

# SCAD-P: INTRODUCING A NEW TOOL IN THE RESILIENCE ENGINEERING TOOLBOX

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My current research is focused on developing and refining a lightweight tool that will aid practitioners in proactive, systemic investigations into the adaptations of everyday work. This tool, Proactive Systemic Contributors and Adaptations Diagramming (SCAD-P), encourages the Safety-II mindset by focusing on and learning from daily successes, as opposed to failures and accidents (Hollnagel, 2014). The aim of the tool is to help practitioners develop a shared model of system behavior across multi-level agents (blunt to sharp end), discover patterns in normal work, and highlight opportunities to enhance adaptive capacity before an accident.

Currently SCAD-P is being used in air traffic control where controllers have begun to reveal workarounds to common problems obscured by the fluency of expertise (Woods & Hollnagel 2006), and they have also drawn connections between the workarounds, multi-level goal conflicts, and systemic pressures. In future work, we hope to compare the conglomerate of air traffic control stories to stories in other fields of practice (e.g. healthcare, defense intelligence) to potentially discover abstract patterns of resilience and adaptive capacity in complex systems. Introducing SCAD-P as another tool in the Resilience Engineering toolbox also opens up future discussions about what unique contributions it provides and how it can be used in conjunction with current diagramming techniques and story elicitation methods. One unique aspect of SCAD-P is how it was designed to be embedded into daily work. It is formatted as a structured story elicitation tool that eliminates the need for highly-trained personnel to administer systemic analysis. A single story can be elicited in less than 10 minutes, and it is lightweight enough to be integrated into daily work, not started and stopped like a formal research study.

My current research plan is to understand how tools like SCAD-P can be used in conjunction with other techniques in the RE toolbox. I will be answering the following questions: " How does the introduction of SCAD-P into an organization change that organization's perspective on incident review? Does participation level, interest, or perspective change, and at what levels and roles within the organization? " Does it highlight different opportunities for adaptive capacity and slack than the Saurin's (2015) Classification and Assessment of Slack? If so, might new patterns emerge when used together?" Could SCAD-P contribute to the data collection phase of the Herrera et al (2015) SESAR Resilience Engineering methodology for understanding and exploring work-as-done (Woods et al, 2010; Dekker, 2014), in air traffic management?