the topic.

Helped:

- Structured time and format in which to apply the systems thinking techniques provided a good "sandbox" in which to try things out and see what insights could be drawn.
- The large breadth of systems thinking techniques that are available showed many different insights and allowed me to construct a sensible narrative in the coursework.

Hindered:

- The word count for the section limited the number of methods I could use, as each required space to properly explain their significance and the logic behind the recommendations.

Future Strategy:

- I would try harder to distill the information that I wanted to convey in each method, so that I could add more into the section and further reinforce my arguments with evidence.

Week Ending 14/12/2025

Systems Architecture Module

The taught week for the Systems Architecture module was this week, running in a similar format to the first week. It was focussed on techniques, modelling languages, process, and more formal systems engineering, but there was focus on systems thinking in the background as well.

Insights:

- Seeing the parallels between formal V-model systems engineering and systems thinking solidified my belief that it is good to see problems through the systems thinking lens. It helped to constrain the problem space multiple times, and keep us within our boundary as we interacted with other groups' systems.
- In retrospect, viewing our group as a system shows how we each interacted differently with each other, resulting in some decisions that surprised other members of the team.
- Seeing the entire week as a system (which may be vague) allows focus on its purpose. As a learning opportunity, not relying on team members to do what they are good at and instead trying a bit of everything would be wise.

Helped:

- Structured, intensive teaching allowed me to gain lots of information and immediately apply it, which necessarily forced me to use all the tools that I had - systems thinking included.
- Obvious links back to module content was helpful in hinting towards certain methods of thinking.

Hindered:

- The intensity resulting in a lack of time for proper reflection.

Future Strategy:

- I would focus harder on trying everything and developing all my skills, not just developing that which I found easy.
- I would also try to align interactions within the team to ensure information is known to everyone and that all design decisions are agreed.