

Systems Engineering for Prototyping Modular Construction Systems Checklist

Checklist for Modelling Systems	Location of files
For your system in development do you have:	
<input type="checkbox"/> Hierarchy of components (breakdown structure)	_____
<input type="checkbox"/> Possible interdependencies (direct, common mode failures)	_____
<input type="checkbox"/> Emergent dynamics and behaviours	_____
<input type="checkbox"/> Boundaries of the system	_____
<input type="checkbox"/> Boundaries of the model – do they match system boundaries?	_____
<input type="checkbox"/> How are you modelling the system?	_____
<input type="checkbox"/> Design Structure Matrix	_____
<input type="checkbox"/> Model-Based System Engineering	_____
<input type="checkbox"/> Control Theory	_____
<input type="checkbox"/> Systems Dynamics Model	_____
<input type="checkbox"/> Petri Net	_____
<input type="checkbox"/> Stakeholder Influence map	_____

Have you thought about the following emergent systems properties:

- Safety _____
- Resilience/Antifragility _____
- Security _____
- Manufacturing constraints _____
- Assembly constraints _____
- Environmental impact _____
- Carbon/Pollution _____
- Quality _____
- Human factors _____
- Lifecycle/Maintainability (through-life?) _____
- Training needs _____
- Affordability/Cost Effectiveness _____
- Reliability of supply _____
- Value engineering _____
- Integrated logistics _____
- Electro-magnetic compatibility _____

This checklist is part of a more comprehensive Toolkit developed by the [Centre for Systems Engineering and Innovation](#) (CSEI) at Imperial College London as part of the [Impact award](#) associated with the Royal Academy of Engineering and Laing O'Rourke Chair in Systems Integration. The Toolkit aims to provide Systems engineering principles, tools and pointers for developing configurable product platforms for Design for Manufacturing and Assembly (DfMA) in infrastructure. Click [here](#) for more information. Follow us on Twitter @CSEI_Imperial