

SSEI Research Task Summary – T14

Task Number: SSEI/T14

Lead Delivery Organisation : YorkMetrics Ltd.

Project Title : Managing Value of Upgradeability in Software-intensive Systems

Research Theme : *Management of Software Systems Projects*

Version : 2



Objective of Work (why are we doing it ?)

Future defence capability will be supported by fewer platforms that can adapt to different missions as needs arise and incorporate newly emerging technologies. Software will play a central role in providing through-life adaptability, but designing software systems for adaptability - by means of modularity – increases development costs. The initial investment decision is made with the objective of reducing the through-life costs of providing platform adaptability.

Research aims to link together (a) estimated initial investment costs of different software architecture, upgrade and incremental delivery strategies; (b) estimated through-life software change costs, and (c) adaptability benefits in the context of uncertain, requirements and technology evolution.

Nature of Work (what is it?)

Research will provide software acquirer and supplier decision makers with the means to conduct cost/benefit trade-offs between different software architecture, upgrade and incremental delivery strategies in the context of uncertain requirements and technology evolution.

The task will develop models of the initial investment costs and through-life costs and benefits of identified software upgrade strategies. A 'business case' type of approach is to be adopted, to inform choices between different types of initial architecture investment. A key concept is to enable decision makers to associate a value with 'change options'; future requirements and technology evolution will always be uncertain, but there is value in providing options for future adaptation. How much initial investment is justified to provide these options?

Outcomes (what will it produce/has it produced ?)

This task will produce four outputs:

- Catalogue of upgrade options and estimates
- Measurement model and operational verification
- Models of modular archetypes in software upgrades
- Interim Standard of Best Practice on software modular upgrade options

Timescales 20 month task, October 2009 to July 2011

Partners

Related Work SSEI/T3

Task Lead Graham Clark
graham.clark@ssei.org.uk
01904 5678 34