



32nd Annual **INCOSE**
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hybrid event

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Collaborative Systems Thinking Culture: A Path to Success for Complex Projects

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Agenda

- Collaborative Systems Thinking Culture (CSTC) Definition
- Problem Statement and Solution
- Three Themes to Adopt a CSTC
- Problems Addressed and Benefits Provided
- Phases for Implementing in an Organization
- Enablers and Barriers to CSTC
- Conclusion



CSTC Definition

- From C.T. Lamb and D.H. Rhodes:

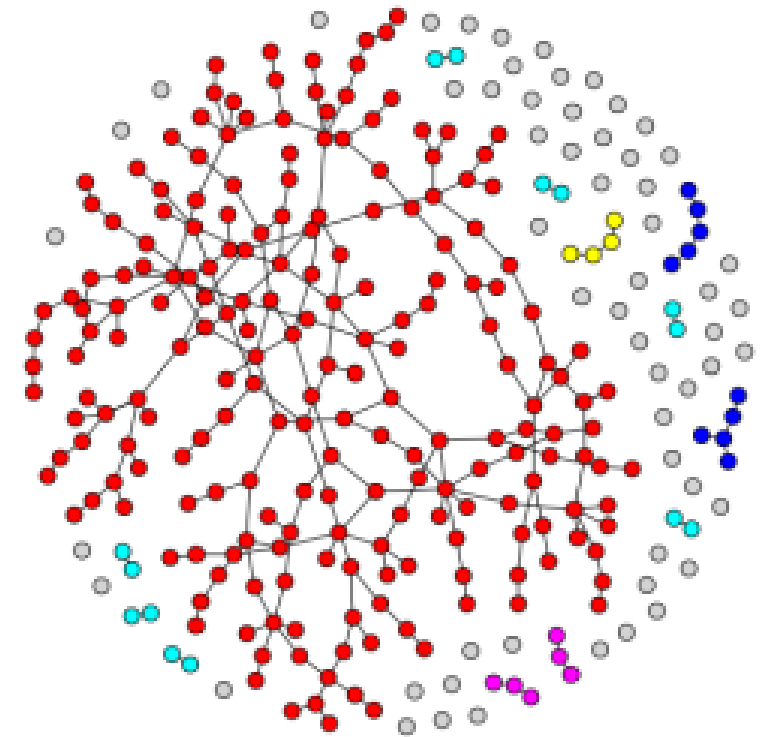
“An emergent behavior of teams resulting from the interactions of the team members and utilizing a variety of thinking styles, design processes, tools, and communication media to consider the system, its components, interrelationships, context, and dynamics toward executing systems design (Lamb et al., 2008).”
- **Collaborative systems thinking**
 - Requires deep understanding of **systems thinking**
 - Need a sense of an organization’s **culture**

Movement towards a CSTC requires understanding both!



Problem Statement and Solution

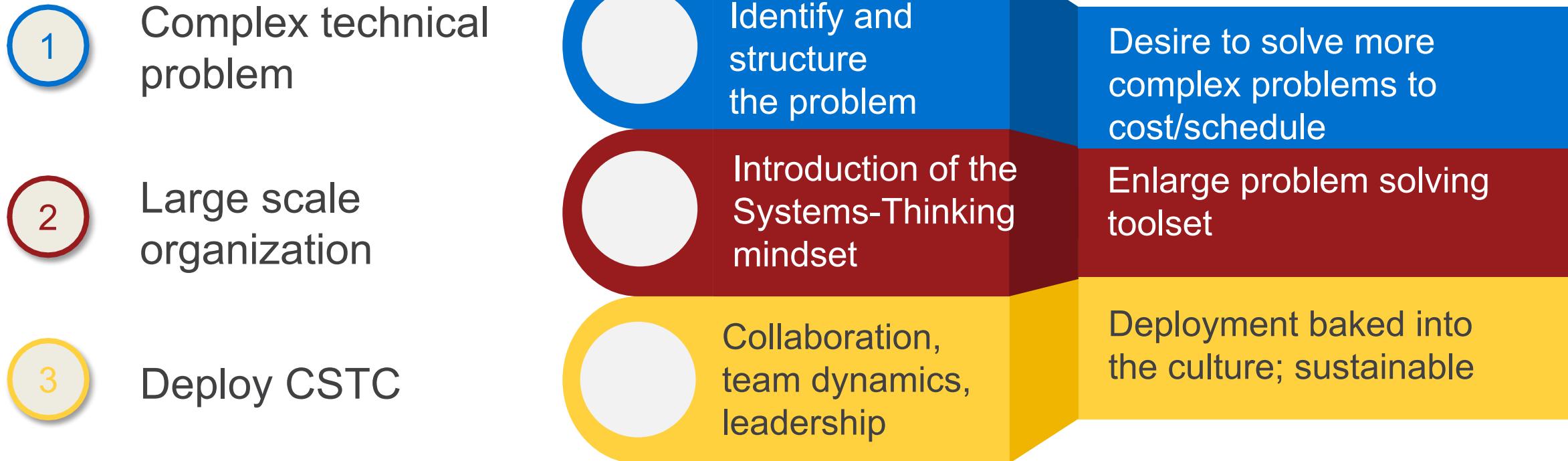
- The world is more complex, with rapid changes requiring more integrated collaboration to solve the tough technical problems organizations face.
- To solve these problems, a mindset shift centered on collaborative systems thinking culture (CSTC) will assist substantially.
- 7-step process to make this transition in the organization



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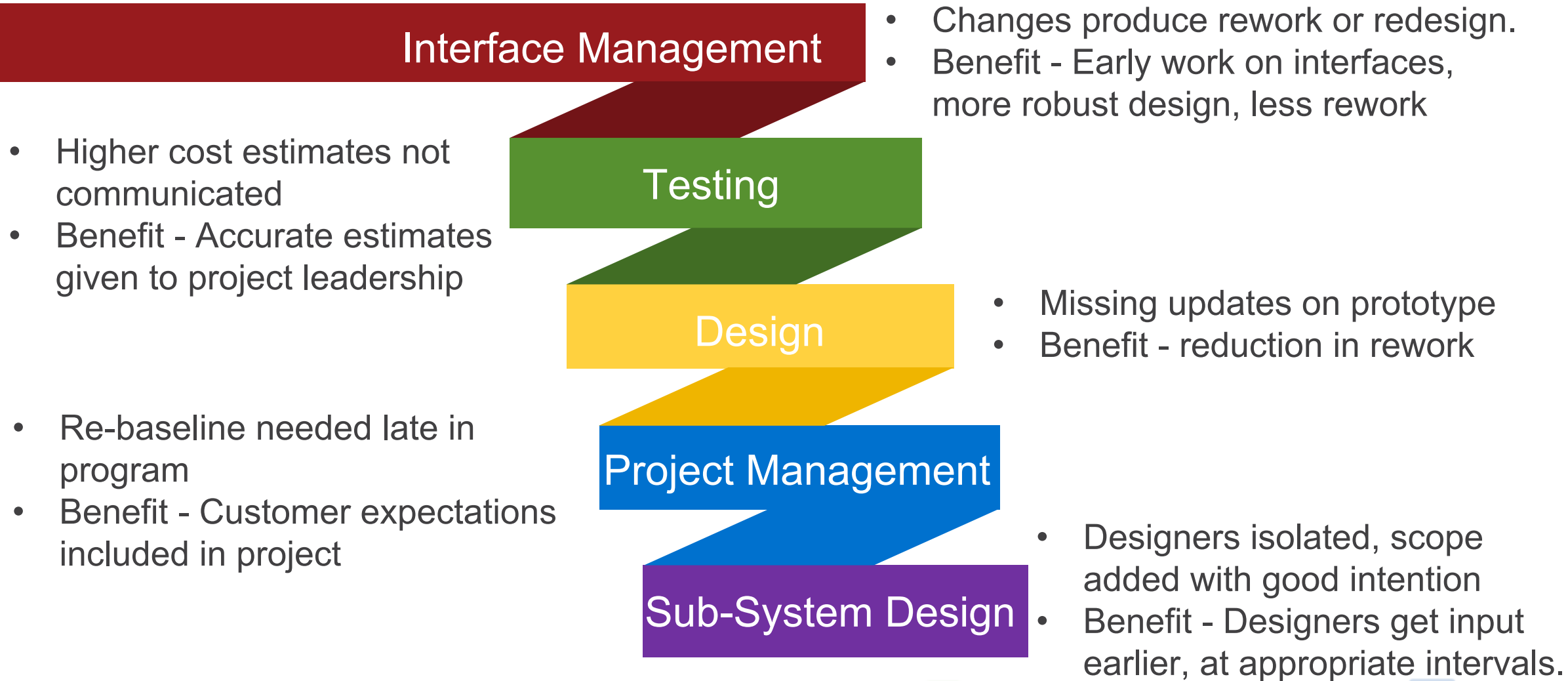


Three Themes to Adopt a CSTC





Problems Addressed and Benefits Provided



Phases for Implementing in an Organization



CSTC



Phase 01: Awareness and Documentation



Understand the culture of the corporation by conducting interviews and/or employee research on how they perceive the organization is run.



Determine if the employee's perception of the vision and mission of the corporation does not align with the goals of the VPs and CEO.



Identify disconnects and work the gap(s) in the early phases.



Phase 02: Investigation of Current State



Investigate if a CSTC, or parts of it, is practiced in the corporation. While the term system thinking culture may not be widely used, the employees of the corporation could have been practicing it without knowing it.



The investigation should include a variety of individuals from as many different groups within the company as possible in order to get a thorough understanding of the interaction between various groups.



Additionally, some basic training on systems thinking for those providing input to the investigation may help discover in unveiling existing systems thinking processes as well as potential areas of improvement.

Phase 03: Early Adoption and Management Buy-In



A 'bottom-up' piece that contains a demo project or small well-contained sample effort where a systems-thinking approach is used, and collaboration is emphasized.



Management is then approached with this small victory as a lead in for future support. Obtain buy-in from the management and build on those CSTC elements that already exists.



Give employees a voice on the development of the methodology and implementation.



Phase 04: Methodology



Develop the methodology to implement CSTC elements in the organization and implement needed changes and process improvements. This will vary widely between organizations.



Continuous communication allows team members to develop ideas for process improvements which implement the CSTC and discuss them to get them approved, funded, and implemented.



The systems engineering organization should drive the **deployment of CSTC in the organization**. This implies systems engineers should be placed at every level of the organization.



Phase 05: Removal of Barriers



In growing a CSTC the removal of barriers may include reducing the multiple hierarchy levels and approval layers to perform a task.



This should result in a more efficient team and may be the greatest source of quick wins.



This is also a place where tailoring to the needs of the organization can take place.



Phase 06: Fill the Gaps



Gaps differ from barriers in that there is something missing that is needed which would improve a team's ability to get the work done.



These gaps may be in knowledge, tools or adequate workspace.



Some gaps have simple solutions, such as: setting up Communities of Practice or Lunch & Learns for information exchange and training.

In these forums, participants can bring problems and work-related issues to a wider forum, present research and share lessons learned.

These forums will also expose holes in the process and foster the collaboration needed to work interfaces.

Phase 07: Training and Continuous Improvement



The training should explain the reason why a change on culture was needed, its impact, and stress that the cultural aspect is as important as the technical ones.



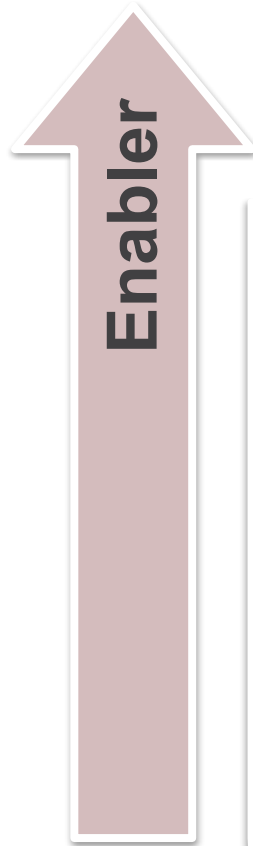
The training should establish common Systems Engineering terminology, processes and concepts.

This would facilitate its adoption and reduce confusion on the new approach to engineering work.



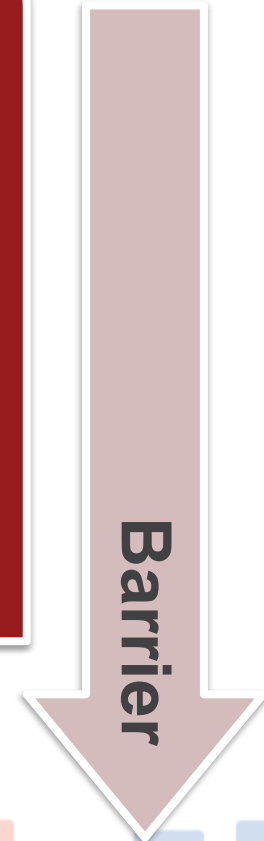
Provide sufficient funding for training on both new tools, and processes.

Enablers and Barriers to CSTC



- Effective Communication
- Engaging in Convergent and Divergent Thinking
- Internal and External Situational Awareness

- “Hero Culture”
- Team Fragmentation
- Time Pressure, Driving “Head to the Desk, Blinders On”
- Always Been Done The Old Way





Conclusion

- CSTC helps to **increase customer satisfaction** and boost the organization's bottom line as well as their overall contribution to society.
- **Cut development time** with reduced rework.



- CSTC at organizational level, equips the organization and the Systems Engineers with a **mindset ready to solve complex problems** and grow leadership within engineering domains.
- Systems Engineers and SE leaders need to evolve to a CSTC mindset in themselves to continue to provide solutions to modern complex problems.



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