

Systems Thinking

Key facts

- Analytic skill set, that allows to perform problem solving in complex systems
- Holistic approach that aims to “see the forest and see the trees”
- A system is more than its elements on their own, as each element is connected and behaves accordingly
- The individual elements as well as the whole systems need to be considered

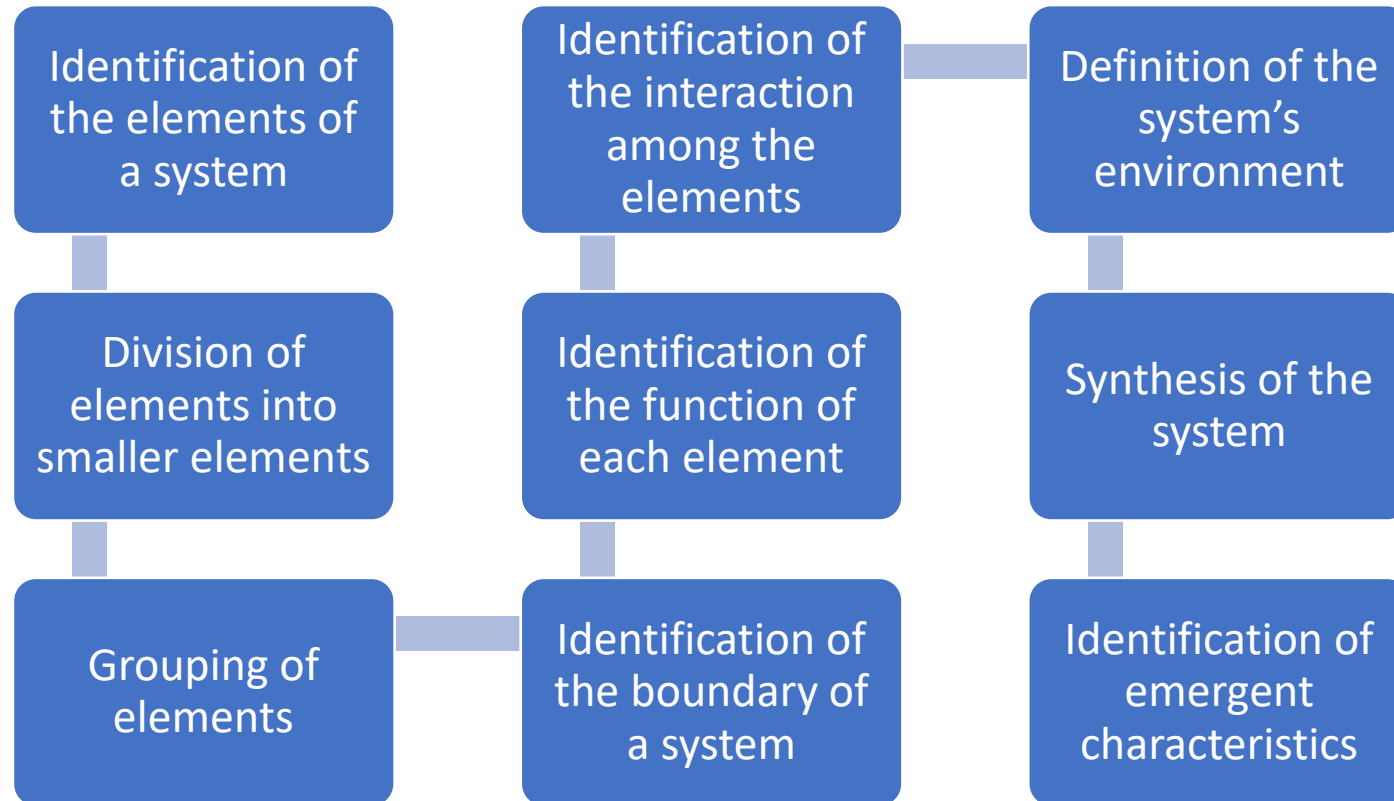
What are Systems?

- Definition: Regularly interacting or interdependent group of items forming a unified whole
- Examples: (complex) supply chains, technological systems (GPS, power grid, internet), climate eg.

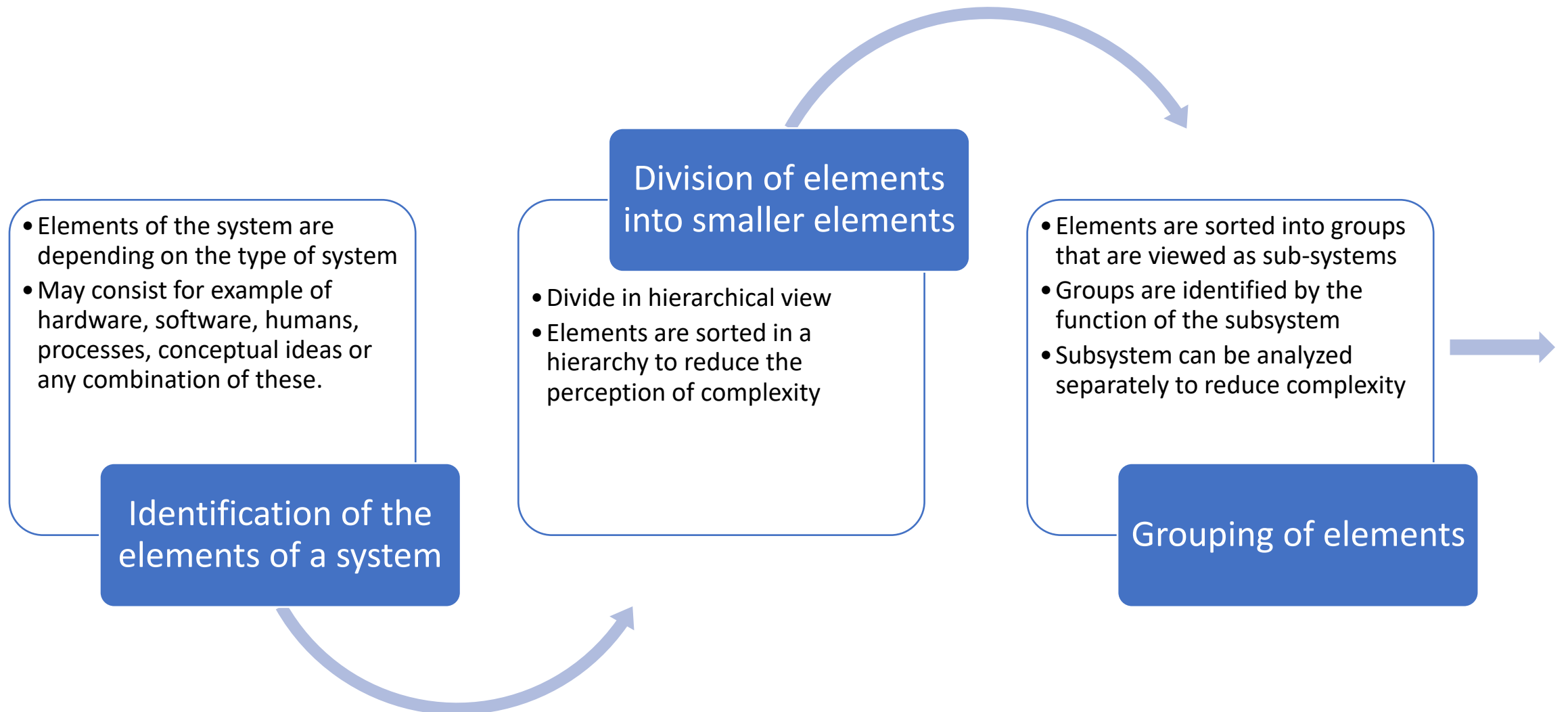


Understanding Systems – Systems Approach

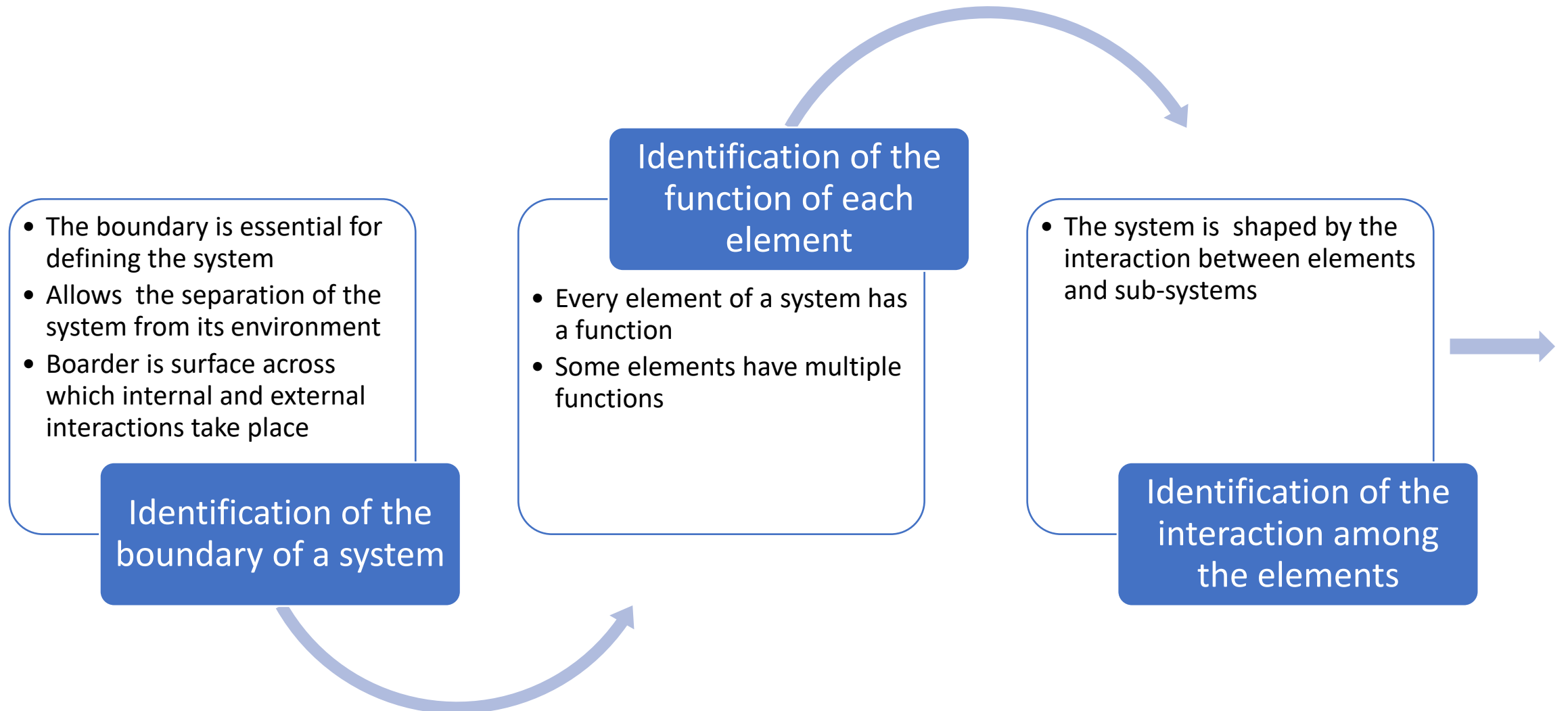
- 9 step approach:



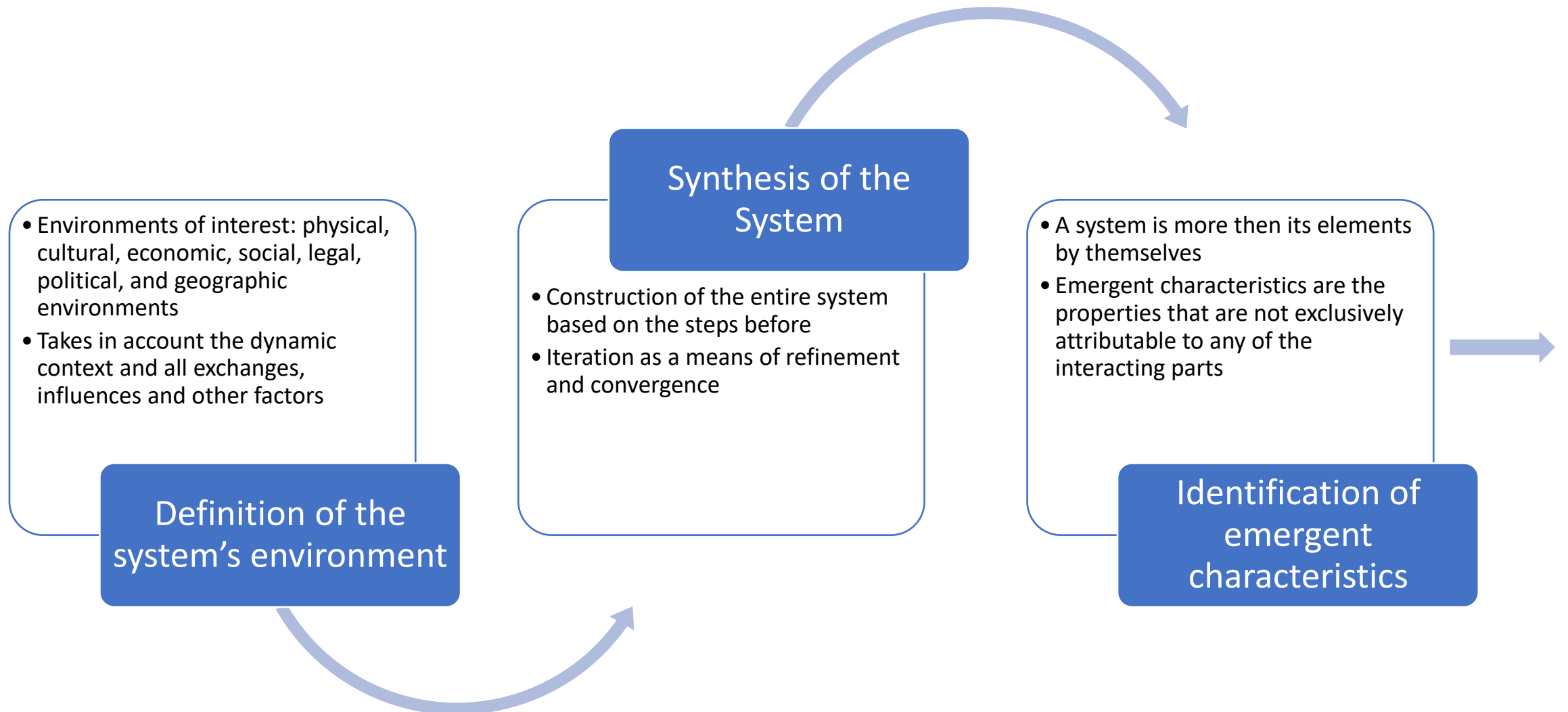
Understanding Systems – Systems Approach



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Tools (Examples)

- Identifying the elements and environments:
 - Who: Desk research (single researcher), Brainstorming (Team)
 - How: SWOT-Analysis, Business Modell Canvas, Mind Maps
- Visual Representation of hierarchies and interdependencies
 - Who: Desk research (single researcher), Workshop (Team)
 - How: Graphs, Business Process Modelling (with for example BPMN), Software Systems Modelling (using eg. UML), Network diagrams

Applications

- (Understanding) Climate Change
- Business Model Innovation
- Social Science
- Systems engineering
- Operations management
- Supply chain planning
- Education (= Teaching students to apply systems thinking approach to find solutions)

Sources

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