

# Systems Engineering Research

Systems Engineering Research Center (SERC) utilising the insights of the Quality of Interaction tool

Human Insight is honoured to support the research that the Systems Engineering Research Center (SERC) at the Stevens Institute of Technology is doing on the Helix project investigating what makes systems engineers and systems engineering effective.

This research is a deep dive into the variables that influence effective systems engineering, including the different cultural aspects of organisations dealing with change.

The Quality of Interaction tool, developed by Human Insight in conjunction with London Business School, David Lewis and Ashridge Business School, Alison Reynolds, was selected as one of the tools to measure cultural aspects and behavioural differences in organizations that perform systems engineering.

Quote Helix team- Pamela Burke, PhD

The Helix team originally focused on what enables individual systems engineers to be effective. We quickly recognised that the patterns of interaction that enabled individuals to be effective were influenced by cultural norms, behaviours and emotions in the wider organisation. To understand the cultural contexts that enable a systems engineering workforce to consistently provide value across projects and time, we broadened the research to include culture assessments and interviews.

The Qi index has helped us to apply a consistent set of cultural metrics to compare perceptions of systems engineers and their stakeholders within projects, companies, and industries. Sharing the preliminary results within companies has prompted meaningful discussion and plans for enhancing systems engineering effectiveness that take into account key cultural variables, such as cognitive diversity and psychological safety.

The Qi Index provides quality data for us as researchers and a data-rich basis for driving collaborative change by the participants. By using a publicly available tool in the research, participants can choose to follow up within their organisations after the study is over.

As this research involves industry and government innovation organisations in Europe and the United States, it was important to us to use methodologies with strong global theoretical applicability and empirical validity. Our participant population is highly technical, questioning, sceptical, and time-limited which meant we needed to choose instruments like the Qi that are straightforward and simple to complete. We also needed to work with a tool provider that would maintain strict confidentiality and encryption of the data and who could customise reports. Partnering with Human Insight has greatly streamlined the research process and data analysis.

The results of this research project will be published in 2020 and we are looking forward to sharing the results with our network.

Would you like to know more about the Helix Project or the Qi Tool? Please click on the links below to learn more.

The Systems Engineering Research Center (SERC) – a University-Affiliated Research Center (UARC) of the U.S. Department of Defense (DoD) representing the nation’s largest community of systems engineering researchers – has embarked on the Helix Project, an initiative led by Stevens Institute of Technology to investigate the “DNA” of systems engineers in the defense community.  
<https://www.stevens.edu/news/serc-launches-helix-project-investigation-%E2%80%99Cdna%E2%80%9D-systems-engineering-workforce>

