

7th CIRPe Global Web Conference

<http://www.cirpe2019.com>

October 16th-18th, 2019

The CIRPe Global Web Conference is an initiative of the CIRP Research Affiliates and aims to involve scientists, researchers and engineers to promote discussion on the latest achievements in Production Engineering.

The theme of the CIRPe Web Conference 2019 is **“Towards shifted production value stream patterns through inference of data, models, and technology”**.

In order to link academic contributions with industry perspectives, an industry panel discussion is scheduled.

Industry Panel Discussion

“The Challenge of Cost Estimating in Production Engineering”

Moderator: Dr. Oliver Schwabe, Visiting Fellow, School of Aerospace, Transport and Manufacturing, Cranfield University / Rolls-Royce plc. Email: o.schwabe@cranfield.ac.uk / oliver.schwabe@rolls-royce.com

Robust cost estimates covering the whole product life cycle of innovations in production engineering are a fundamental success criteria of innovation adoption in industry production value streams. Research and experience in industry suggests that the key success criteria of robust cost estimate are found in the culture and behaviours of the stakeholders involved in the estimation process.

Based on the concept of “cost readiness levels” (CRL), this panel discussion explores key success criteria for creating robust cost estimates.

The panel discussion offers insights to young researchers regarding how to create robust cost estimates for progressing their research contribution in the area of production/manufacturing science into industrial adoption. In essence this involves the creation, development, and promotion of a sustainable, cost-related, network of stakeholders across the boundaries of research and industry.

The panel consists of seasoned estimators from industry. The panel discussion will cover:

- CRLs and their use in industry.
- The role of design thinking and agile principles.
- The results of a comparative online case study on cost risk and uncertainty.

Conference Contributions –Cost Readiness Level Assessment, Risk, Uncertainty, Design Thinking and Agile

In advance of the panel event the panel members will assess all conference contributions regarding their CRL for creating a robust cost estimate. Results will be presented anonymously while conference contributors will receive the results of their assessment individually and privately.

Specifically this means that for every conference contribution their potential CRL is determined and then the path to raising this to a level needed for creating robust cost estimates to support potential funding requests explained.

The concept of CRLs was initially developed by NASA in 2004 and adopted in various forms by industry. The levels align to the concept of technology readiness levels. CRLs describe the maturity of the cost estimate for a product or service based on their complexity of the work, the time of estimate creation, and the adequacy of the estimating methods applied. CRLs scale from exploration of expectations, strategy and options through suitability for requests for information, request for proposals, request for quotation to contract signature and annual budgeting. Each level has distinct ranges for risk and uncertainty.

CRLs, their associated risks and uncertainties, change over the course of the product life cycle. The awareness of these dynamics and their conscious management are a key element for robust cost estimates needed for converting research contributions in production engineering from innovations to industry adoptions.

All conference contributors and participants are invited to join the online case study which captures perceptions of cost risk and uncertainty propagation across the product life cycle:

https://cranfielduniversity.eu.qualtrics.com/jfe/form/SV_57naGkgRc1hPRxr (Password: “WLCP”)

The results from the case study will be compared and contrasted to multiple similar exercises conducted in a variety of organizations. Key views from research will also be contrasted.

The growing importance of design thinking and agile estimation approaches is used as a framework for the discussion.