19th Practical Software and Systems Measurement
Users' Group Meeting and Workshops

"Fundamental Measurement Principles –
The Basis for Advanced Engineering Decision Information"

September 10-14, 2018 Arlington, Virginia

Words and Numbers

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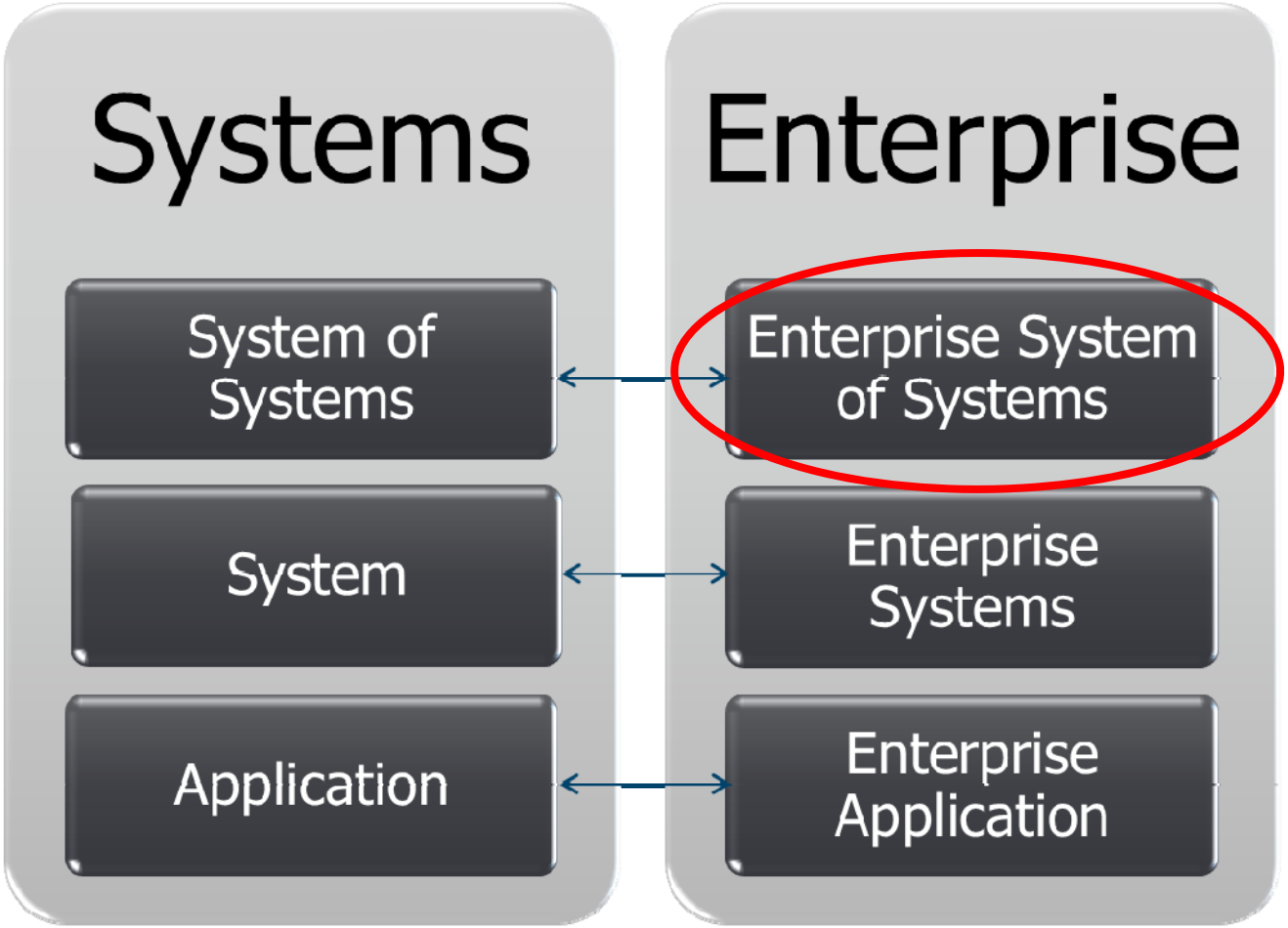
Conclusions



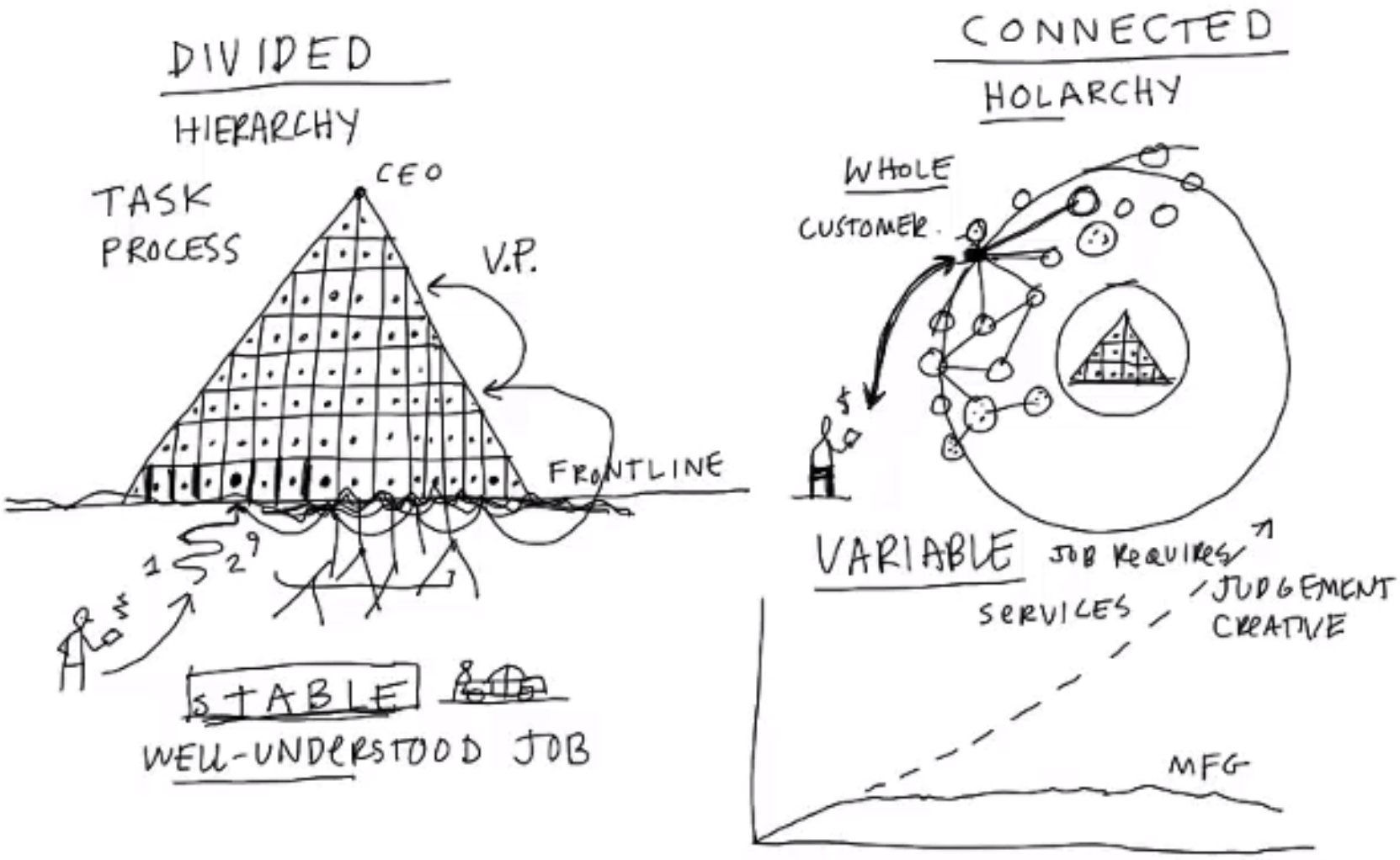
Recent Projects

- Benchmarking
- Technology evaluation
- Software issues study
- Design maturity
- Business cases
- Acquisition policy
- Estimation
- Value-for-money

What has changed?

- Model-based
- Automation
- Architectures
- Open systems
- Product-lines
- Continuous Iterative Development
- Agile(-at-scale)
- Systems of Systems
- Big data
- Security (and safety)
- Machine Intelligence
- Demographics
- Supply networks
- Strategic collaboration
- Rapid Acquisition

The Connected Company



[Ref: Dave Gray, www.xplaner.com]

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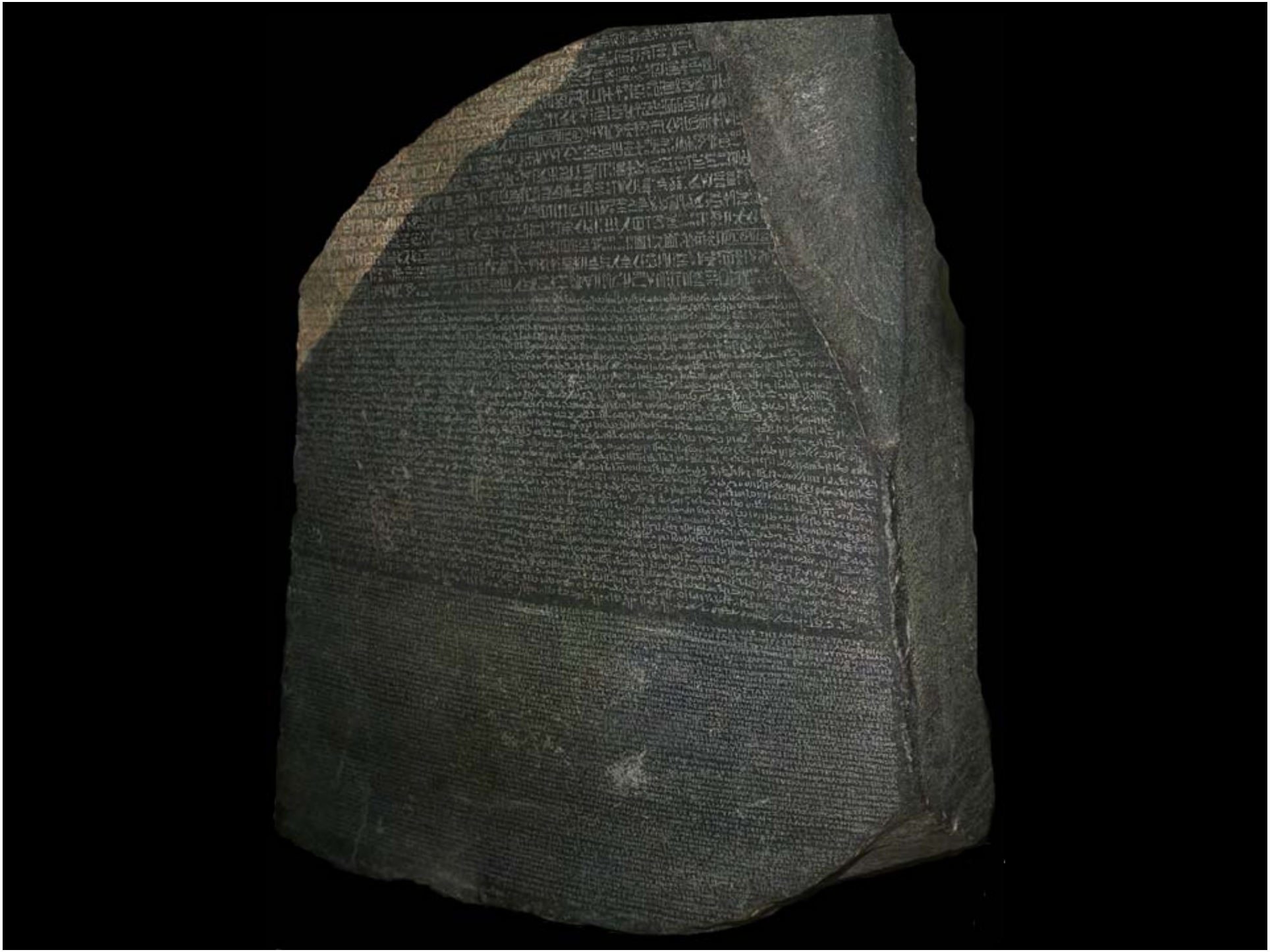
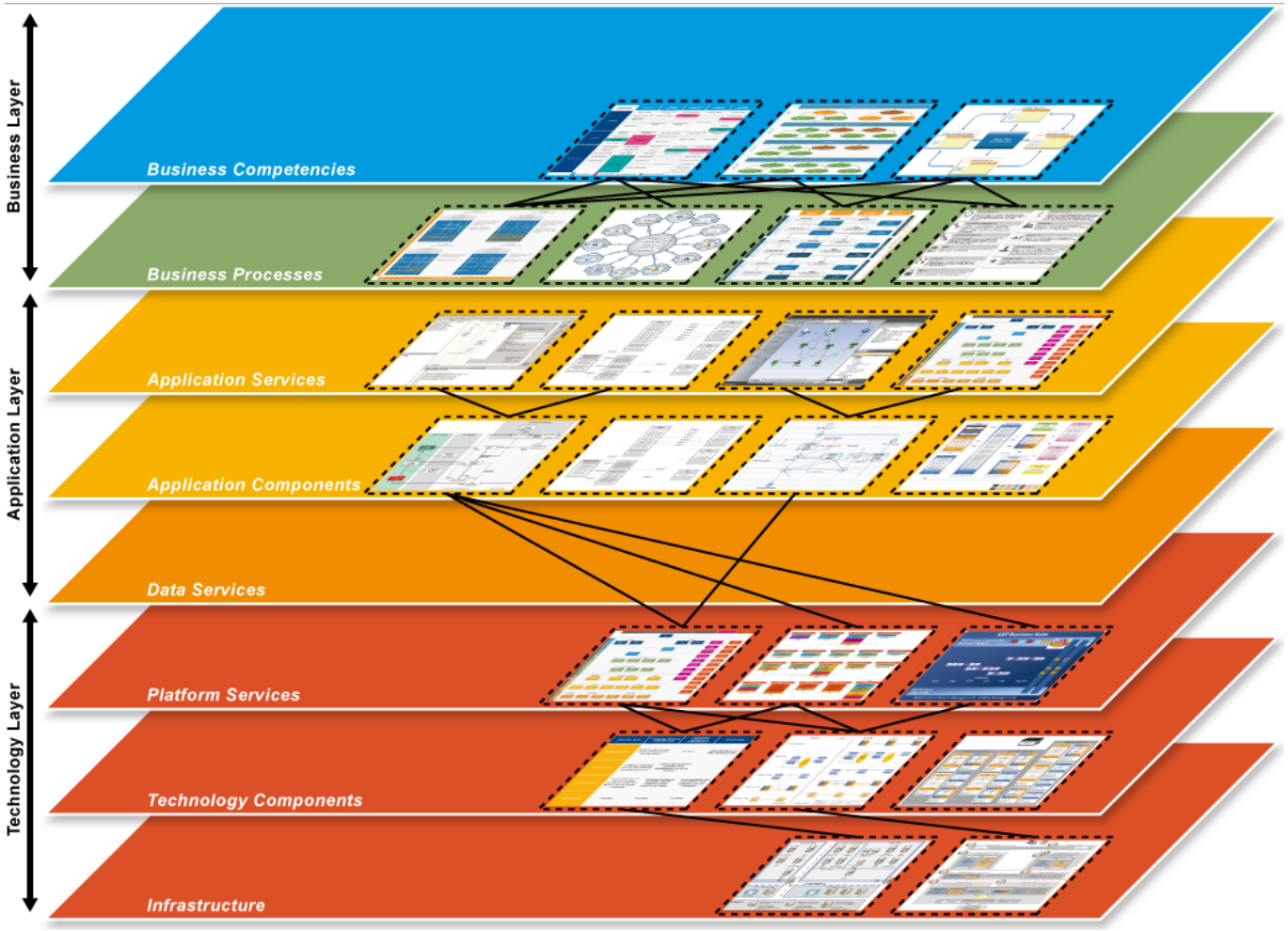


Enterprise Architectures & Fragility



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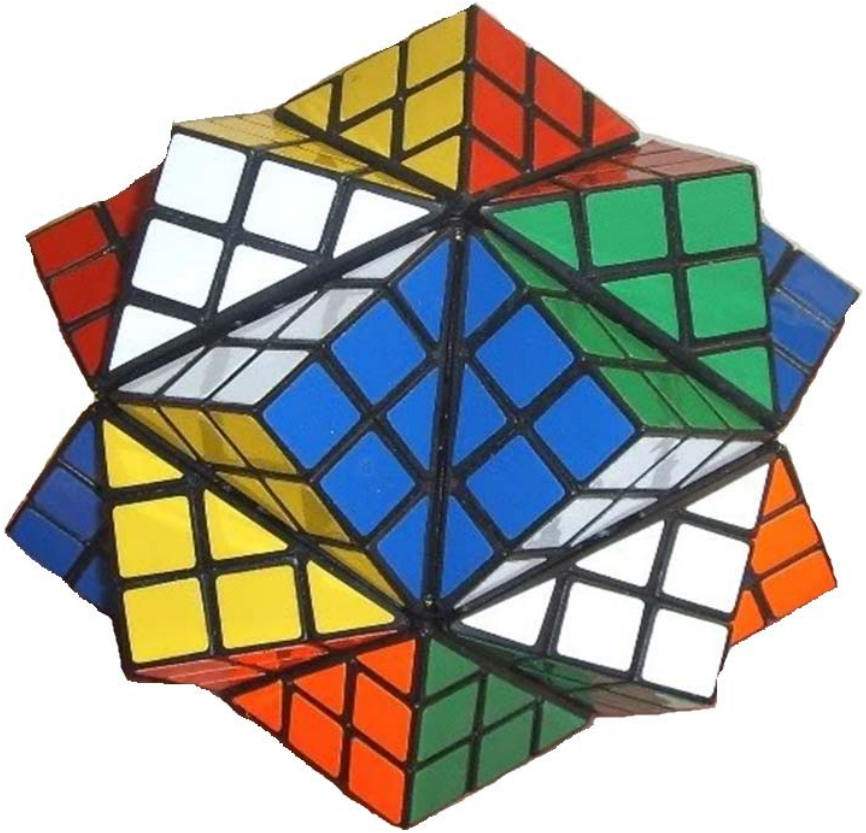
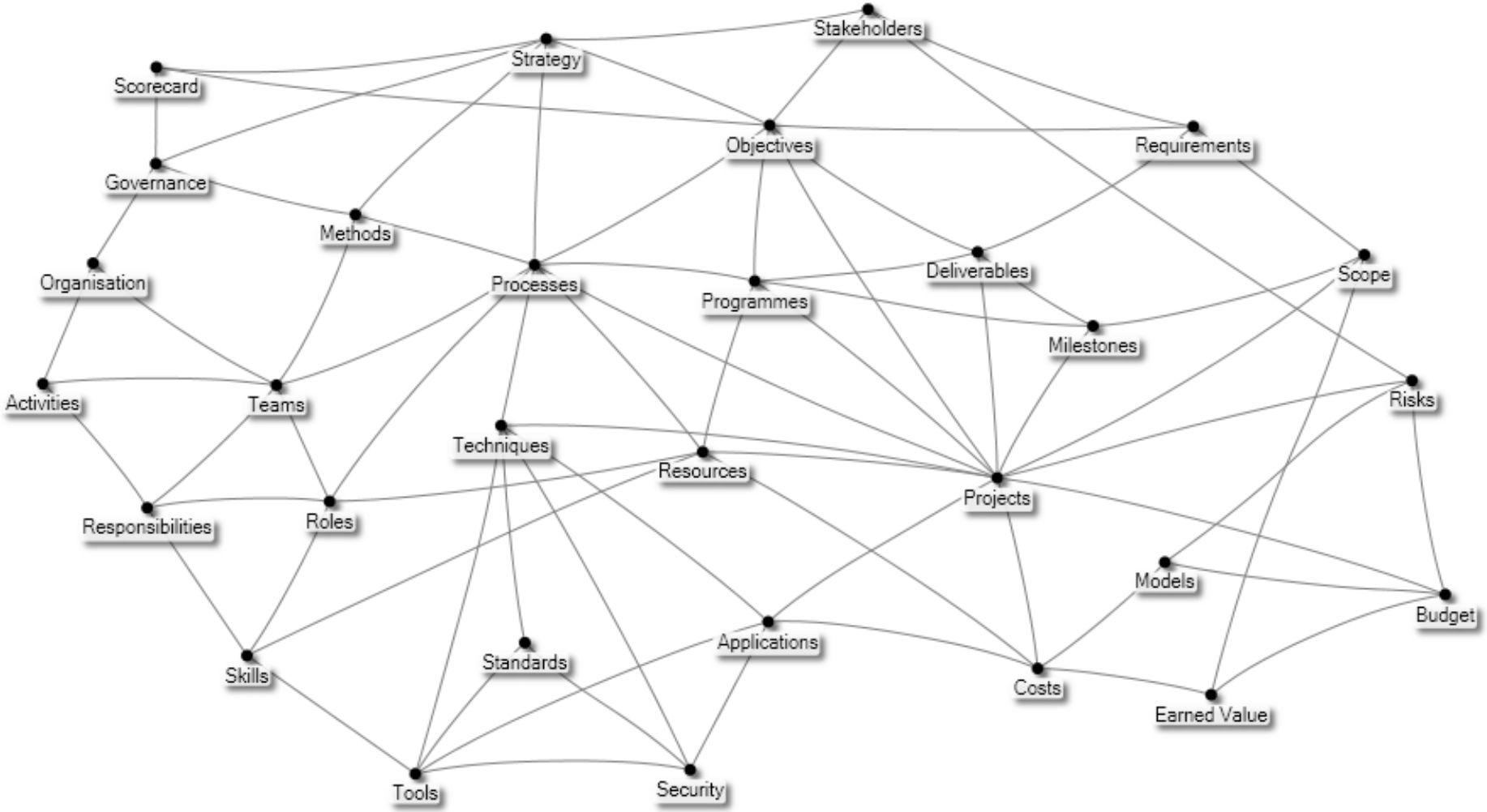
Complexity vs Intricacy



Descriptive Networks & Antifragility



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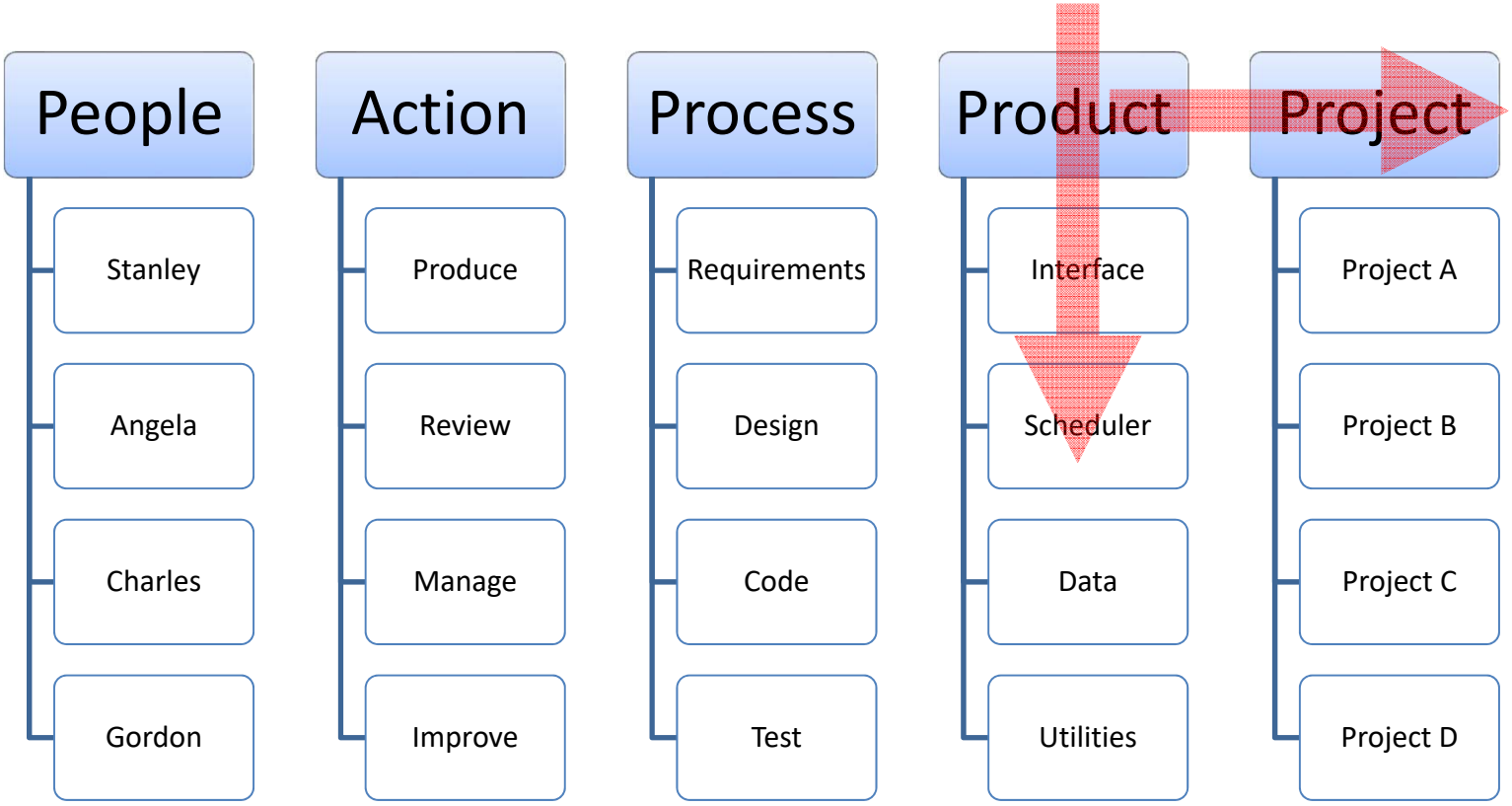
Generic Work Breakdown Structures



$4^5 = 1024$ combinations

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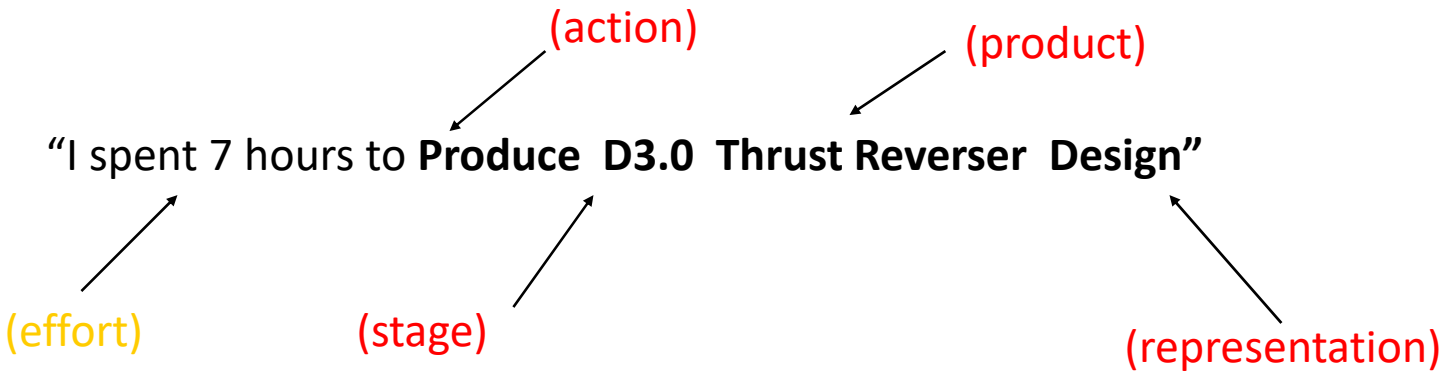
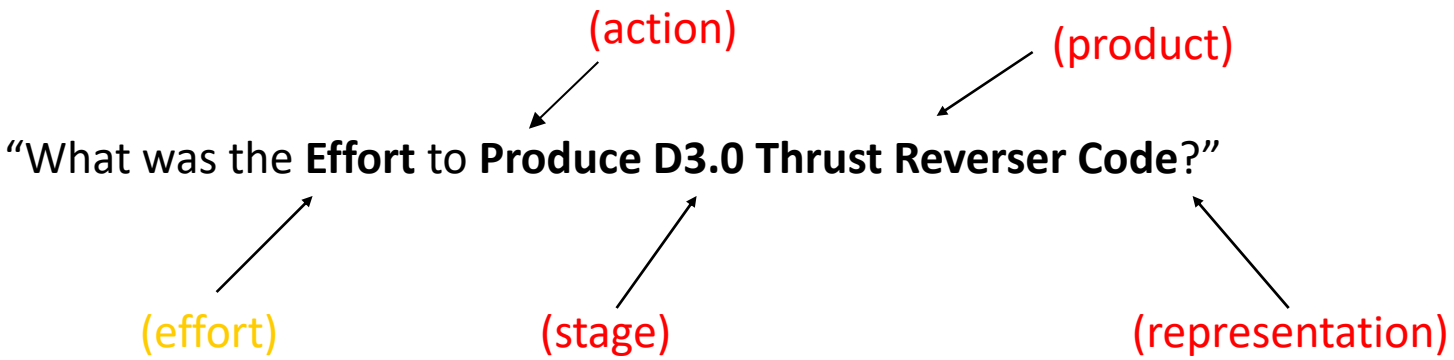
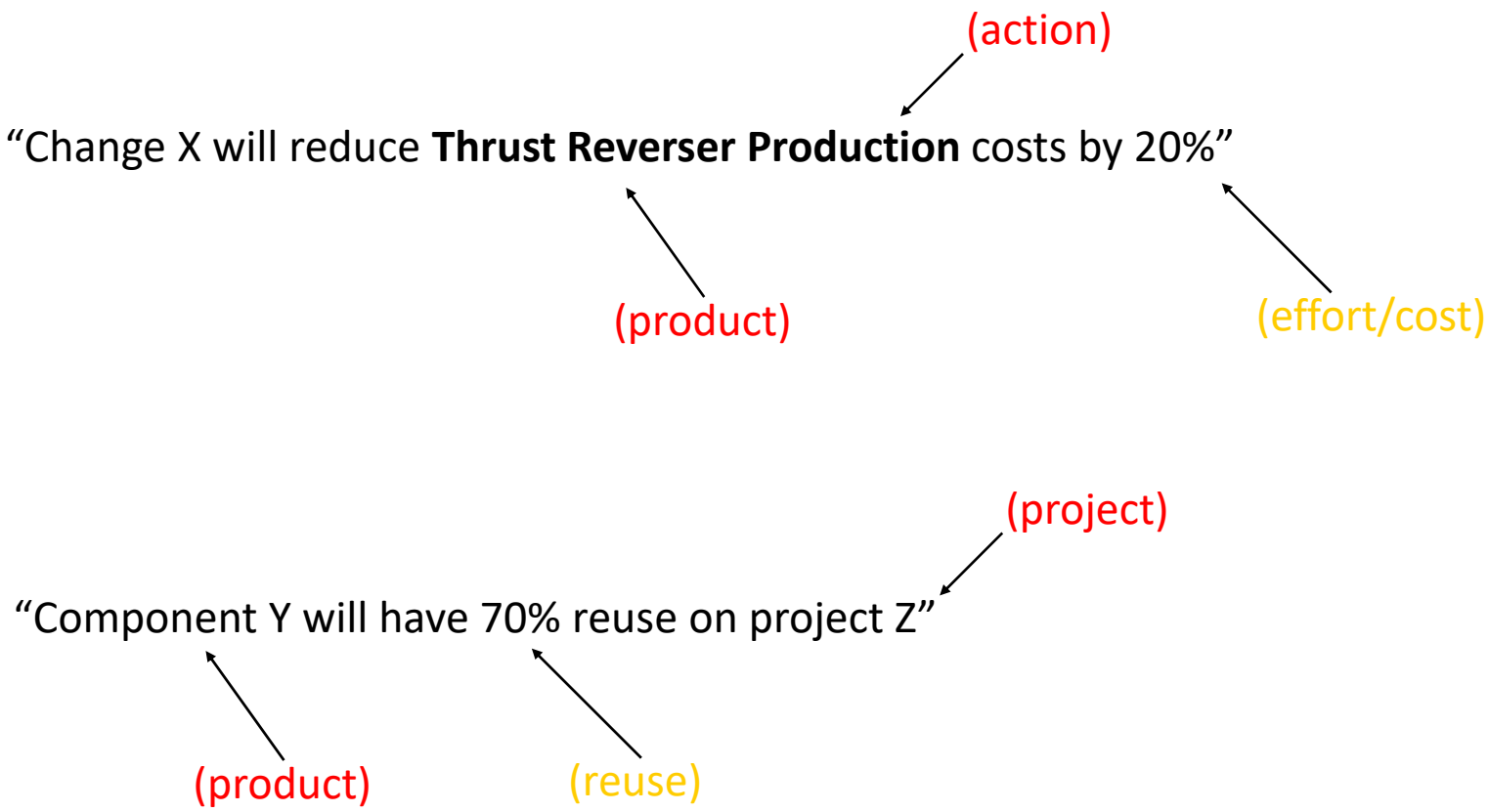
Facets - Effort

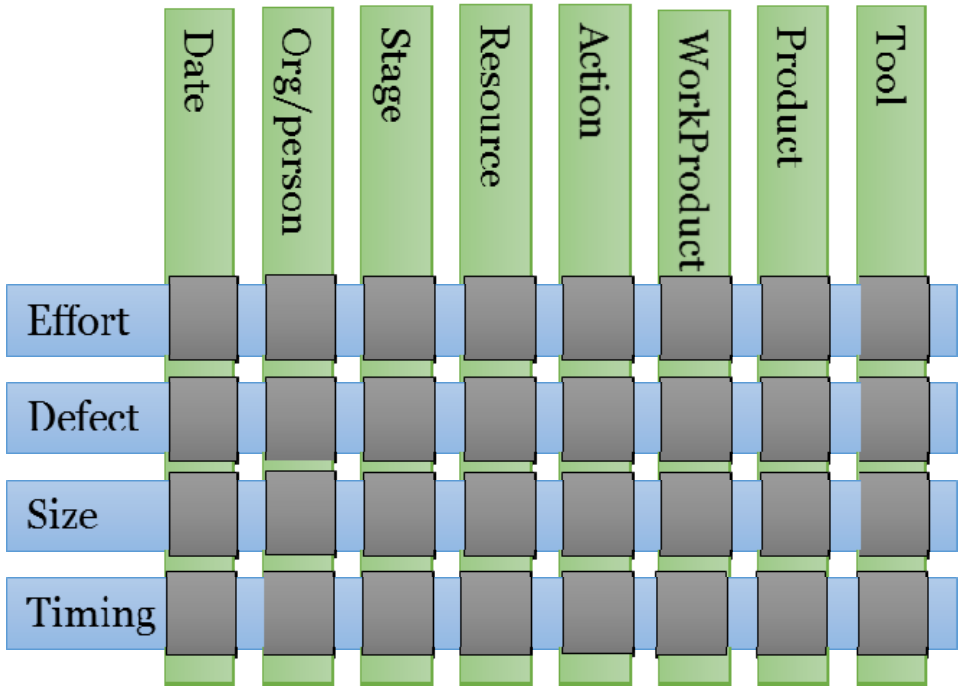




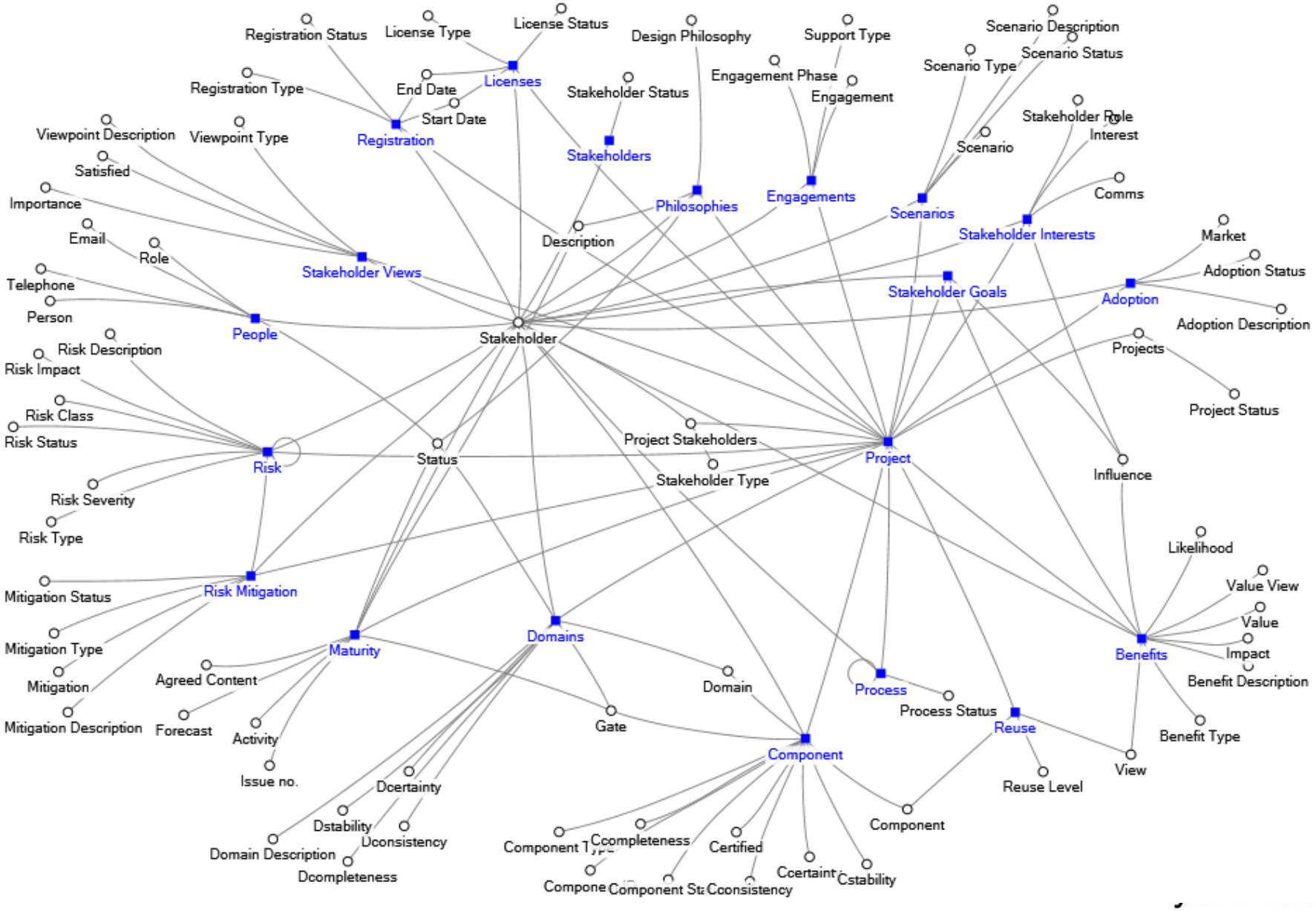
Facets – Improvement & Reuse



Context-based Measurement



Semantic Network



Questions 1 of 3

Facet	Questions
Stakeholder	What stakeholders have been identified?
Stakeholder Interests	What roles do stakeholders have in the project?
	What level of interest do stakeholders have?
	What level of influence do stakeholders have?
	What level of communications do stakeholders need?
Stakeholder Goals	What goals do stakeholders have?
Stakeholder Views	What views do stakeholders have? (issues, concerns, needs)
	What is the importance and status of these views?
People	Who are the stakeholder points of contact?
	What are their roles within the stakeholder organisations?
	What are their contact details?
Project	What target projects have been identified?
	What is the status of these projects?
Project Stakeholder	Which stakeholders are involved in target projects?
	What are their roles in the projects?
Philosophies	What is the status/progress of design philosophies?
Domains	What is the status and maturity of domains?
	What is the progress in domain maturity against plans?
	What is the planned/actual status at gates?
Components	What is the mapping between components and domains?
	What is the status and maturity of components?
	What is the progress in component maturity against plans?
	What is the certification status of components?
Reuse	What is the expected/planned level of component reuse on a project?
	What is the actual level of component reuse on a project?
	What is the performance of reuse against expectations?

Questions 2 of 3

Facet	Questions
Risks	What project and technical risks have been identified?
	What is the severity and impact of these risks?
	What is the type of the risk?
	Are the risks reducible or irreducible?
	What is the status of these risks? (open, closed)
	What is the progress in addressing risks?
	What is the Value At Risk?
Mitigations	What are the mitigations for each risk?
	What is the type of the mitigation?
	What is the status of the mitigation?
Benefits	What are the intended benefits to each stakeholder?
	What is the likelihood of the benefit?
	What is the impact of the benefit?
	What are the realised benefits?
Engagements	What stakeholder engagements have been identified?
	What is the status of these engagements?
	What overall progress has been made in terms of engagements?
Adoption	What are the likely targets projects for adoption?
	What is the likelihood of adoption on these targets?
	What projects have adopted ?
	What is the progress toward project adoption?
	Which adoptions are domestic or export?
Maturity	What is the status and maturity of other process artefacts?
	What are the current issue numbers?
	What is the progress against milestone gates?

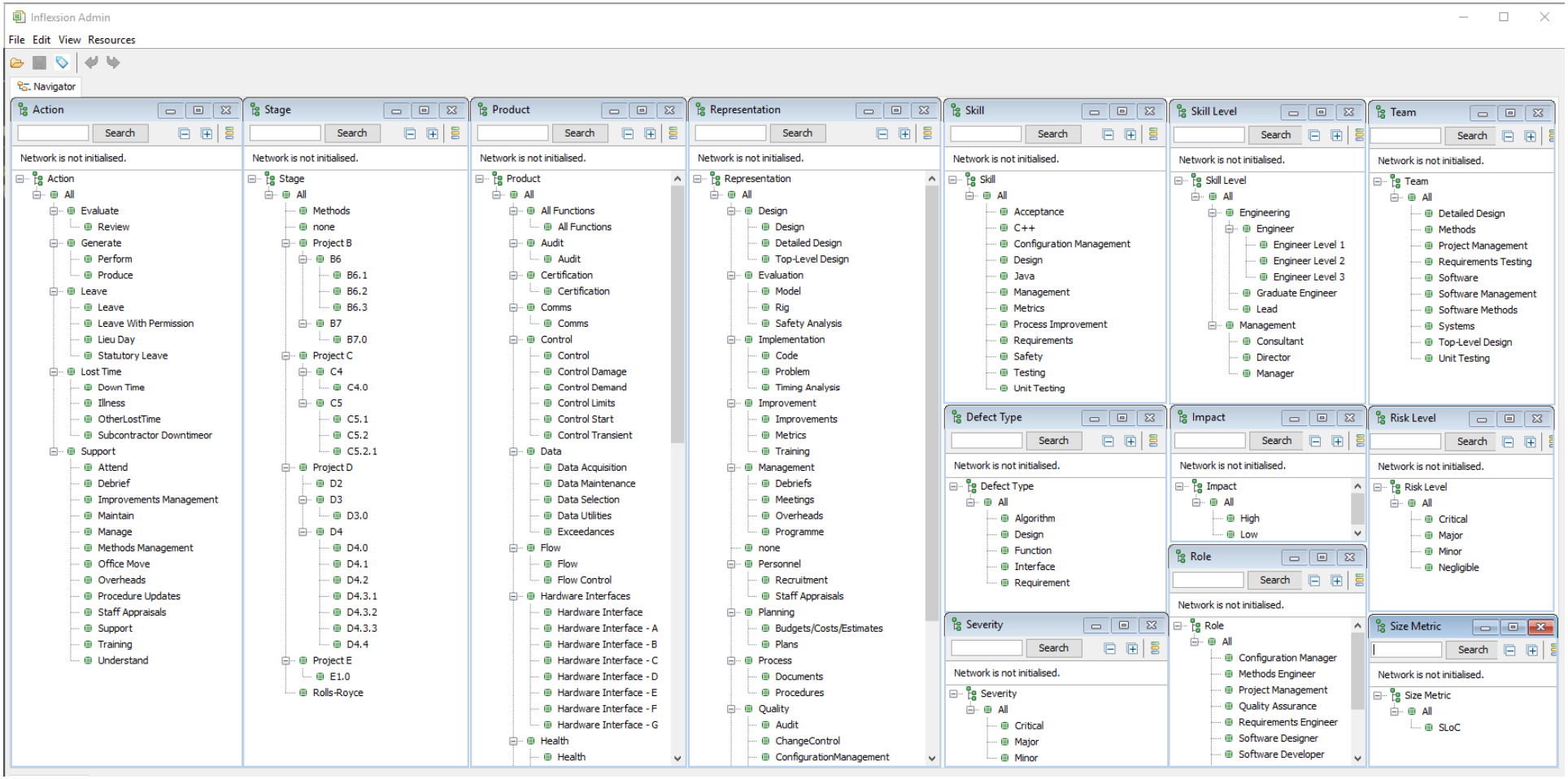
Questions 3 of 3

Facet	Questions
Maturity	What is the status and maturity of other process artefacts?
	What are the current issue numbers?
	What is the progress against milestone gates?
Scenarios	What application scenarios have been identified? (new projects, upgrades, export, etc)
	What is the progress in assessment of these scenarios?
Registration	Which stakeholders have registered with ?
	What is the status of their registration?
Licenses	What licenses have been granted?
	Which type of license has been granted to each stakeholder?
	What is the status and duration of these licenses?
Process	*What is the status and progress against the process?*
Project Plans	*What is the status and progress against the project plan?*
Component Use	*What components can be used on what systems?*

Inflexion & Termscape

- The platform comprises of two principal technologies:
  - **Inflexion** server which coordinates language resources and their metadata
  - **Termscape** a network topology that coordinates contextual and transactional relationships with respect to a ad-hoc collections of logical components (e.g. terms, termsets, facets and other controls)

Termsets & Taxonomies



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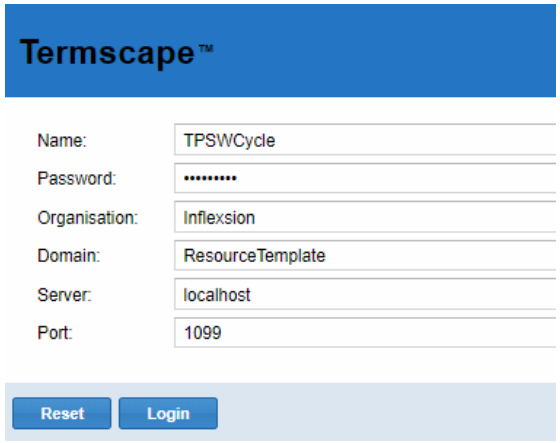
Termscape



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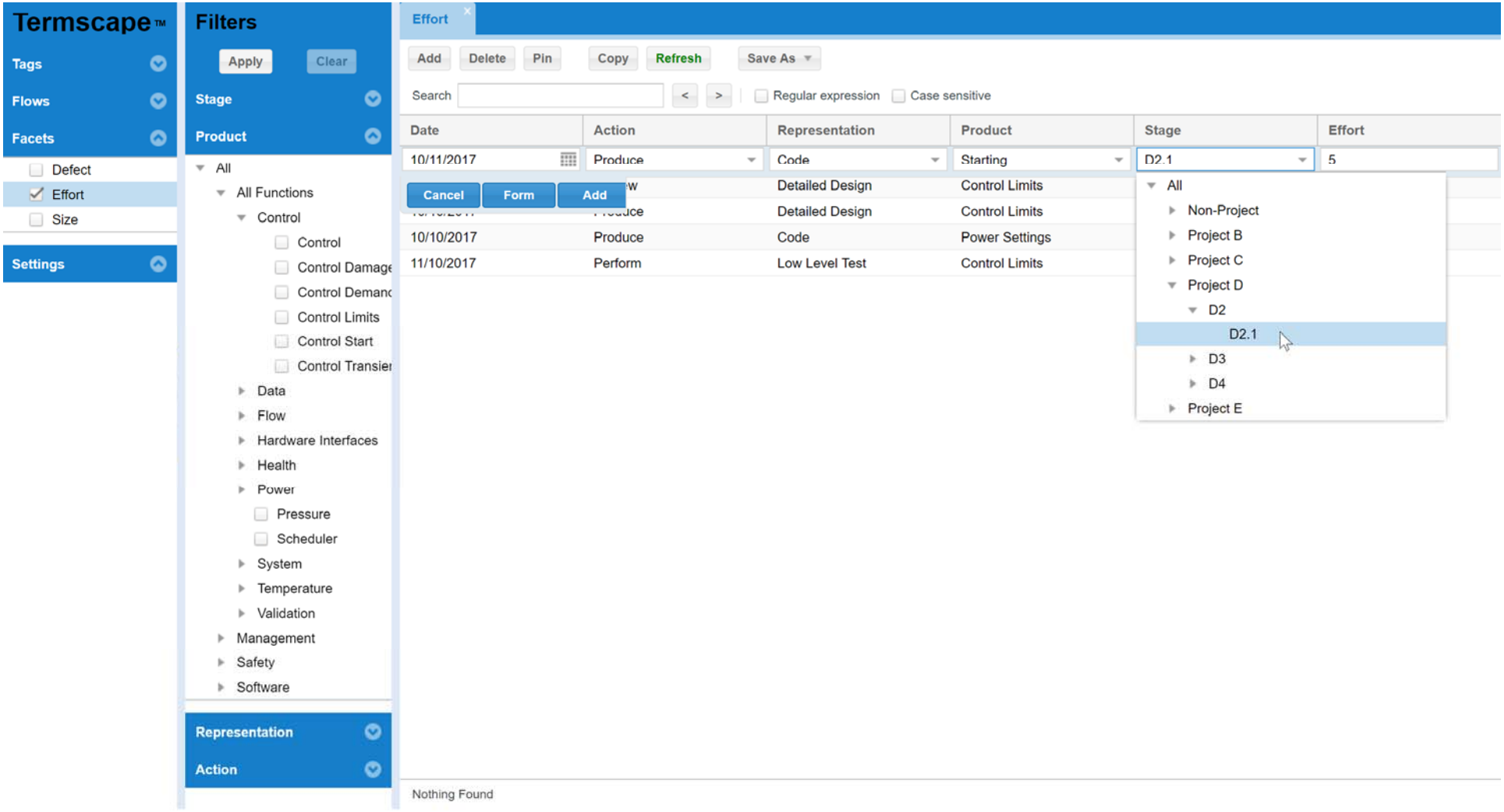

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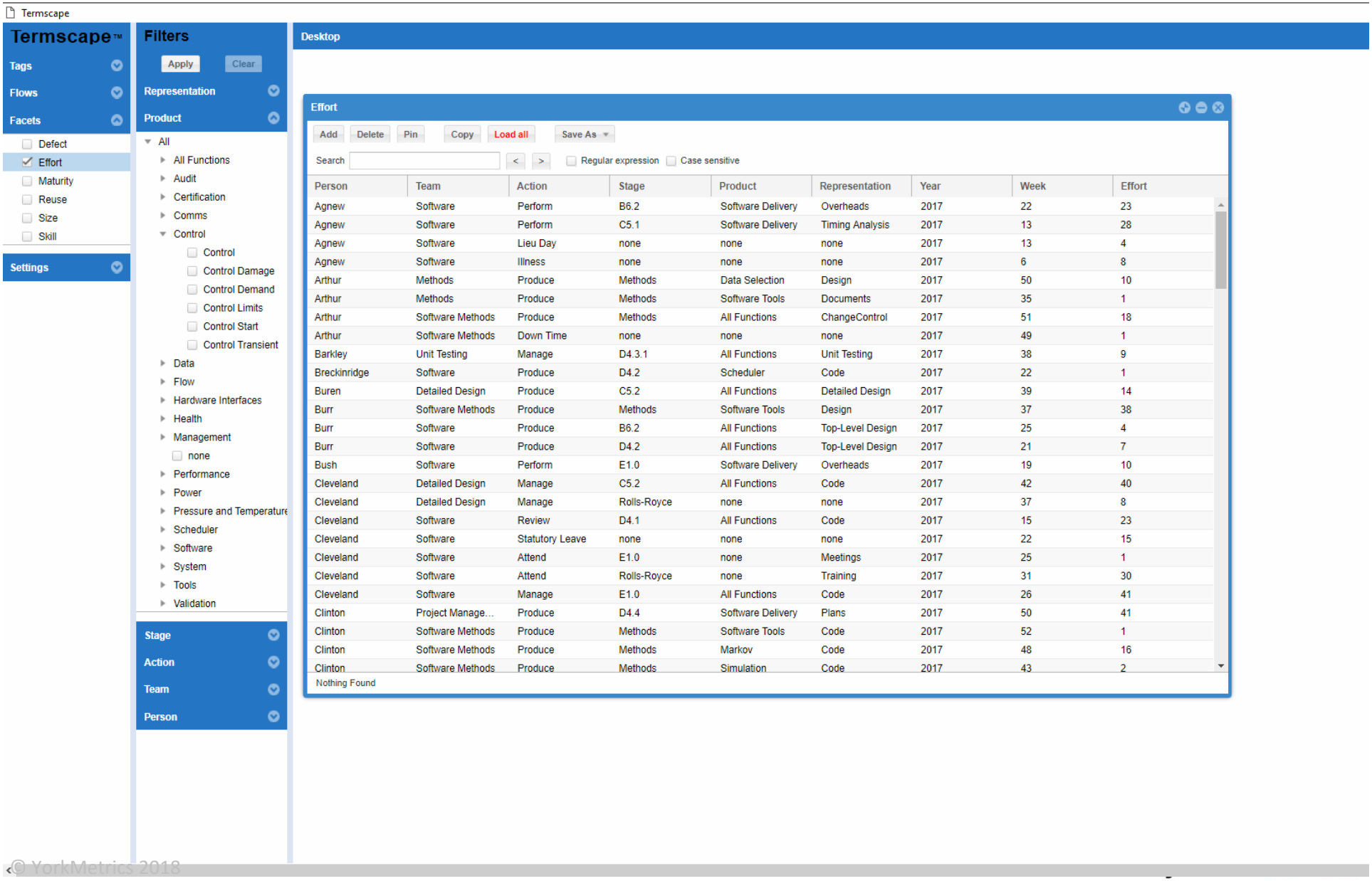

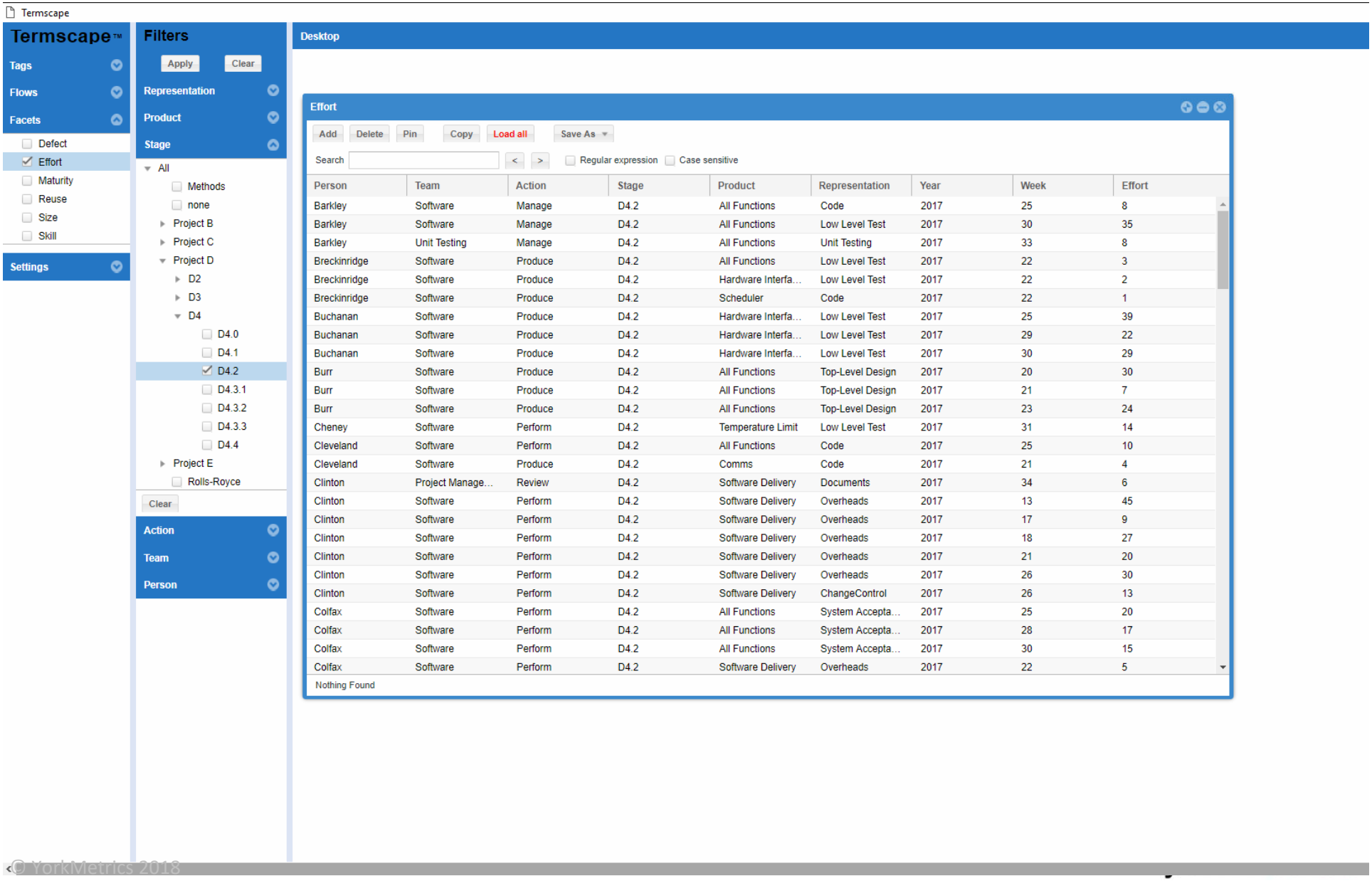

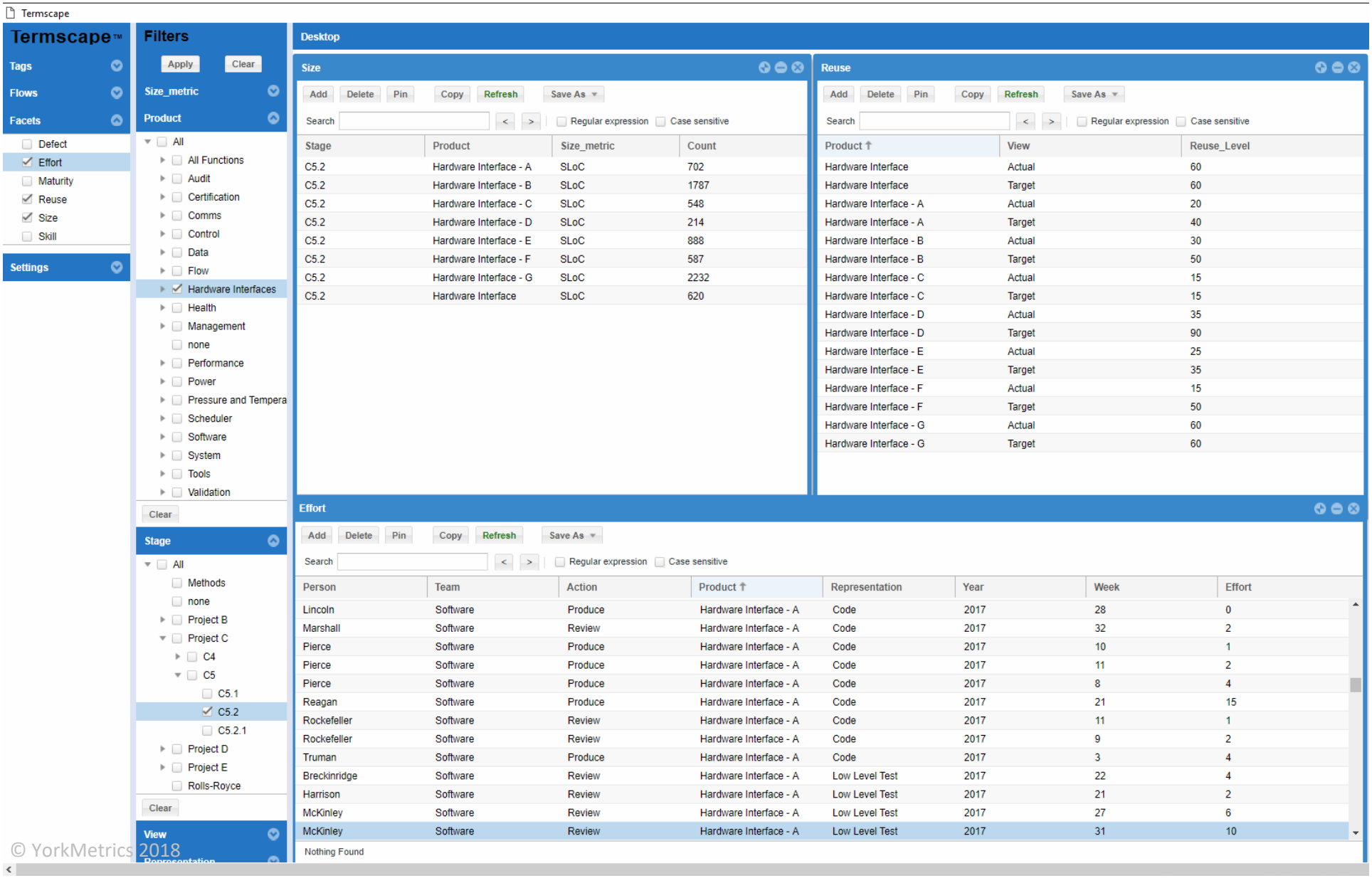

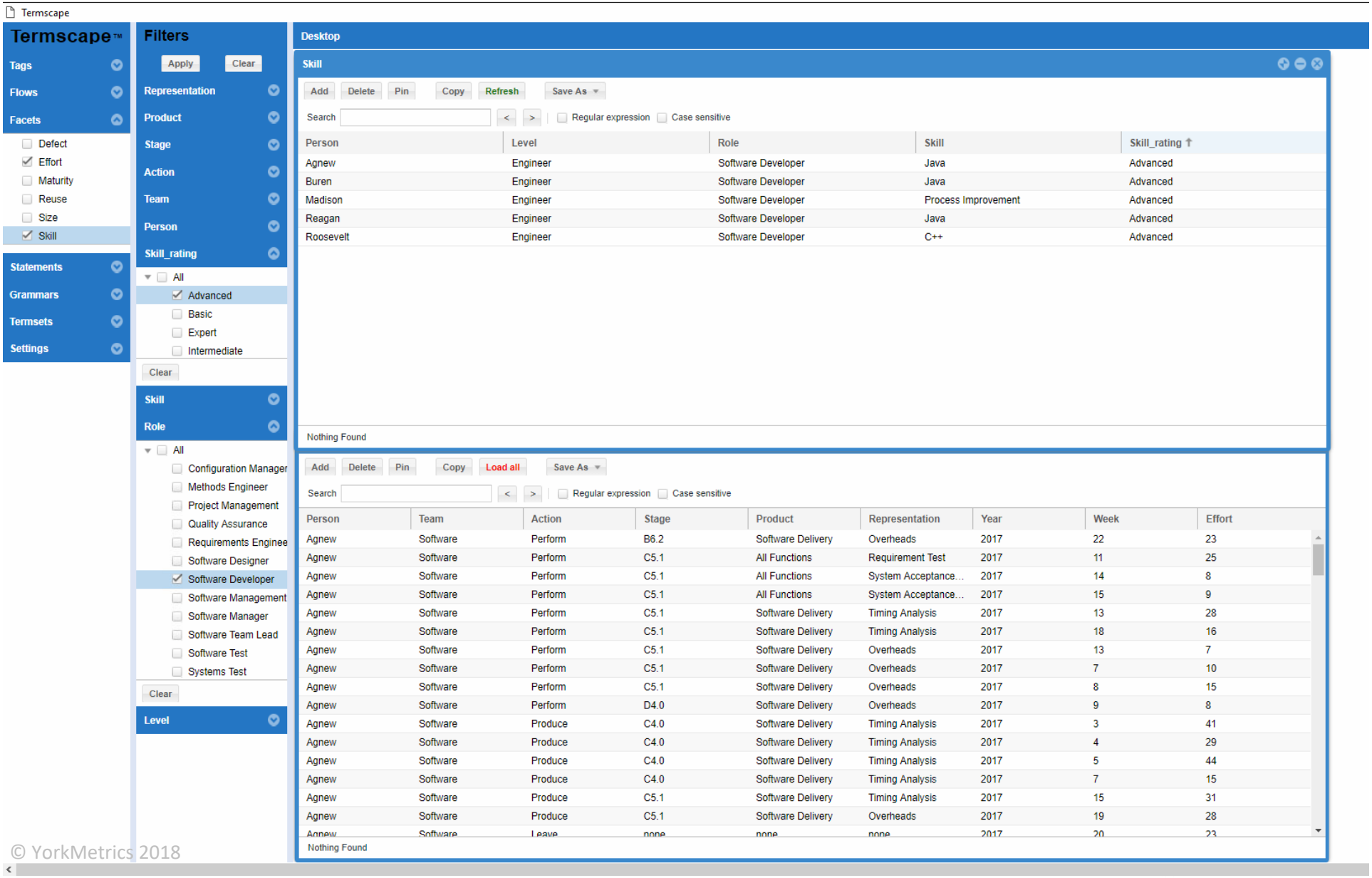

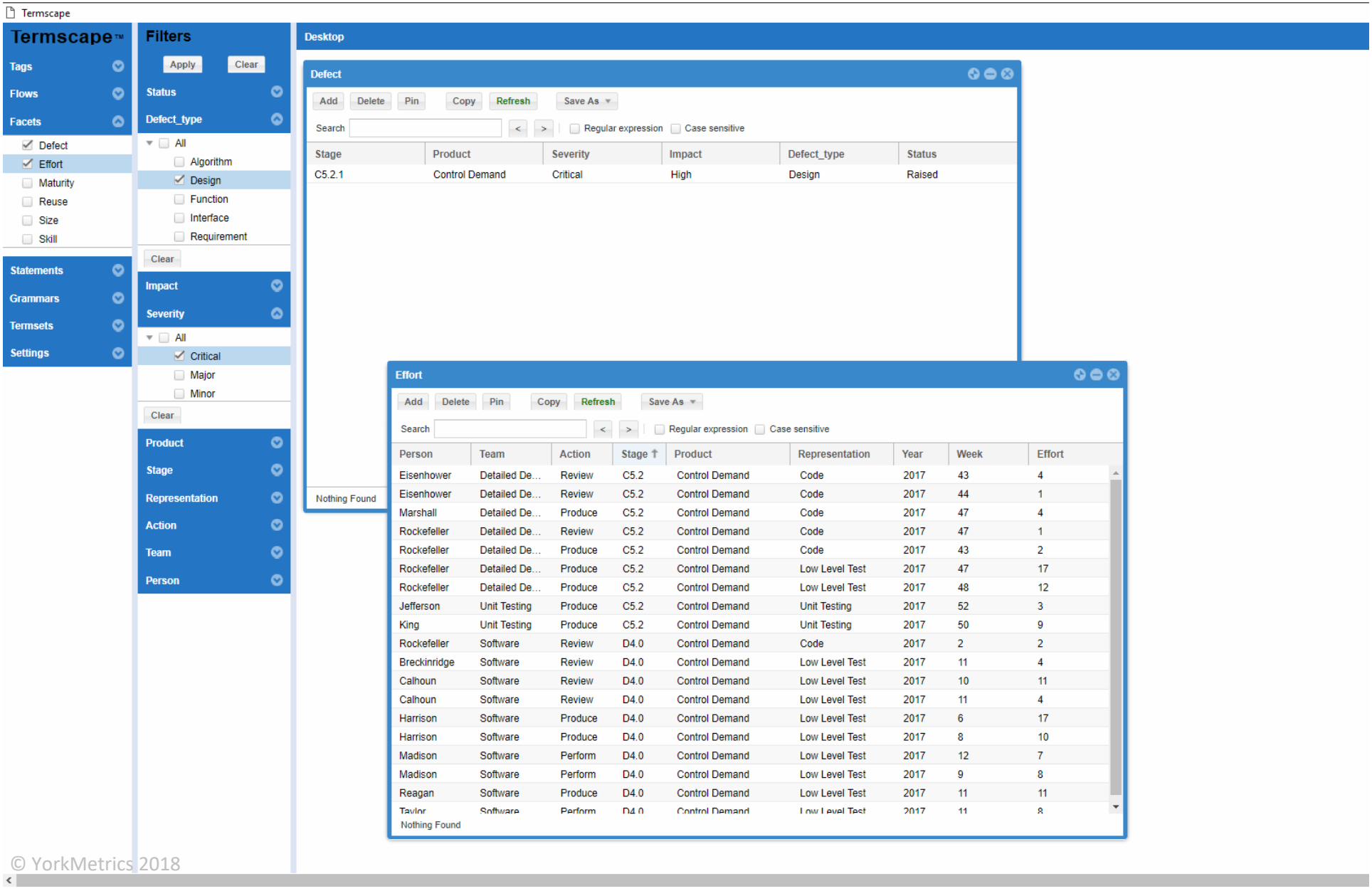

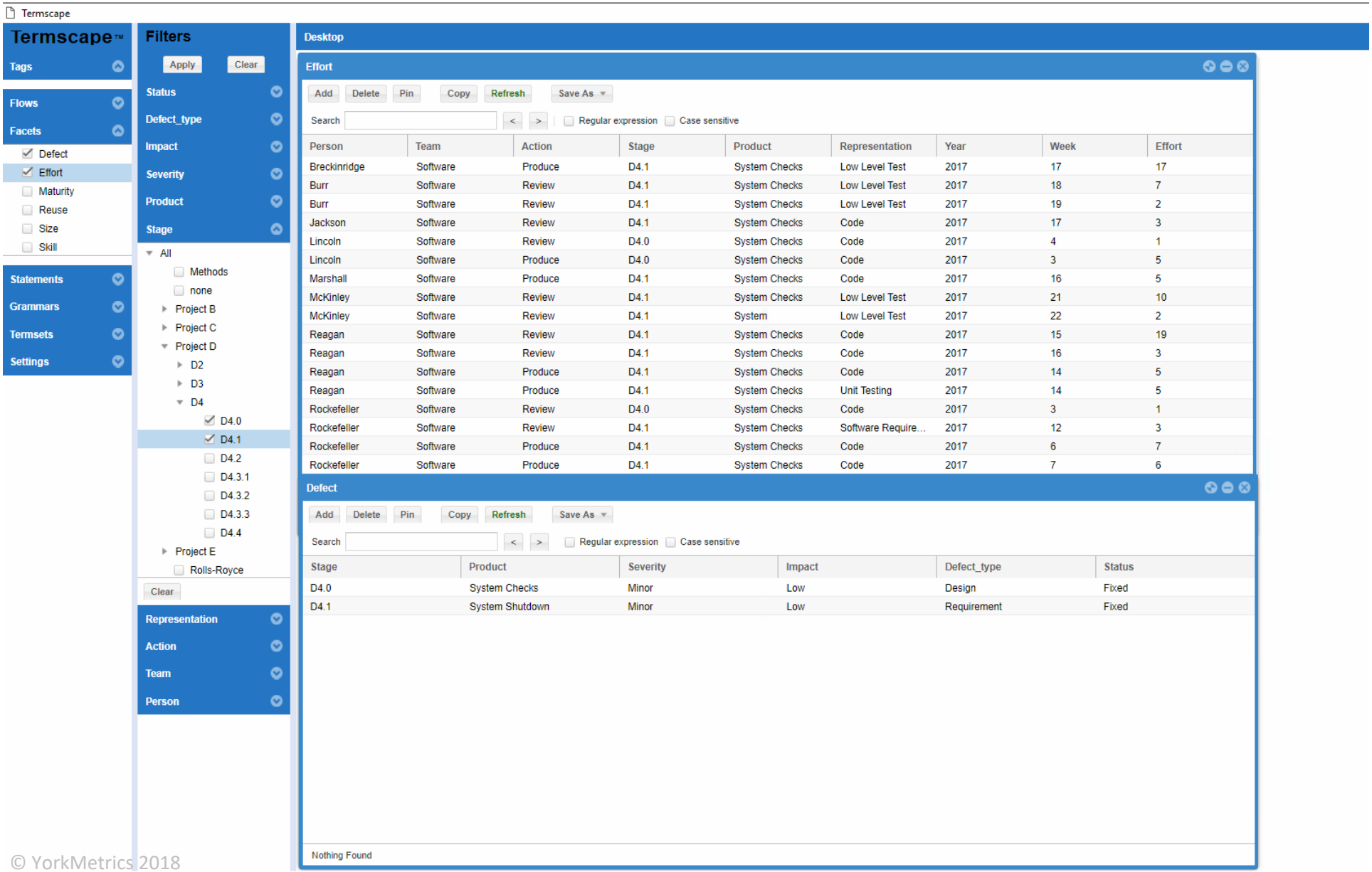

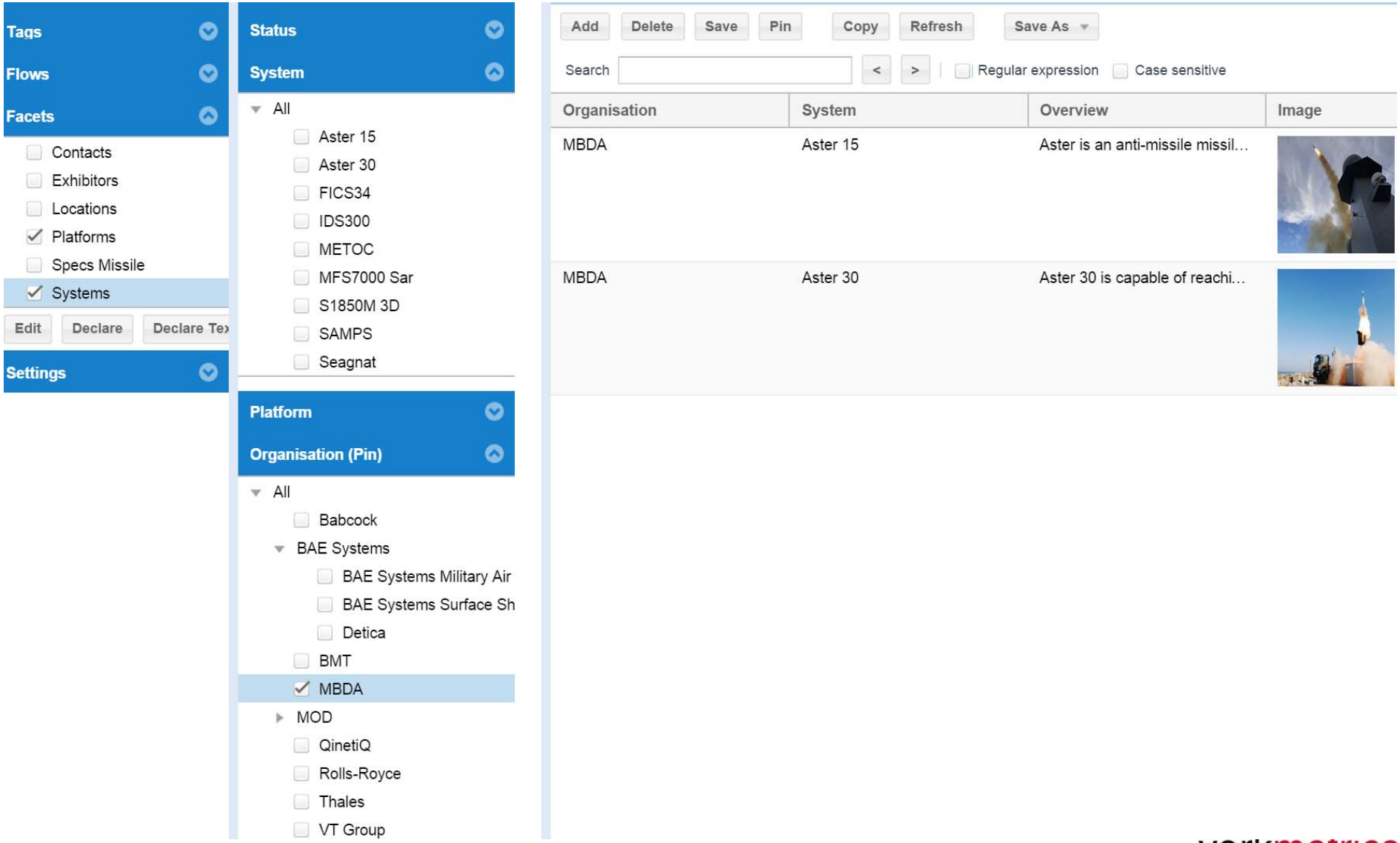

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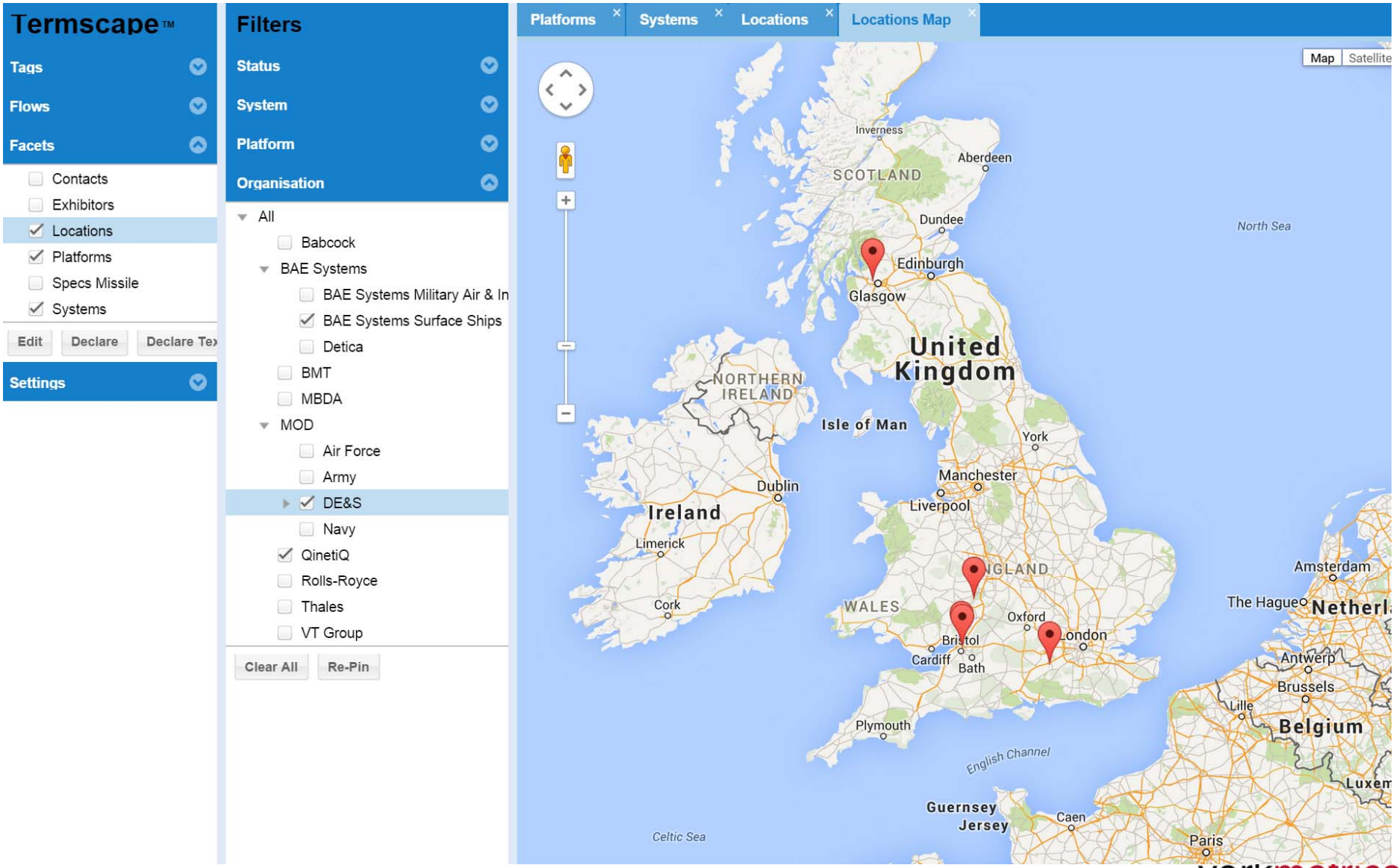

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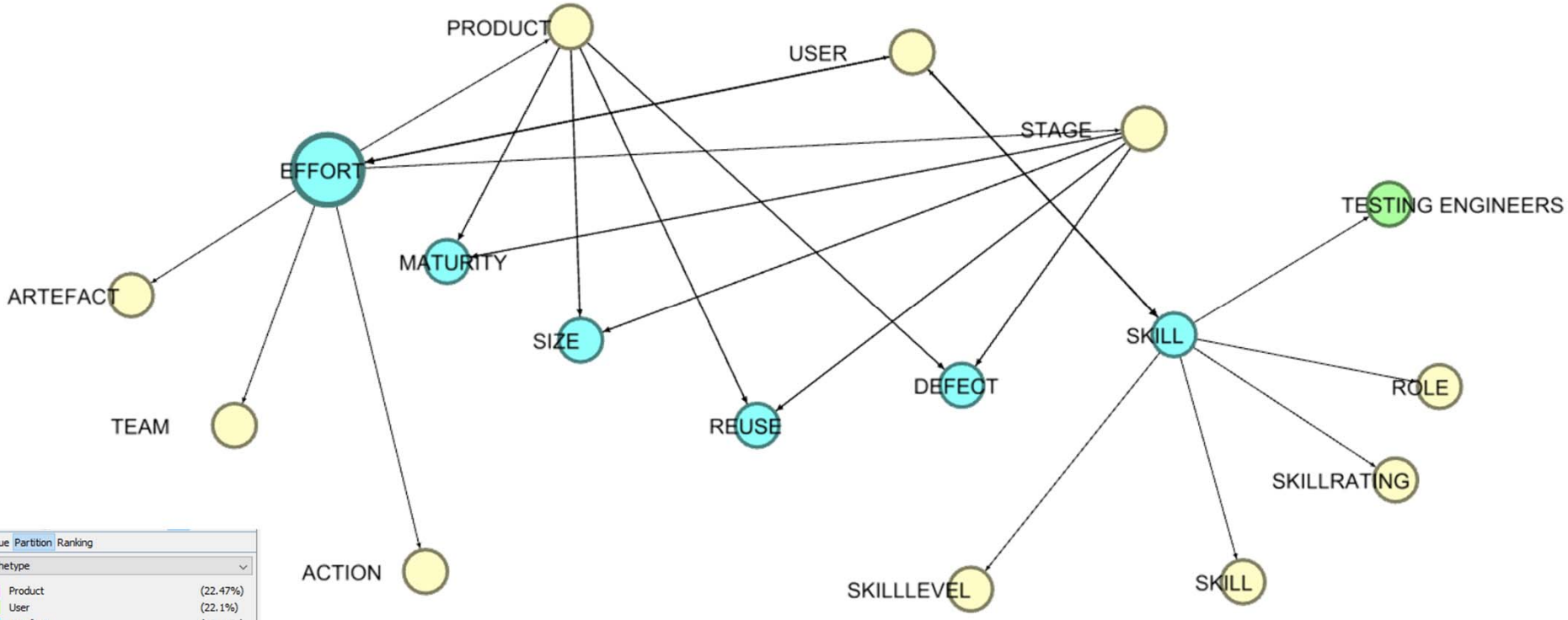
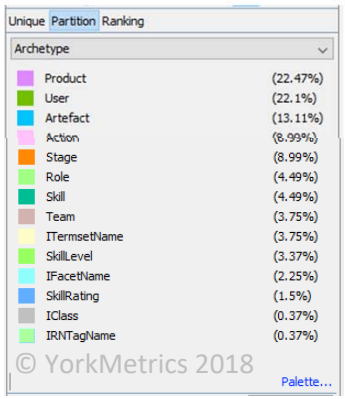
Inflexsion - Semantic Network





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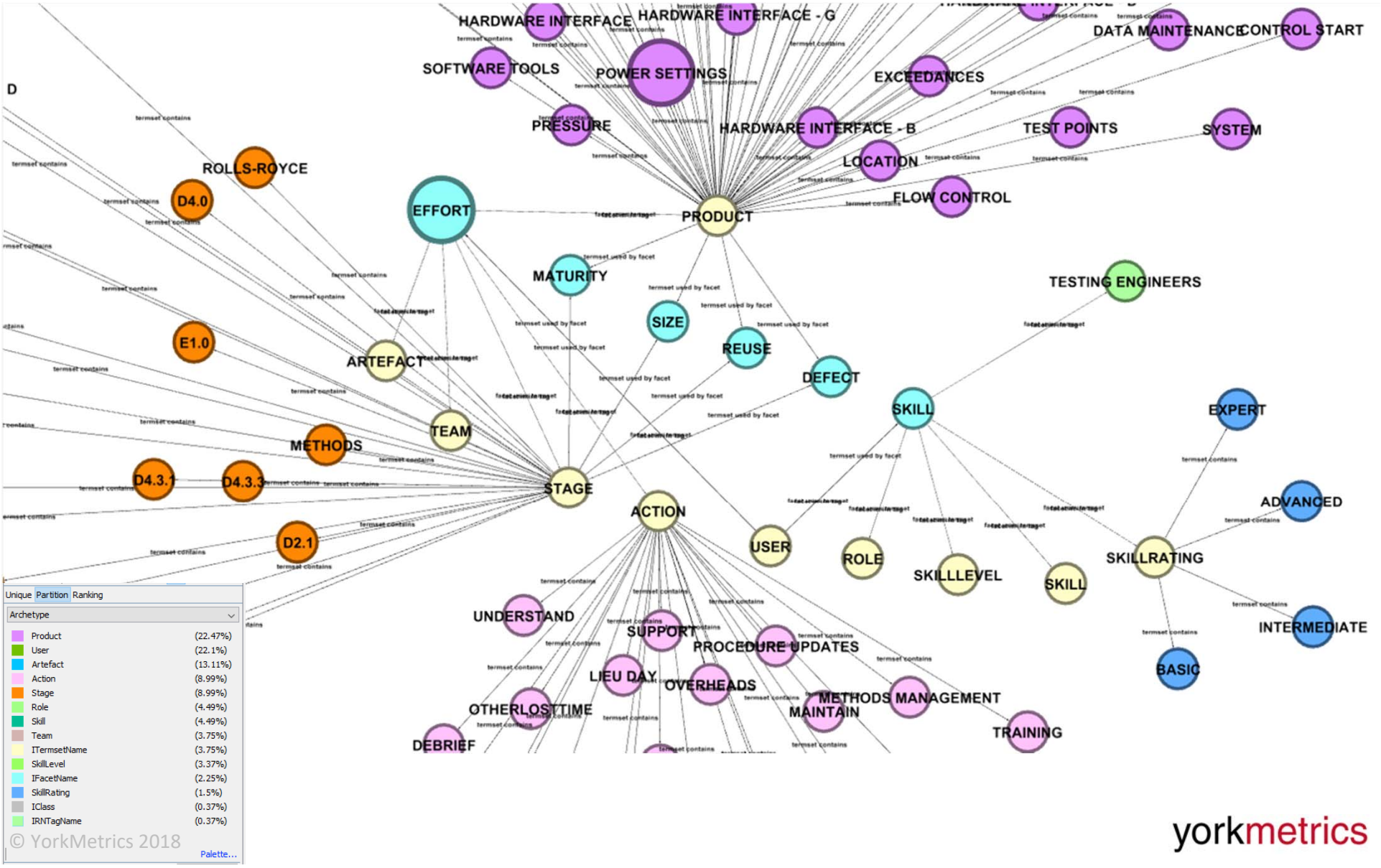
Semantic Network- Stages



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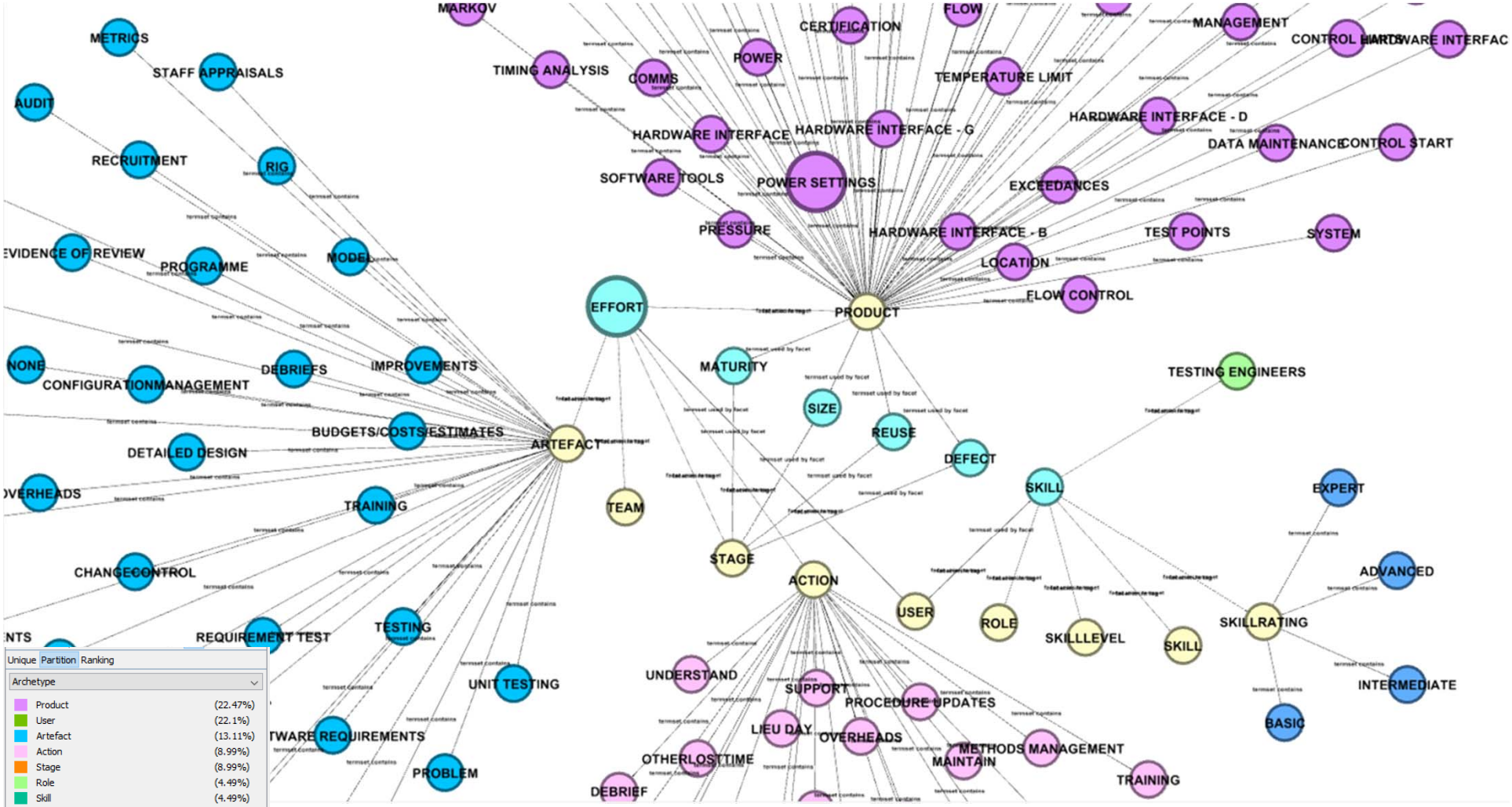
Semantic Network - Artefacts



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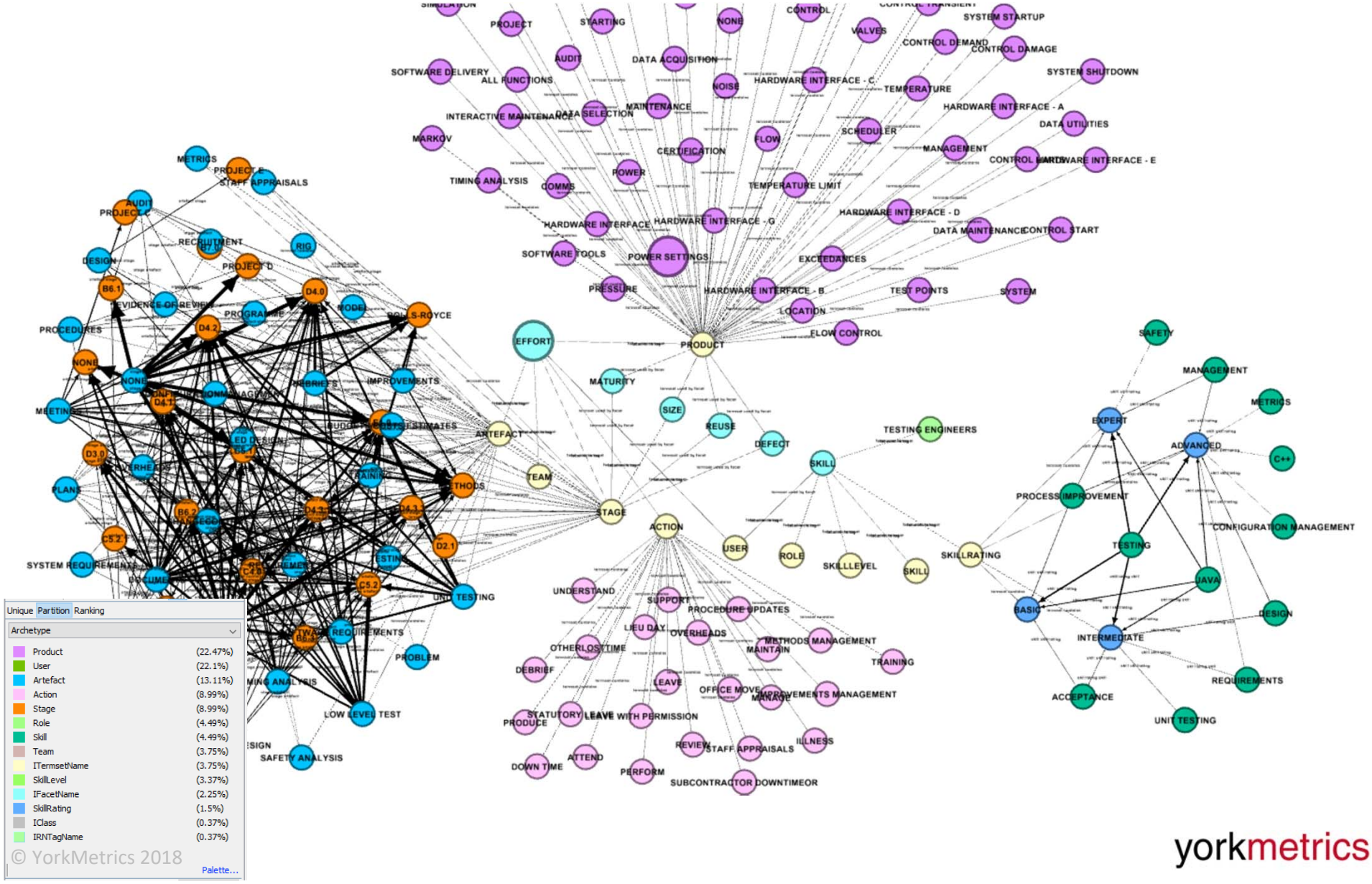
Semantic Network - Partitions



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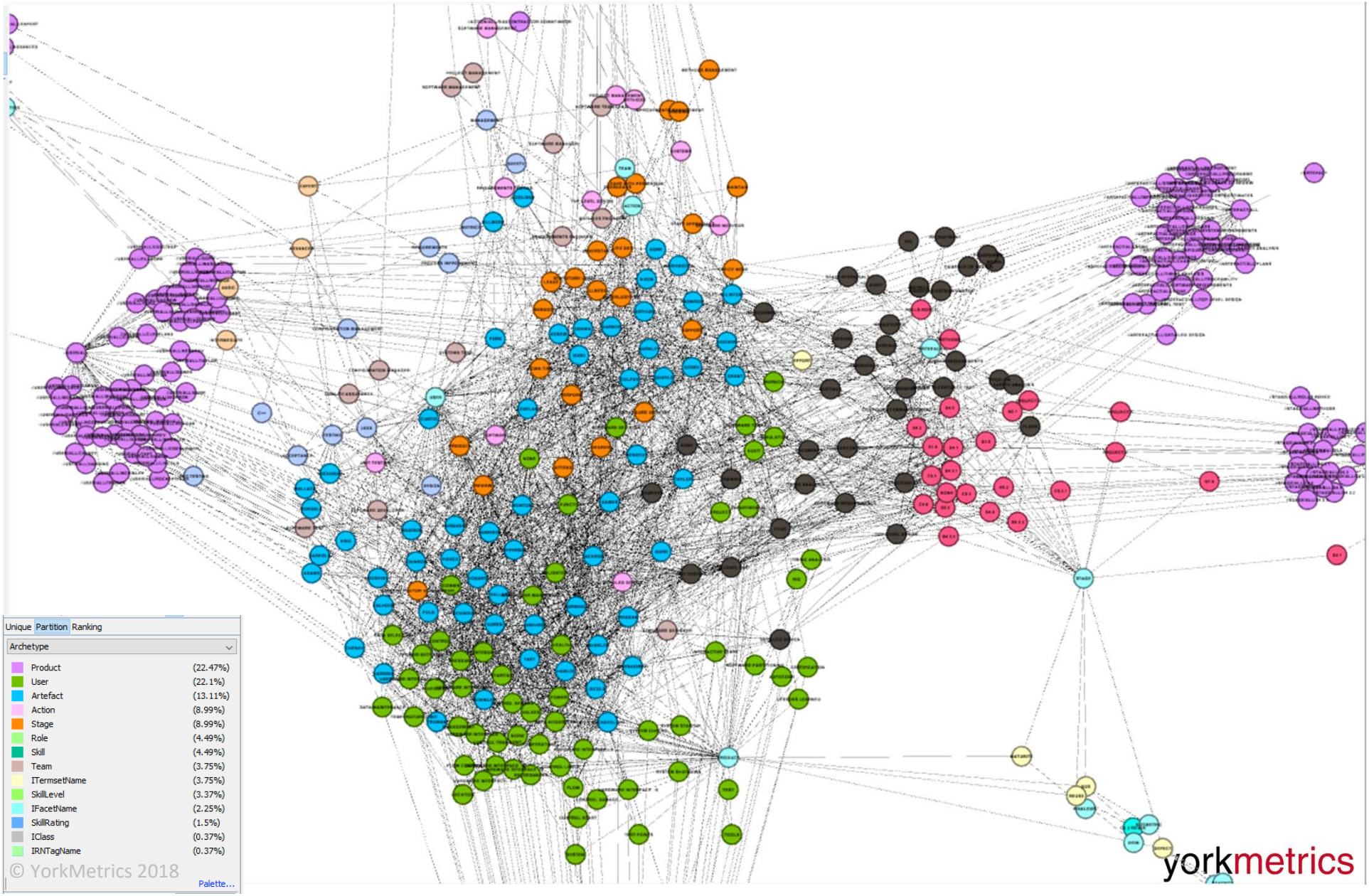
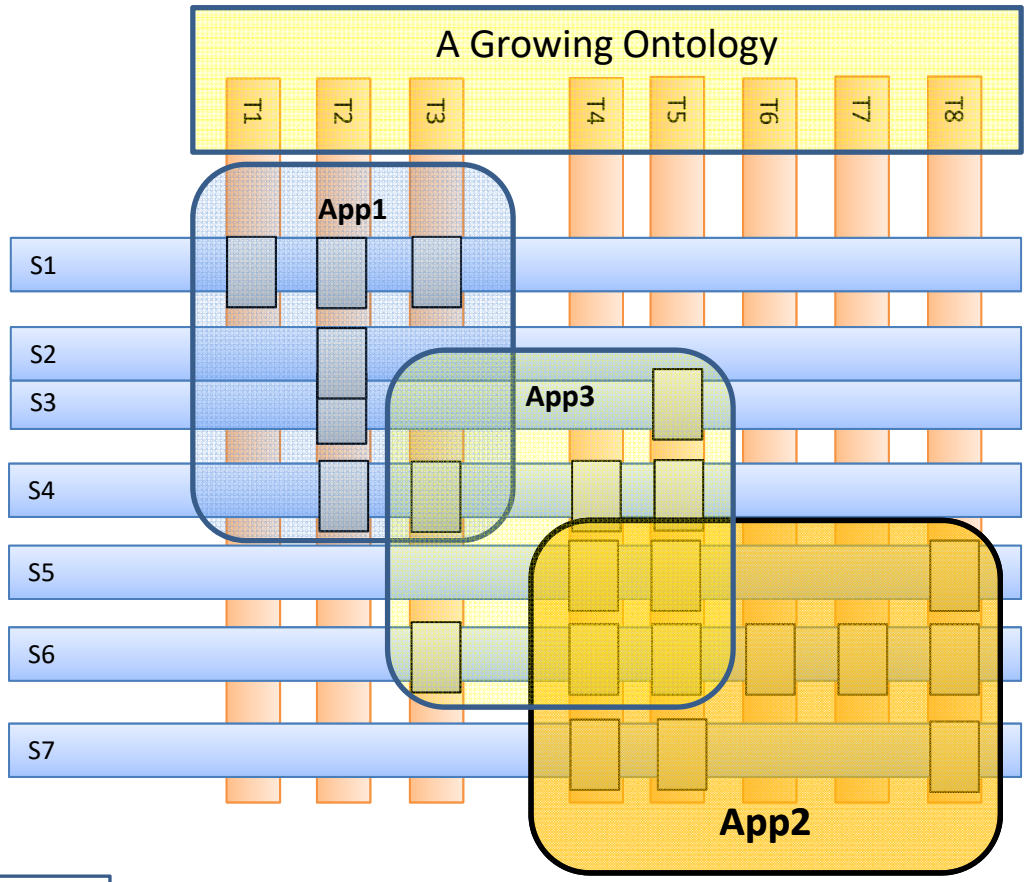
Semantic Network – Wider Graph



Inflexsion – Classify and Control Context



Key
App# = Application
Resources
S# = Sentence type
T# = Classified sets of terms

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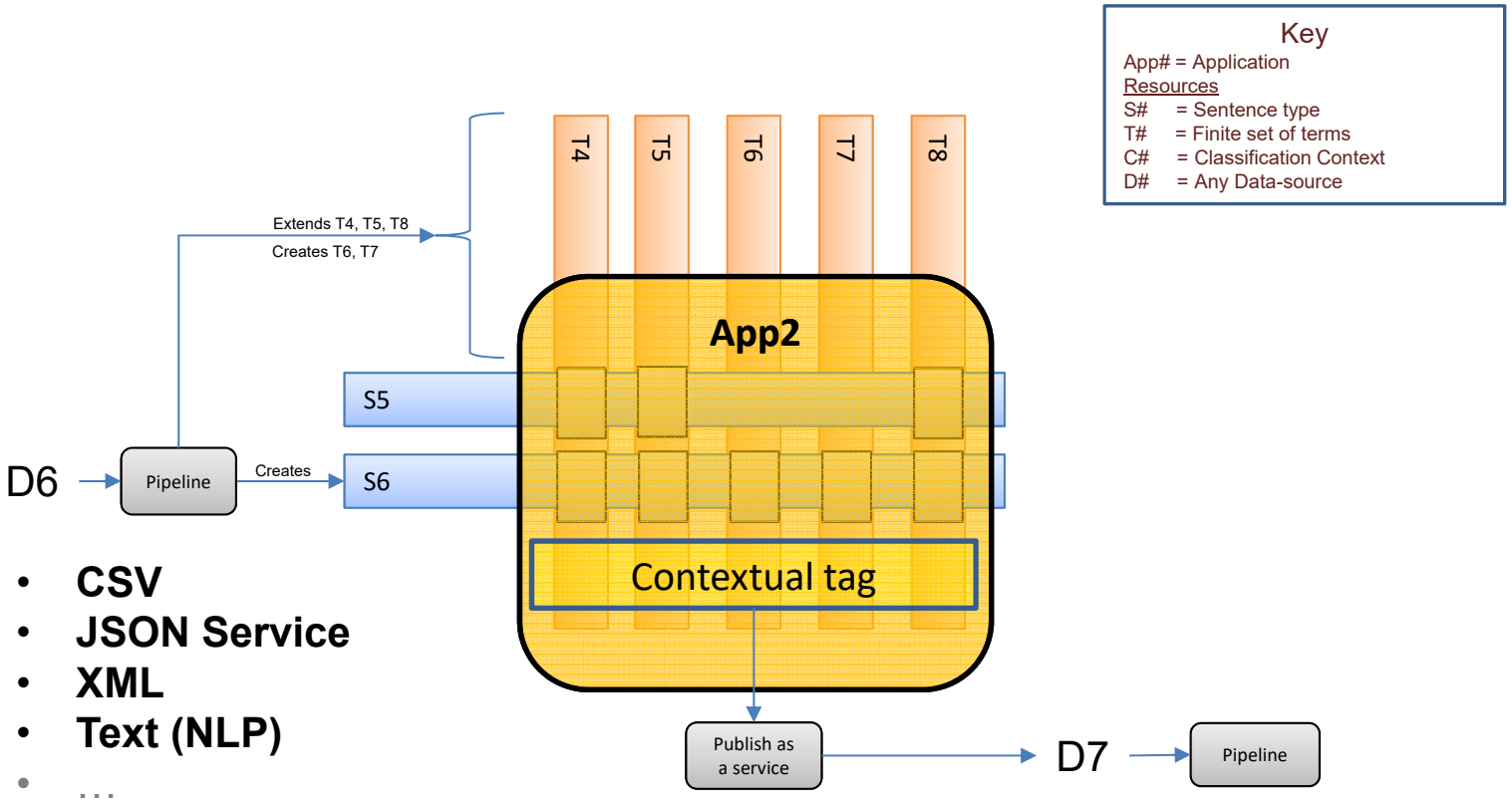
Inflexsion – Data Pipeline and Context Tags



- **CSV**
- **JSON Service**
- **XML**
- **Text (NLP)**
- …

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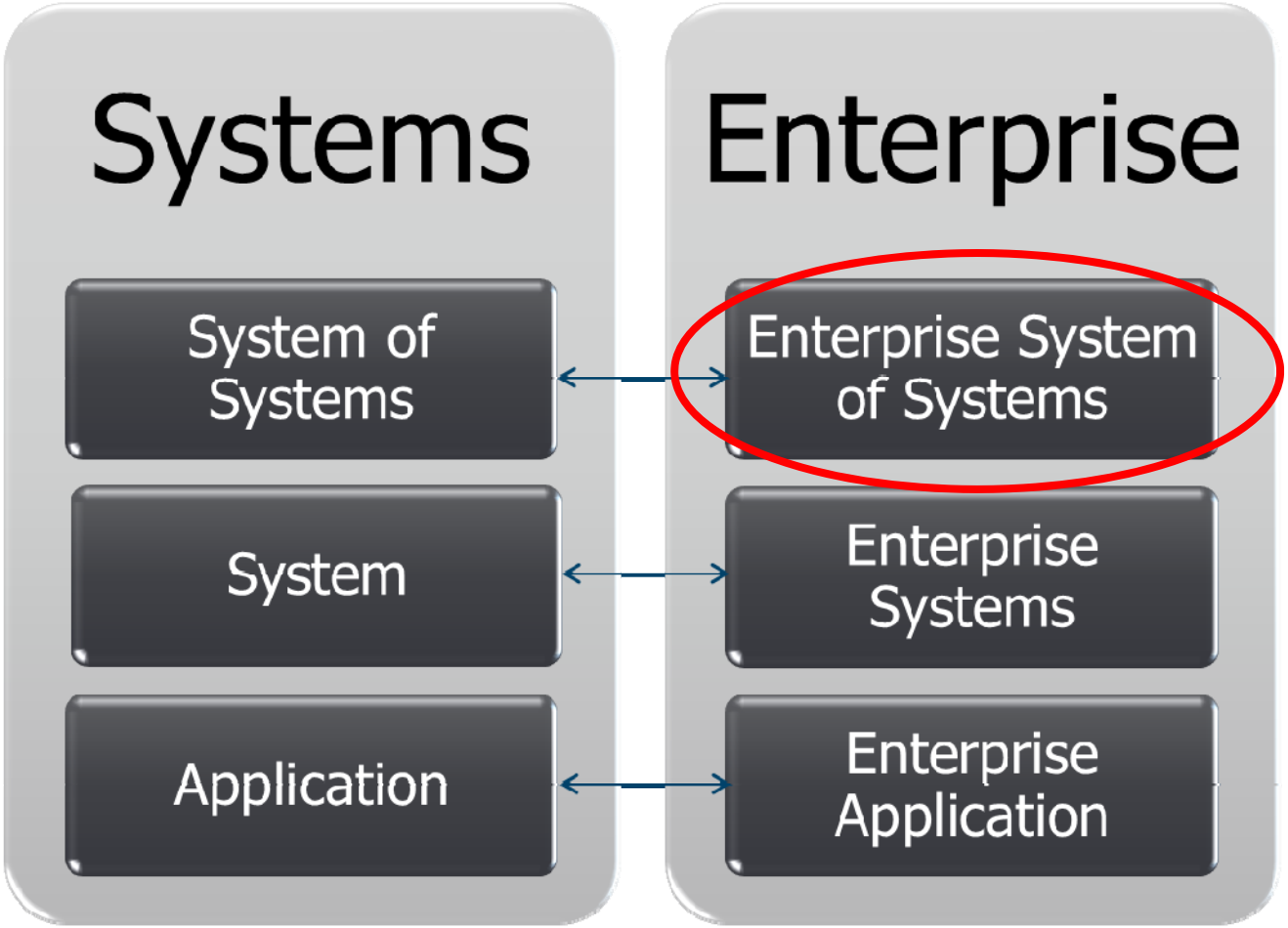
Capabilities

- Scalable, evolutionary and anti-fragile data model and applications platform
- One universal semantic schema with standard data pipelines and APIs
- Secure, auditable and federated (including sovereign) access
- Description and measurement to support decision analytics
- Powerful faceted, contextual, proximal and inferential search functions
- Aggregation framework and configured documents
- Advanced algorithms and machine/deep learning

Conclusions



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