



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

**“Fundamental Measurement Principles –
The Basis for Advanced Engineering Decision Information”**

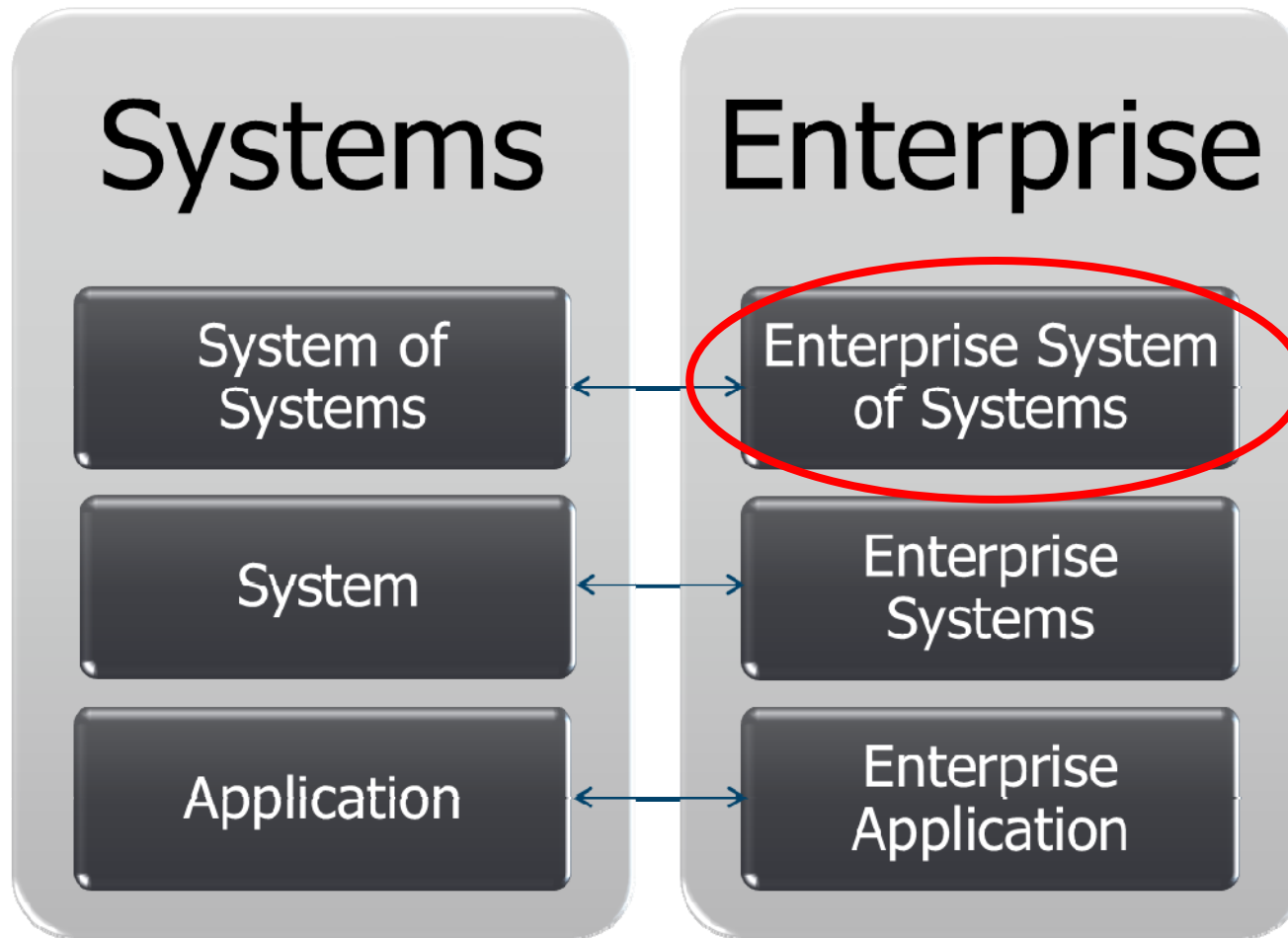
September 10-14, 2018 Arlington, Virginia

Words and Numbers

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york**metrics**

Conclusions



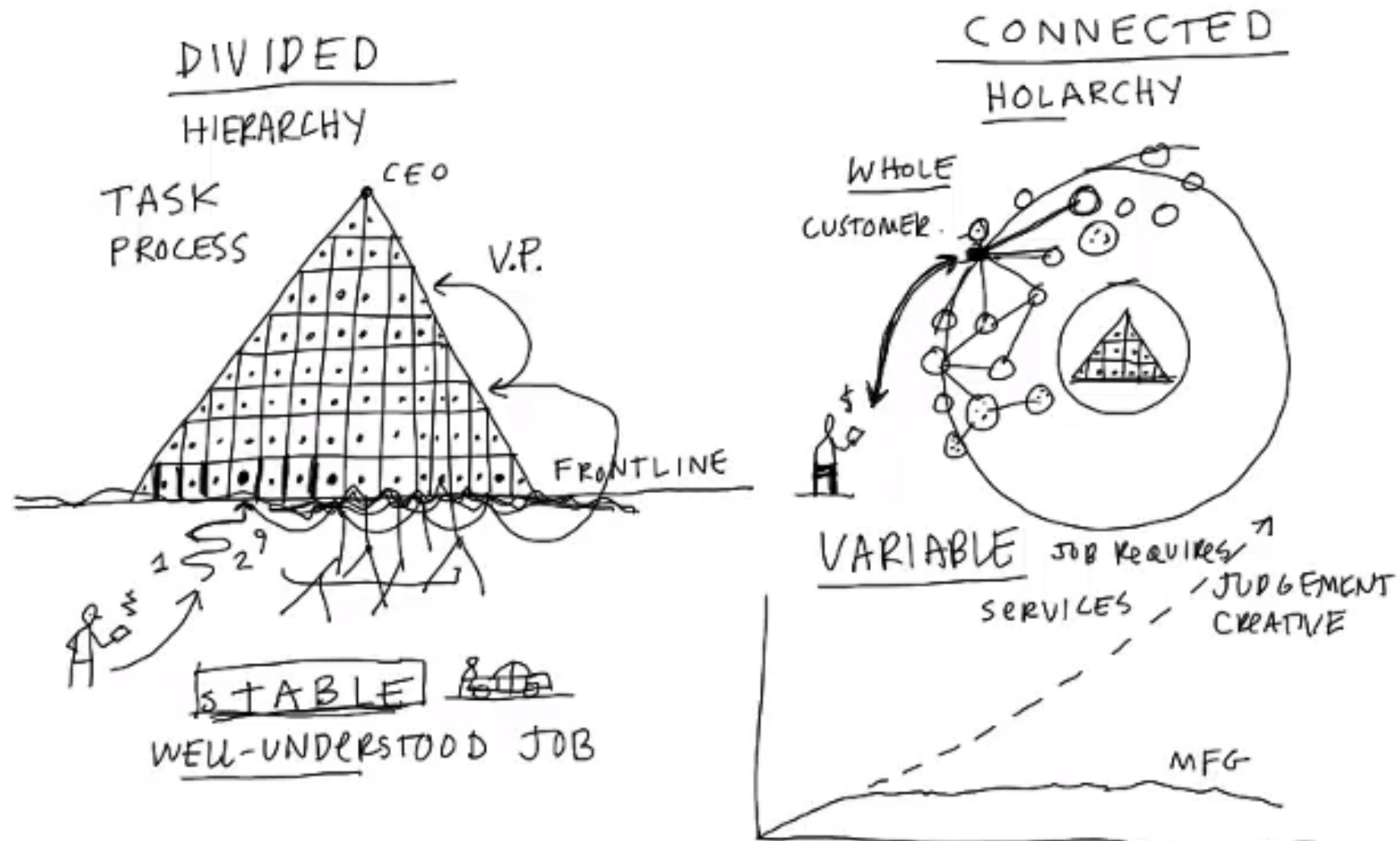
Recent Projects

- 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

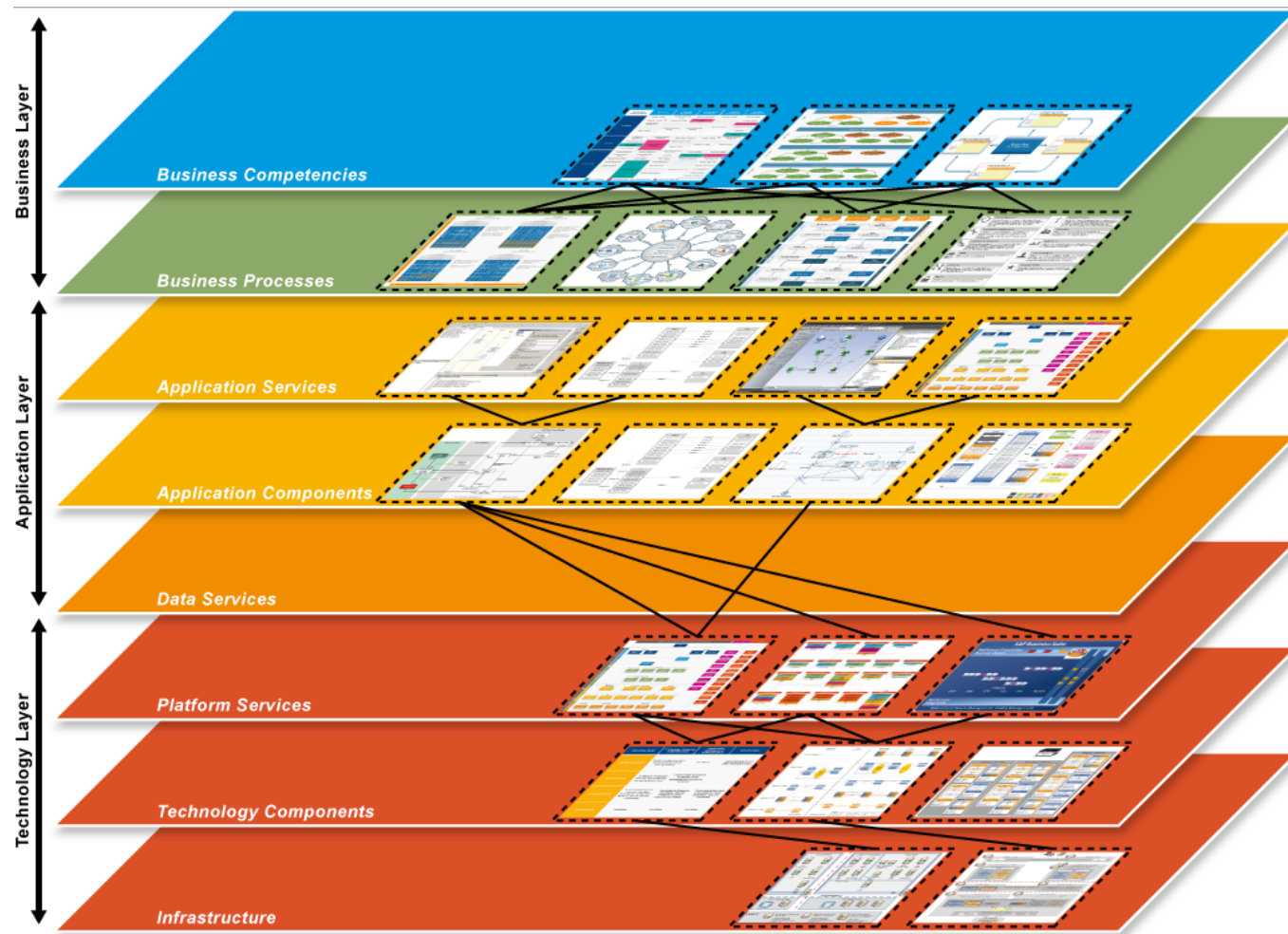
The Connected Company



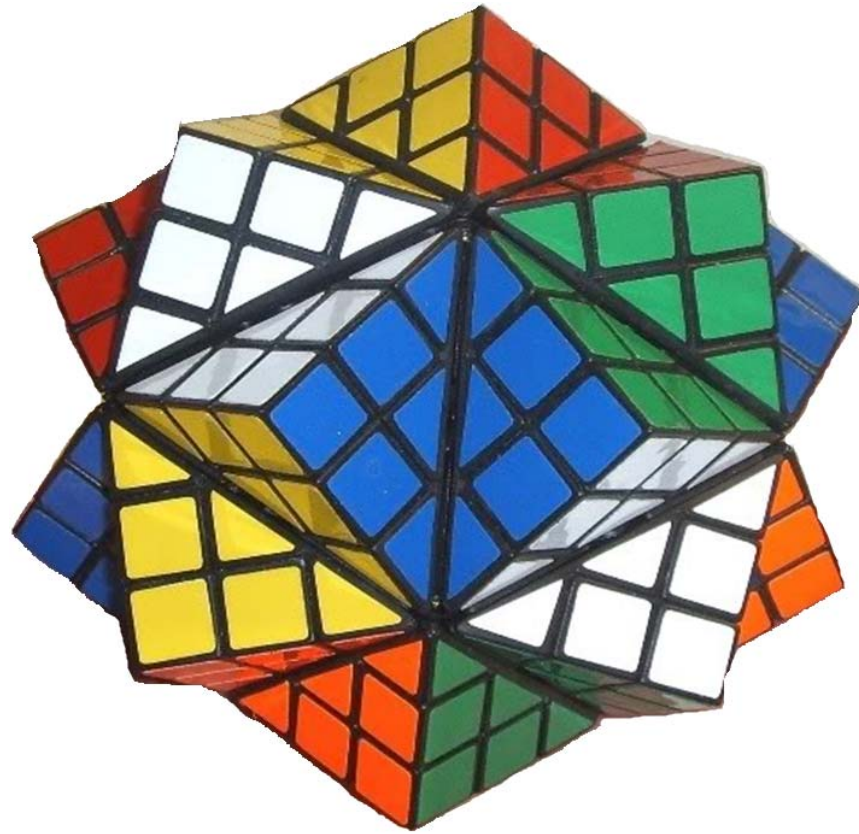
[Ref: Dave Gray, www.xplainer.com]



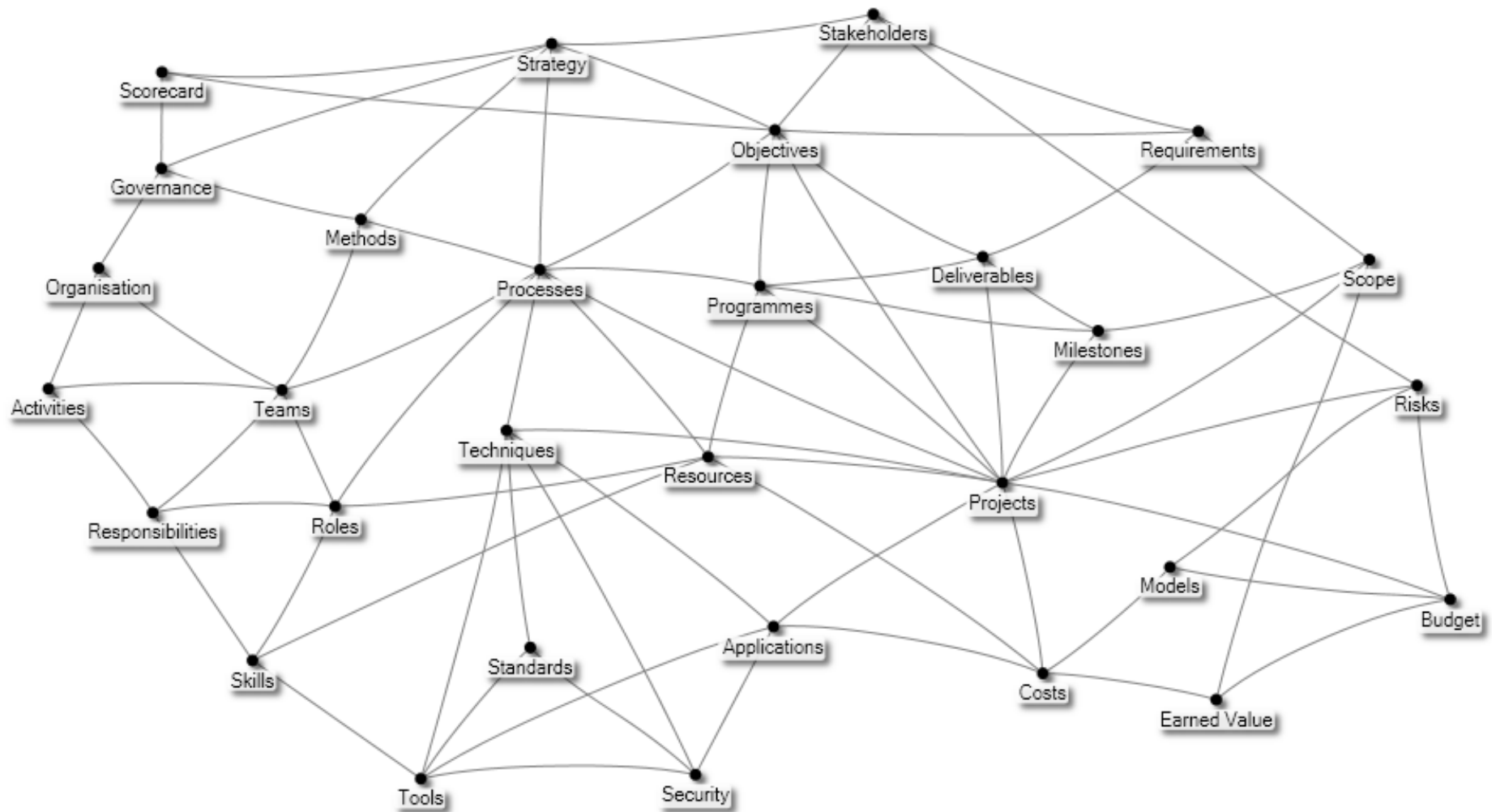
Enterprise Architectures & Fragility



Complexity vs Intricacy

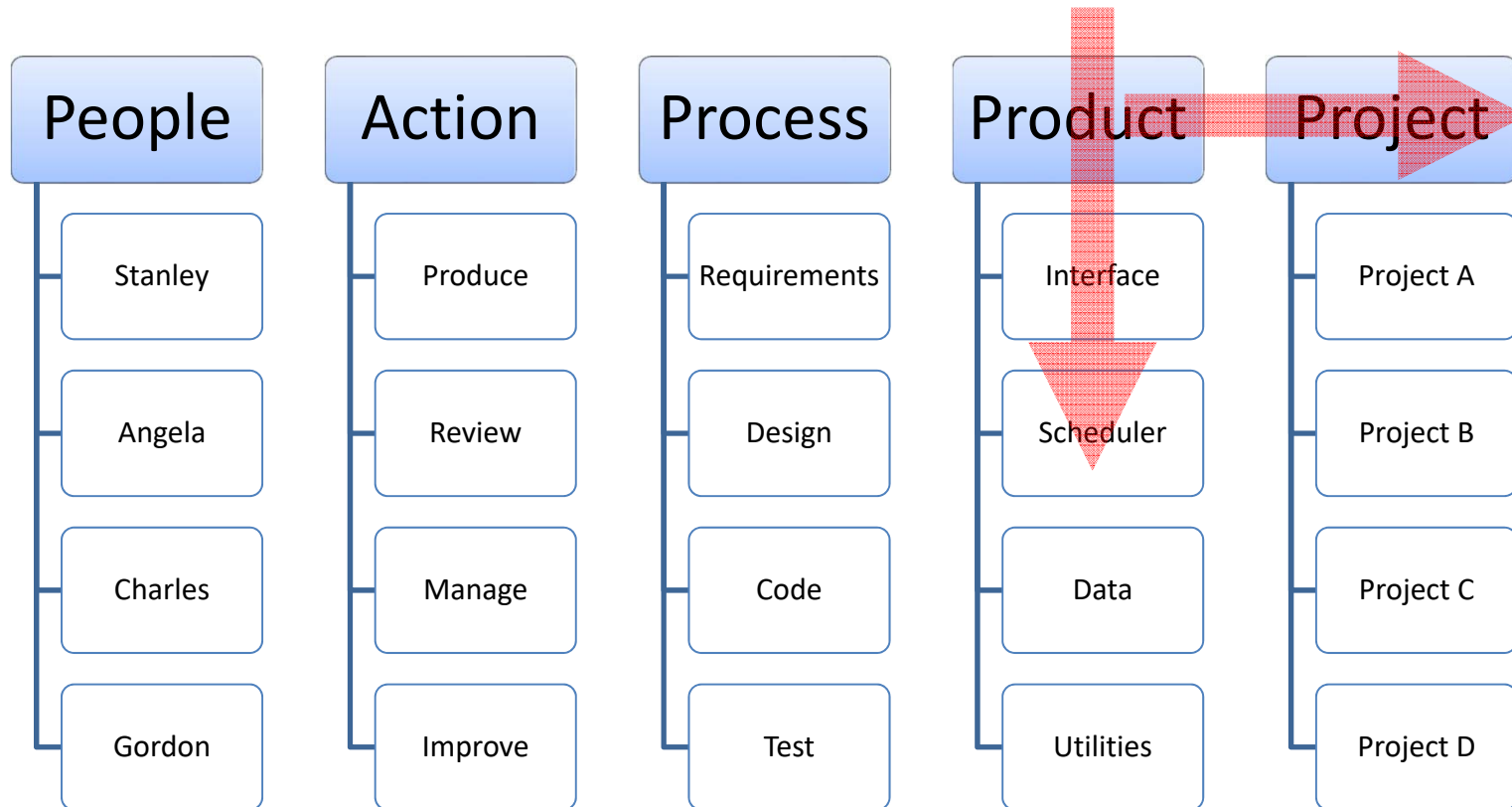


Descriptive Networks & Antifragility



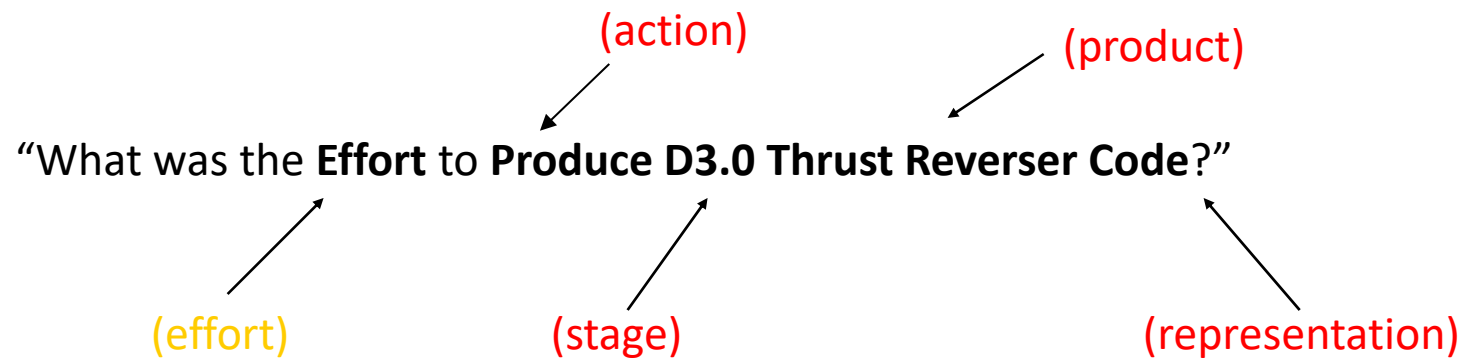
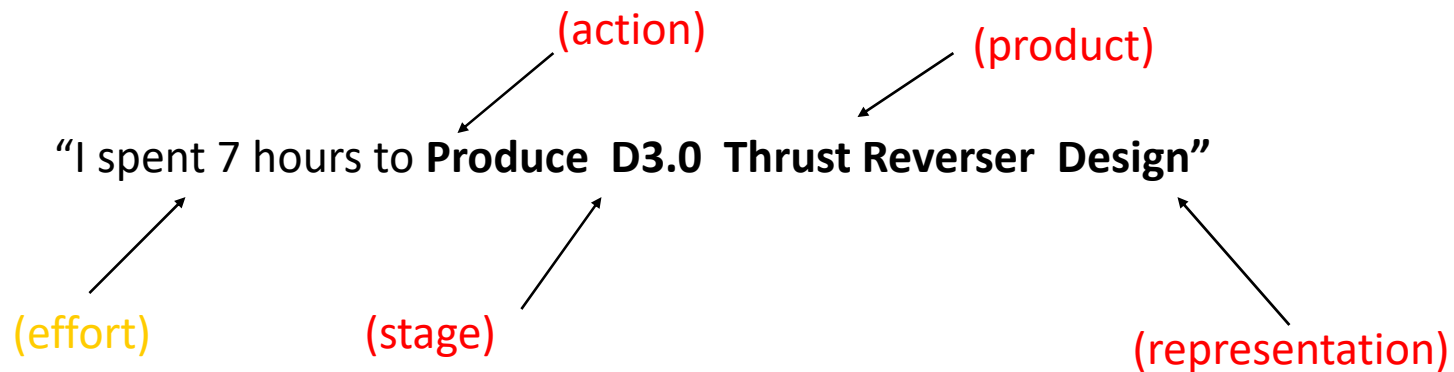
2

Generic Work Breakdown Structures

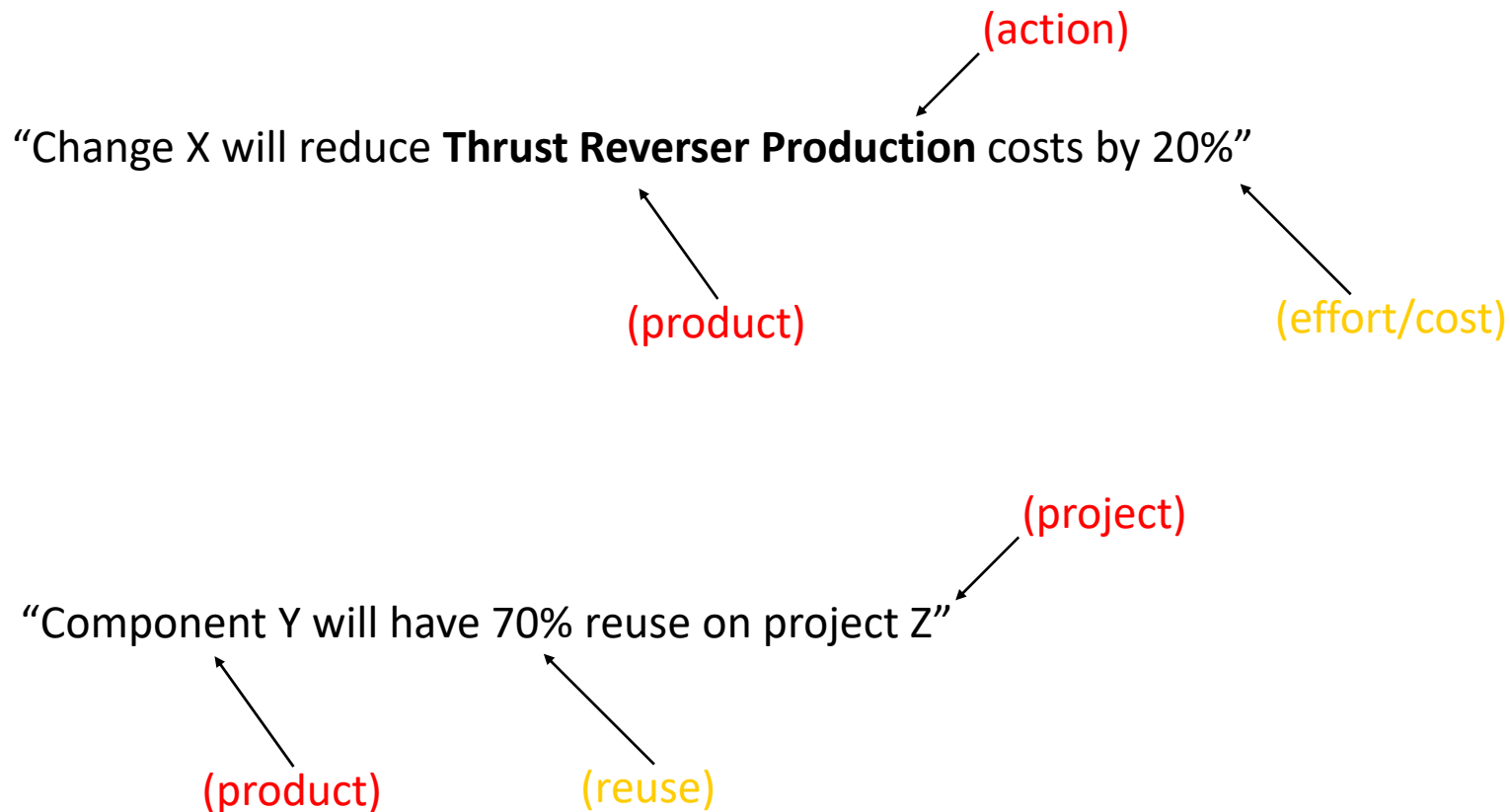


$4^5 = 1024$ combinations

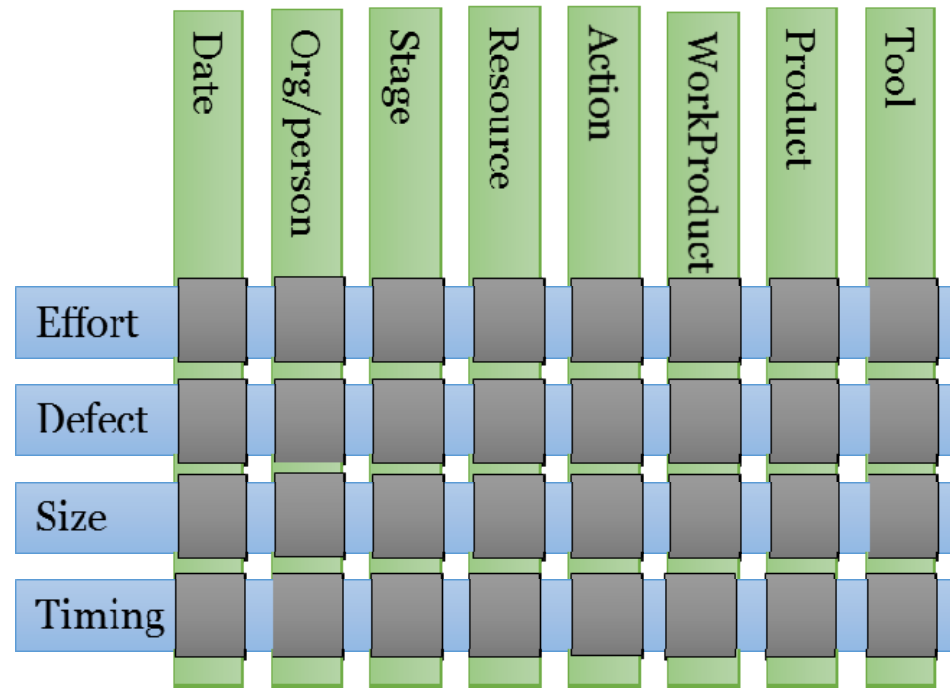
Facets - Effort



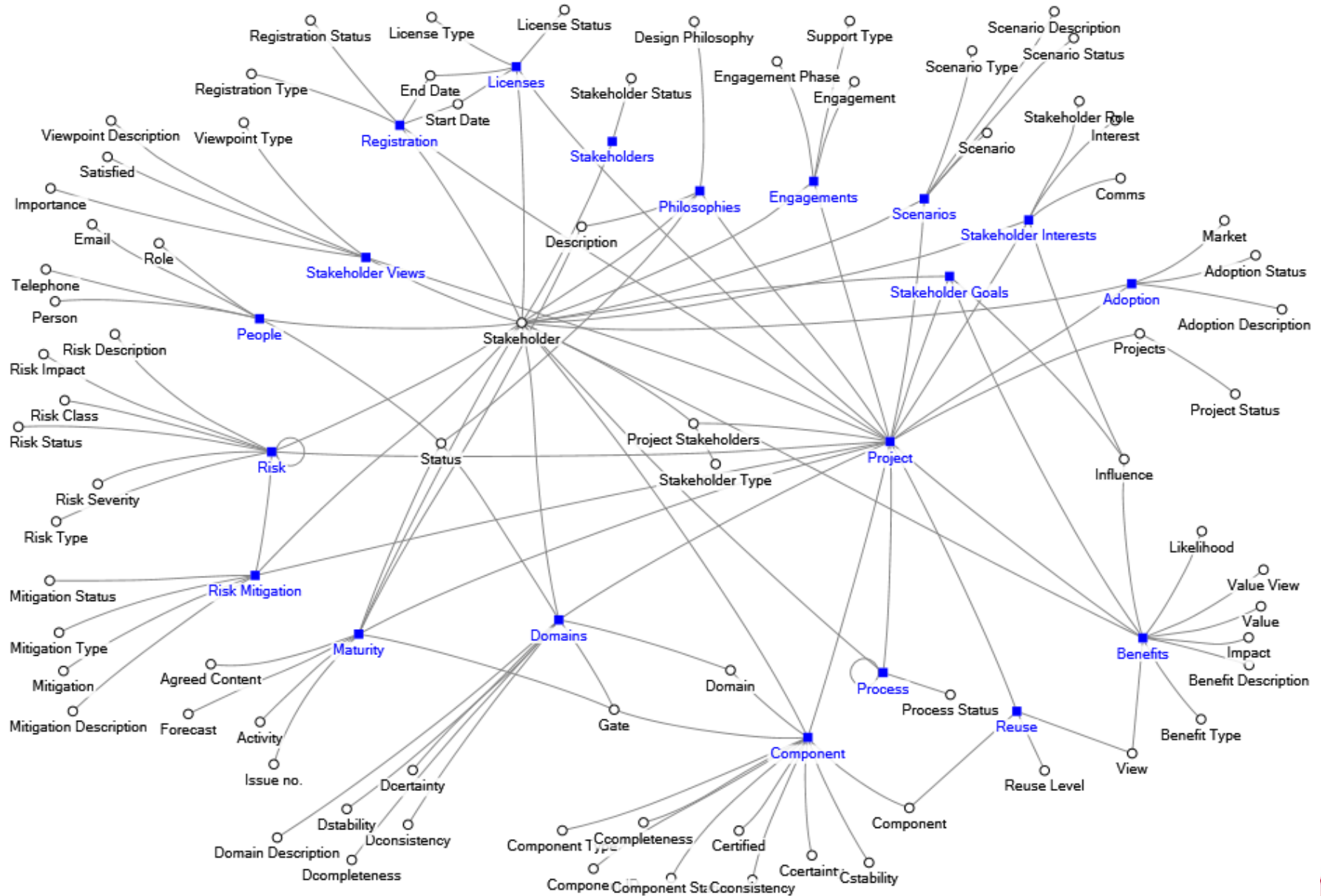
Facets – Improvement & Reuse



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?
	<i>What is the Value At Risk?</i>
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?
<i>Process</i>	<i>What is the status and progress against the process?</i>
<i>Project Plans</i>	<i>What is the status and progress against the project plan?</i>
<i>Component Use</i>	<i>What components can be used on what systems?</i>

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

The screenshot displays the Inflection Admin interface, which is a tool for managing taxonomies and termsets. The interface is organized into a grid of panels, each representing a different taxonomy. Each panel has a search bar and a list of terms with their hierarchical structure.

- Action:** Includes terms like Evaluate, Review, Generate, Perform, Produce, Leave, Leave With Permission, Lieu Day, Statutory Leave, Lost Time, Down Time, Illness, OtherLostTime, Subcontractor Downtime, Support, Attend, Debrief, Improvements Management, Maintain, Manage, Methods Management, Office Move, Overheads, Procedure Updates, Staff Appraisals, Training, and Understand.
- Stage:** Includes terms like Methods, none, Project B, B6, B6.1, B6.2, B6.3, B7, B7.0, Project C, C4, C4.0, C5, C5.1, C5.2, C5.2.1, Project D, D2, D3, D3.0, D4, D4.0, D4.1, D4.2, D4.3.1, D4.3.2, D4.3.3, D4.4, Project E, E1.0, and Rolls-Royce.
- Product:** Includes terms like All Functions, Audit, Certification, Comms, Control, Control Damage, Control Demand, Control Limits, Control Start, Control Transient, Data, Data Acquisition, Data Maintenance, Data Selection, Data Utilities, Exceedances, Flow, Flow Control, Hardware Interfaces, Hardware Interface - A, Hardware Interface - B, Hardware Interface - C, Hardware Interface - D, Hardware Interface - E, Hardware Interface - F, Hardware Interface - G, and Health.
- Representation:** Includes terms like Design, Detailed Design, Top-Level Design, Evaluation, Model, Rig, Safety Analysis, Implementation, Code, Problem, Timing Analysis, Improvement, Improvements, Metrics, Training, Management, Meetings, Overheads, Programme, Personnel, Recruitment, Staff Appraisals, Planning, Budgets/Costs/Estimates, Plans, Process, Documents, Procedures, Quality, Audit, ChangeControl, and ConfigurationManagement.
- Skill:** Includes terms like Acceptance, C++, Configuration Management, Design, Java, Management, Metrics, Process Improvement, Requirements, Safety, Testing, and Unit Testing.
- Skill Level:** Includes terms like Engineering, Engineer Level 1, Engineer Level 2, Engineer Level 3, Graduate Engineer, Lead, Management, Consultant, Director, and Manager.
- Team:** Includes terms like Detailed Design, Methods, Project Management, Requirements Testing, Software, Software Management, Software Methods, Systems, Top-Level Design, and Unit Testing.
- Defect Type:** Includes terms like Algorithm, Design, Function, Interface, and Requirement.
- Impact:** Includes terms like High and Low.
- Risk Level:** Includes terms like Critical, Major, Minor, and Negligible.
- Role:** Includes terms like Configuration Manager, Methods Engineer, Project Management, Quality Assurance, Requirements Engineer, Software Designer, and Software Developer.
- Severity:** Includes terms like Critical, Major, and Minor.
- Size Metric:** Includes terms like All and SLoC.

Termscape

Termscape™

Name:	TPSWCycle
Password:	*****
Organisation:	Inflexion
Domain:	ResourceTemplate
Server:	localhost
Port:	1099

[Reset](#) [Login](#)

Termscape™

Tags

Flows

Facets

☐ Defect
 ☒ Effort
 ☐ Size

Settings

Filters

Apply

Clear

Stage

Product

All

All Functions

Control

☐ Control
 ☐ Control Damage
 ☐ Control Demand
 ☐ Control Limits
 ☐ Control Start
 ☐ Control Transfer

Data

Flow

Hardware Interfaces

Health

Power

☐ Pressure
 ☐ Scheduler

System

Temperature

Validation

Management

Safety

Software

Representation

Action

Effort

Add

Delete

Pin

Copy

Refresh

Save As

Search

<

>

☐ Regular expression

☐ Case sensitive

Date	Action	Representation	Product	Stage	Effort
10/11/2017	Produce	Code	Starting	D2.1	5
		Detailed Design	Control Limits		
		Detailed Design	Control Limits		
10/10/2017	Produce	Code	Power Settings		
11/10/2017	Perform	Low Level Test	Control Limits		

Cancel

Form

Add

All

Non-Project

Project B

Project C

Project D

D2

D2.1

D3

D4

Project E

Nothing Found

Termscape™

Tags

Flows

Facets

☐ Defect☒ Effort☐ Maturity☐ Reuse☐ Size☐ Skill

Settings

Filters

Apply

Clear

Representation

Product

▼ All

► All Functions

► Audit

► Certification

► Comms

▼ Control

☐ Control☐ Control Damage☐ Control Demand☐ Control Limits☐ Control Start☐ Control Transient

► Data

► Flow

► Hardware Interfaces

► Health

► Management

☐ none

► Performance

► Power

► Pressure and Temperature

► Scheduler

► Software

► System

► Tools

► Validation

Stage

Action

Team

Person

Desktop

Effort

Add

Delete

Pin

Copy

Load all

Save As

Search

<

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☐

Regular expression

☐

Case sensitive

Person	Team	Action	Stage	Product	Representation	Year	Week	Effort
Agnew	Software	Perform	B6.2	Software Delivery	Overheads	2017	22	23
Agnew	Software	Perform	C5.1	Software Delivery	Timing Analysis	2017	13	28
Agnew	Software	Lieu Day	none	none	none	2017	13	4
Agnew	Software	Illness	none	none	none	2017	6	8
Arthur	Methods	Produce	Methods	Data Selection	Design	2017	50	10
Arthur	Methods	Produce	Methods	Software Tools	Documents	2017	35	1
Arthur	Software Methods	Produce	Methods	All Functions	ChangeControl	2017	51	18
Arthur	Software Methods	Down Time	none	none	none	2017	49	1
Barkley	Unit Testing	Manage	D4.3.1	All Functions	Unit Testing	2017	38	9
Breckinridge	Software	Produce	D4.2	Scheduler	Code	2017	22	1
Buren	Detailed Design	Produce	C5.2	All Functions	Detailed Design	2017	39	14
Burr	Software Methods	Produce	Methods	Software Tools	Design	2017	37	38
Burr	Software	Produce	B6.2	All Functions	Top-Level Design	2017	25	4
Burr	Software	Produce	D4.2	All Functions	Top-Level Design	2017	21	7
Bush	Software	Perform	E1.0	Software Delivery	Overheads	2017	19	10
Cleveland	Detailed Design	Manage	C5.2	All Functions	Code	2017	42	40
Cleveland	Detailed Design	Manage	Rolls-Royce	none	none	2017	37	8
Cleveland	Software	Review	D4.1	All Functions	Code	2017	15	23
Cleveland	Software	Statutory Leave	none	none	none	2017	22	15
Cleveland	Software	Attend	E1.0	none	Meetings	2017	25	1
Cleveland	Software	Attend	Rolls-Royce	none	Training	2017	31	30
Cleveland	Software	Manage	E1.0	All Functions	Code	2017	26	41
Clinton	Project Manage...	Produce	D4.4	Software Delivery	Plans	2017	50	41
Clinton	Software Methods	Produce	Methods	Software Tools	Code	2017	52	1
Clinton	Software Methods	Produce	Methods	Markov	Code	2017	48	16
Clinton	Software Methods	Produce	Methods	Simulation	Code	2017	43	2

Nothing Found

Termscape™

Tags

Flows

Facets

☐ Defect☒ Effort☐ Maturity☐ Reuse☐ Size☐ Skill

Settings

Filters

Apply

Clear

Representation

Product

Stage

▼ All

☐ Methods☐ none

► Project B

► Project C

▼ Project D

► D2

► D3

▼ D4

☐ D4.0☐ D4.1☒ D4.2☐ D4.3.1☐ D4.3.2☐ D4.3.3☐ D4.4

► Project E

☐ Rolls-Royce

Clear

Action

Team

Person

Desktop

Effort

Add

Delete

Pin

Copy

Load all

Save As

Search

< >

☐ Regular expression☐ Case sensitive

Person	Team	Action	Stage	Product	Representation	Year	Week	Effort
Barkley	Software	Manage	D4.2	All Functions	Code	2017	25	8
Barkley	Software	Manage	D4.2	All Functions	Low Level Test	2017	30	35
Barkley	Unit Testing	Manage	D4.2	All Functions	Unit Testing	2017	33	8
Breckinridge	Software	Produce	D4.2	All Functions	Low Level Test	2017	22	3
Breckinridge	Software	Produce	D4.2	Hardware Interfa...	Low Level Test	2017	22	2
Breckinridge	Software	Produce	D4.2	Scheduler	Code	2017	22	1
Buchanan	Software	Produce	D4.2	Hardware Interfa...	Low Level Test	2017	25	39
Buchanan	Software	Produce	D4.2	Hardware Interfa...	Low Level Test	2017	29	22
Buchanan	Software	Produce	D4.2	Hardware Interfa...	Low Level Test	2017	30	29
Burr	Software	Produce	D4.2	All Functions	Top-Level Design	2017	20	30
Burr	Software	Produce	D4.2	All Functions	Top-Level Design	2017	21	7
Burr	Software	Produce	D4.2	All Functions	Top-Level Design	2017	23	24
Cheney	Software	Perform	D4.2	Temperature Limit	Low Level Test	2017	31	14
Cleveland	Software	Perform	D4.2	All Functions	Code	2017	25	10
Cleveland	Software	Produce	D4.2	Comms	Code	2017	21	4
Clinton	Project Manage...	Review	D4.2	Software Delivery	Documents	2017	34	6
Clinton	Software	Perform	D4.2	Software Delivery	Overheads	2017	13	45
Clinton	Software	Perform	D4.2	Software Delivery	Overheads	2017	17	9
Clinton	Software	Perform	D4.2	Software Delivery	Overheads	2017	18	27
Clinton	Software	Perform	D4.2	Software Delivery	Overheads	2017	21	20
Clinton	Software	Perform	D4.2	Software Delivery	Overheads	2017	26	30
Clinton	Software	Perform	D4.2	Software Delivery	ChangeControl	2017	26	13
Colfax	Software	Perform	D4.2	All Functions	System Accepta...	2017	25	20
Colfax	Software	Perform	D4.2	All Functions	System Accepta...	2017	28	17
Colfax	Software	Perform	D4.2	All Functions	System Accepta...	2017	30	15
Colfax	Software	Perform	D4.2	Software Delivery	Overheads	2017	22	5

Nothing Found

Termscape

Tags

Flows

Facets

Defect

Effort

Maturity

Reuse

Size

Skill

Settings

Filters

Apply

Clear

Size_metric

Product

All

All Functions

Audit

Certification

Comms

Control

Data

Flow

Hardware Interfaces

Health

Management

none

Performance

Power

Pressure and Tempera

Scheduler

Software

System

Tools

Validation

Clear

Stage

All

Methods

none

Project B

Project C

C4

C5

C5.1

C5.2

C5.2.1

Project D

Project E

Rolls-Royce

Clear

View

Desktop

Size

Add

Delete

Pin

Copy

Refresh

Save As

Search

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Regular expression

Case sensitive

Stage	Product	Size_metric	Count
C5.2	Hardware Interface - A	SLoC	702
C5.2	Hardware Interface - B	SLoC	1787
C5.2	Hardware Interface - C	SLoC	548
C5.2	Hardware Interface - D	SLoC	214
C5.2	Hardware Interface - E	SLoC	888
C5.2	Hardware Interface - F	SLoC	587
C5.2	Hardware Interface - G	SLoC	2232
C5.2	Hardware Interface	SLoC	620

Reuse

Add

Delete

Pin

Copy

Refresh

Save As

Search

<

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Regular expression

Case sensitive

Product ↑	View	Reuse_Level
Hardware Interface	Actual	60
Hardware Interface	Target	60
Hardware Interface - A	Actual	20
Hardware Interface - A	Target	40
Hardware Interface - B	Actual	30
Hardware Interface - B	Target	50
Hardware Interface - C	Actual	15
Hardware Interface - C	Target	15
Hardware Interface - D	Actual	35
Hardware Interface - D	Target	90
Hardware Interface - E	Actual	25
Hardware Interface - E	Target	35
Hardware Interface - F	Actual	15
Hardware Interface - F	Target	50
Hardware Interface - G	Actual	60
Hardware Interface - G	Target	60

Effort

Add

Delete

Pin

Copy

Refresh

Save As

Search

<

>

Regular expression

Case sensitive

Person	Team	Action	Product ↑	Representation	Year	Week	Effort
Lincoln	Software	Produce	Hardware Interface - A	Code	2017	28	0
Marshall	Software	Review	Hardware Interface - A	Code	2017	32	2
Pierce	Software	Produce	Hardware Interface - A	Code	2017	10	1
Pierce	Software	Produce	Hardware Interface - A	Code	2017	11	2
Pierce	Software	Produce	Hardware Interface - A	Code	2017	8	4
Reagan	Software	Produce	Hardware Interface - A	Code	2017	21	15
Rockefeller	Software	Review	Hardware Interface - A	Code	2017	11	1
Rockefeller	Software	Review	Hardware Interface - A	Code	2017	9	2
Truman	Software	Produce	Hardware Interface - A	Code	2017	3	4
Breckinridge	Software	Review	Hardware Interface - A	Low Level Test	2017	22	4
Harrison	Software	Review	Hardware Interface - A	Low Level Test	2017	21	2
McKinley	Software	Review	Hardware Interface - A	Low Level Test	2017	27	6
McKinley	Software	Review	Hardware Interface - A	Low Level Test	2017	31	10

Nothing Found

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Termscape™

Tags

Flows

Facets

☐ Defect☒ Effort☐ Maturity☐ Reuse☐ Size☒ Skill

Statements

Grammars

Termsets

Settings

Filters

Apply

Clear

Representation

Product

Stage

Action

Team

Person

Skill_rating

All

☒ Advanced☐ Basic☐ Expert☐ Intermediate

Clear

Skill

Role

All

☐ Configuration Manager☐ Methods Engineer☐ Project Management☐ Quality Assurance☐ Requirements Engineer☐ Software Designer☒ Software Developer☐ Software Management☐ Software Manager☐ Software Team Lead☐ Software Test☐ Systems Test

Clear

Level

Desktop

Skill

Add

Delete

Pin

Copy

Refresh

Save As

Search

<

>

☐ Regular expression☐ Case sensitive

Person

Level

Role

Skill

Skill_rating ↑

Agnew

Engineer

Software Developer

Java

Advanced

Buren

Engineer

Software Developer

Java

Advanced

Madison

Engineer

Software Developer

Process Improvement

Advanced

Reagan

Engineer

Software Developer

Java

Advanced

Roosevelt

Engineer

Software Developer

C++

Advanced

Nothing Found

Add

Delete

Pin

Copy

Load all

Save As

Search

<

>

☐ Regular expression☐ Case sensitive

Person

Team

Action

Stage

Product

Representation

Year

Week

Effort

Agnew

Software

Perform

B6.2

Software Delivery

Overheads

2017

22

23

Agnew

Software

Perform

C5.1

All Functions

Requirement Test

2017

11

25

Agnew

Software

Perform

C5.1

All Functions

System Acceptance...

2017

14

8

Agnew

Software

Perform

C5.1

All Functions

System Acceptance...

2017

15

9

Agnew

Software

Perform

C5.1

Software Delivery

Timing Analysis

2017

13

28

Agnew

Software

Perform

C5.1

Software Delivery

Timing Analysis

2017

18

16

Agnew

Software

Perform

C5.1

Software Delivery

Overheads

2017

13

7

Agnew

Software

Perform

C5.1

Software Delivery

Overheads

2017

7

10

Agnew

Software

Perform

C5.1

Software Delivery

Overheads

2017

8

15

Agnew

Software

Perform

D4.0

Software Delivery

Overheads

2017

9

8

Agnew

Software

Produce

C4.0

Software Delivery

Timing Analysis

2017

3

41

Agnew

Software

Produce

C4.0

Software Delivery

Timing Analysis

2017

4

29

Agnew

Software

Produce

C4.0

Software Delivery

Timing Analysis

2017

5

44

Agnew

Software

Produce

C4.0

Software Delivery

Timing Analysis

2017

7

15

Agnew

Software

Produce

C5.1

Software Delivery

Timing Analysis

2017

15

31

Agnew

Software

Produce

C5.1

Software Delivery

Overheads

2017

19

28

Agnew

Software

Leave

none

none

none

2017

20

23

Nothing Found

Termscape™

Tags

Flows

Facets

☒ Defect☒ Effort☐ Maturity☐ Reuse☐ Size☐ Skill

Statements

Grammars

Termsets

Settings

Filters

Apply

Clear

Status

Defect_type

▼ ☐ All☐ Algorithm☒ Design☐ Function☐ Interface☐ Requirement

Clear

Impact

Severity

▼ ☐ All☒ Critical☐ Major☐ Minor

Clear

Product

Stage

Representation

Action

Team

Person

Desktop

Defect

Add

Delete

Pin

Copy

Refresh

Save As

Search

<

>

☐ Regular expression☐ Case sensitive

Stage	Product	Severity	Impact	Defect_type	Status
C5.2.1	Control Demand	Critical	High	Design	Raised

Nothing Found

Effort

Add

Delete

Pin

Copy

Refresh

Save As

Search

<

>

☐ Regular expression☐ Case sensitive

Person	Team	Action	Stage ↑	Product	Representation	Year	Week	Effort
Eisenhower	Detailed De...	Review	C5.2	Control Demand	Code	2017	43	4
Eisenhower	Detailed De...	Review	C5.2	Control Demand	Code	2017	44	1
Marshall	Detailed De...	Produce	C5.2	Control Demand	Code	2017	47	4
Rockefeller	Detailed De...	Review	C5.2	Control Demand	Code	2017	47	1
Rockefeller	Detailed De...	Produce	C5.2	Control Demand	Code	2017	43	2
Rockefeller	Detailed De...	Produce	C5.2	Control Demand	Low Level Test	2017	47	17
Rockefeller	Detailed De...	Produce	C5.2	Control Demand	Low Level Test	2017	48	12
Jefferson	Unit Testing	Produce	C5.2	Control Demand	Unit Testing	2017	52	3
King	Unit Testing	Produce	C5.2	Control Demand	Unit Testing	2017	50	9
Rockefeller	Software	Review	D4.0	Control Demand	Code	2017	2	2
Breckinridge	Software	Review	D4.0	Control Demand	Low Level Test	2017	11	4
Calhoun	Software	Review	D4.0	Control Demand	Low Level Test	2017	10	11
Calhoun	Software	Review	D4.0	Control Demand	Low Level Test	2017	11	4
Harrison	Software	Produce	D4.0	Control Demand	Low Level Test	2017	6	17
Harrison	Software	Produce	D4.0	Control Demand	Low Level Test	2017	8	10
Madison	Software	Perform	D4.0	Control Demand	Low Level Test	2017	12	7
Madison	Software	Perform	D4.0	Control Demand	Low Level Test	2017	9	8
Reagan	Software	Produce	D4.0	Control Demand	Low Level Test	2017	11	11
Taylor	Software	Perform	D4.0	Control Demand	Low Level Test	2017	11	8
Nothing Found								

Termscape™

Tags

Flows

Facets

- ☒ Defect
- ☒ Effort
- ☐ Maturity
- ☐ Reuse
- ☐ Size
- ☐ Skill

Statements

Grammars

Termsets

Settings

Filters

Apply

Clear

Status

Defect_type

Impact

Severity

Product

Stage

▼ All

- ☐ Methods
- ☐ none
- Project B
- Project C
- ▼ Project D
- D2
- D3
- ▼ D4
- ☒ D4.0
- ☒ D4.1
- ☐ D4.2
- ☐ D4.3.1
- ☐ D4.3.2
- ☐ D4.3.3
- ☐ D4.4
- Project E
- ☐ Rolls-Royce

Clear

Representation

Action

Team

Person

Desktop

Effort

Add

Delete

Pin

Copy

Refresh

Save As

Search

< >

☐ Regular expression☐ Case sensitive

Person	Team	Action	Stage	Product	Representation	Year	Week	Effort
Breckinridge	Software	Produce	D4.1	System Checks	Low Level Test	2017	17	17
Burr	Software	Review	D4.1	System Checks	Low Level Test	2017	18	7
Burr	Software	Review	D4.1	System Checks	Low Level Test	2017	19	2
Jackson	Software	Review	D4.1	System Checks	Code	2017	17	3
Lincoln	Software	Review	D4.0	System Checks	Code	2017	4	1
Lincoln	Software	Produce	D4.0	System Checks	Code	2017	3	5
Marshall	Software	Produce	D4.1	System Checks	Code	2017	16	5
McKinley	Software	Review	D4.1	System Checks	Low Level Test	2017	21	10
McKinley	Software	Review	D4.1	System	Low Level Test	2017	22	2
Reagan	Software	Review	D4.1	System Checks	Code	2017	15	19
Reagan	Software	Review	D4.1	System Checks	Code	2017	16	3
Reagan	Software	Produce	D4.1	System Checks	Code	2017	14	5
Reagan	Software	Produce	D4.1	System Checks	Unit Testing	2017	14	5
Rockefeller	Software	Review	D4.0	System Checks	Code	2017	3	1
Rockefeller	Software	Review	D4.1	System Checks	Software Require...	2017	12	3
Rockefeller	Software	Produce	D4.1	System Checks	Code	2017	6	7
Rockefeller	Software	Produce	D4.1	System Checks	Code	2017	7	6

Defect

Add

Delete

Pin

Copy

Refresh

Save As

Search

< >

☐ Regular expression☐ Case sensitive

Stage	Product	Severity	Impact	Defect_type	Status
D4.0	System Checks	Minor	Low	Design	Fixed
D4.1	System Shutdown	Minor	Low	Requirement	Fixed

Nothing Found

Tags

Flows

Facets

☐ Contacts
☐ Exhibitors
☐ Locations
☒ Platforms
☐ Specs Missile
☒ Systems

Edit

Declare

Declare Tex

Settings

Status

System

▼ All

☐ Aster 15
☐ Aster 30
☐ FICS34
☐ IDS300
☐ METOC
☐ MFS7000 Sar
☐ S1850M 3D
☐ SAMPS
☐ Seagnat

Platform

Organisation (Pin)

▼ All

☐ Babcock

▼ BAE Systems

☐ BAE Systems Military Air
☐ BAE Systems Surface Sh
☐ Detica

☐ BMT
☒ MBDA

► MOD

☐ QinetiQ
☐ Rolls-Royce
☐ Thales
☐ VT Group



AddDeleteSavePinCopyRefreshSave As

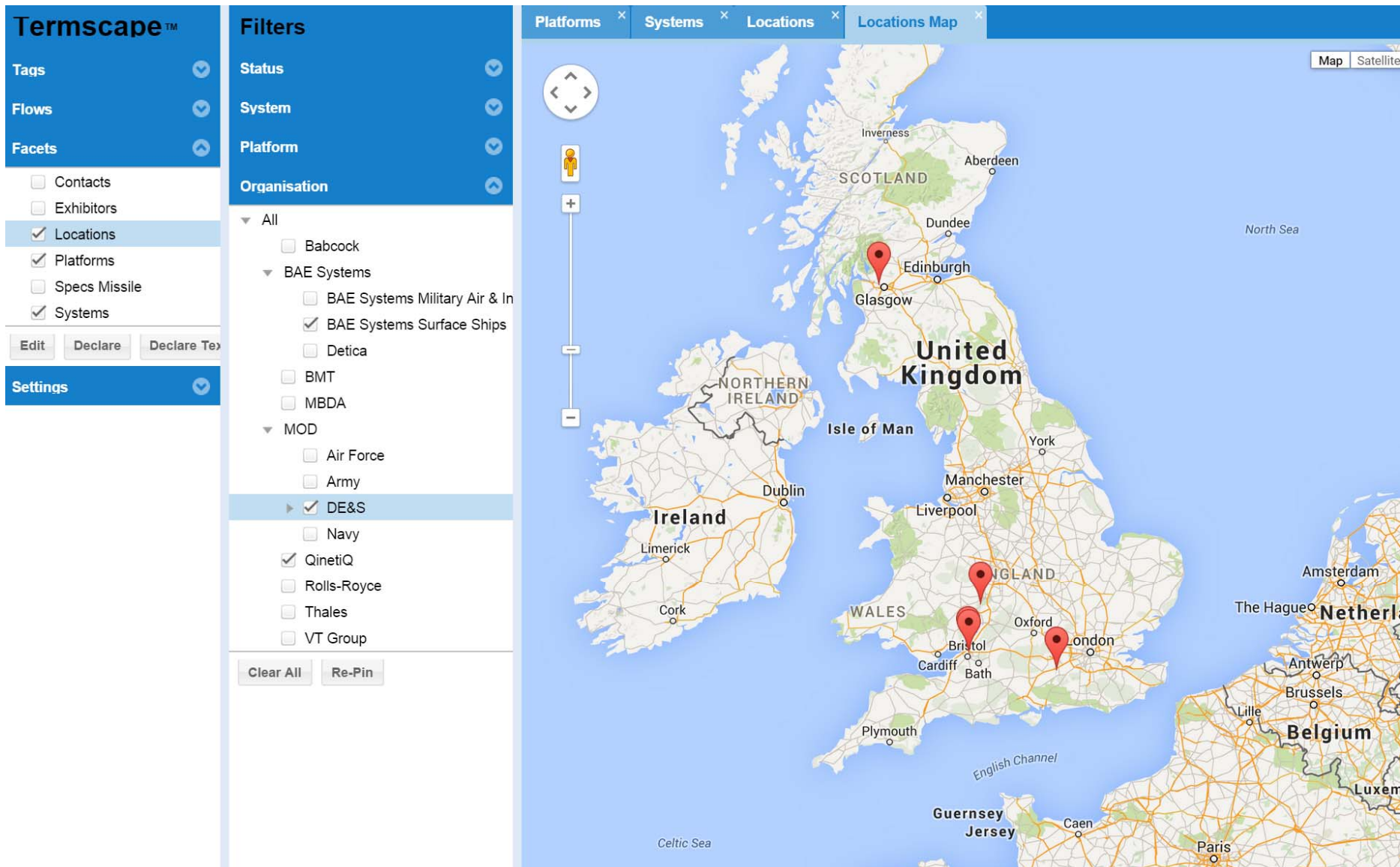
Search

<>

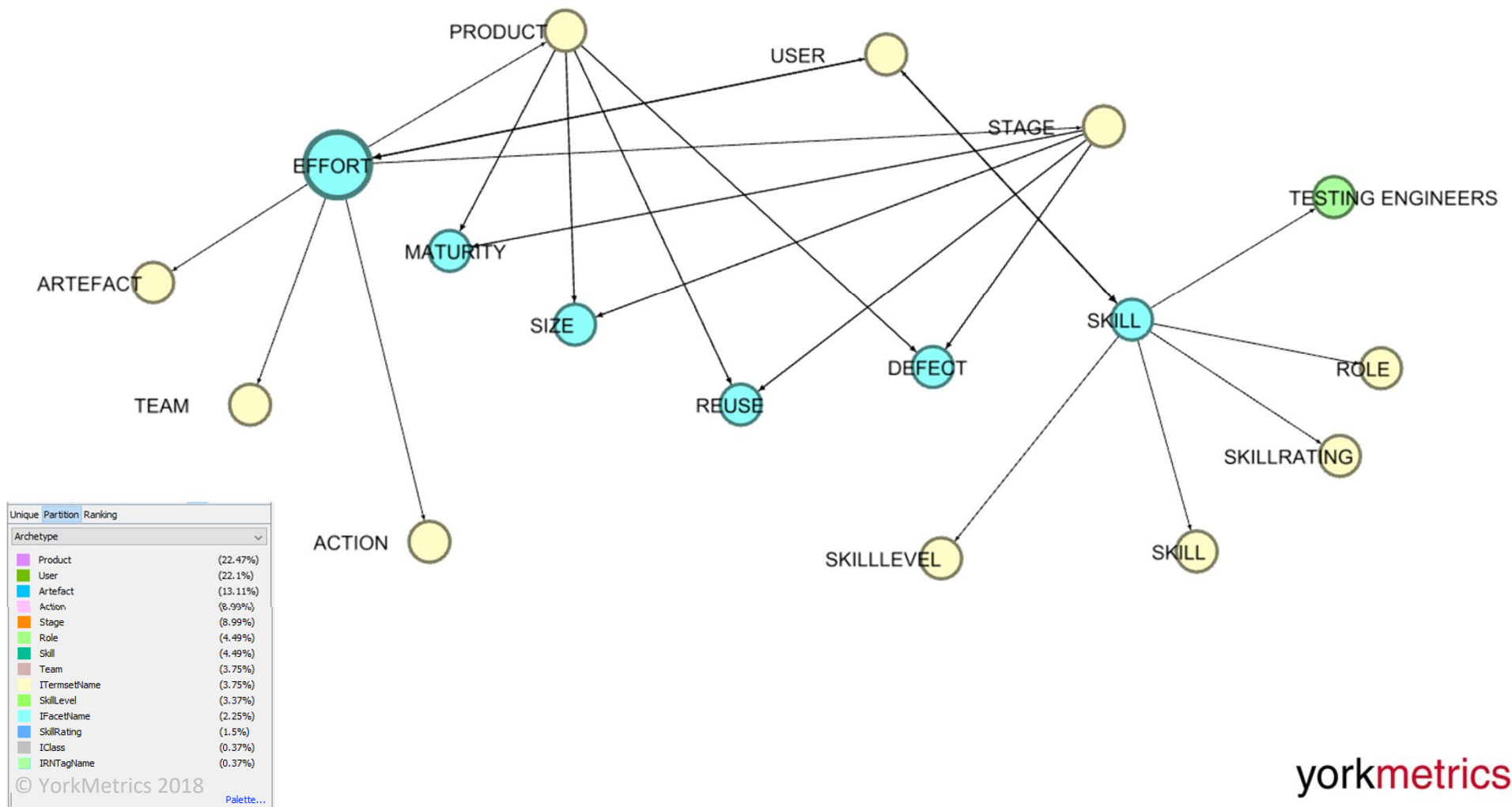
☐ Regular expression

☐ Case sensitive

Organisation	System	Overview	Image
MBDA	Aster 15	Aster is an anti-missile missil...	
MBDA	Aster 30	Aster 30 is capable of reachi...	



Inflexsion - Semantic Network



D

Unique Partition Ranking

Archetype	Count
Product	(22.47%)
User	(22.1%)
Artefact	(13.11%)
Action	(8.99%)
Stage	(8.99%)
Role	(4.49%)
Skill	(4.49%)
Team	(3.75%)
ITermsetName	(3.75%)
SkillLevel	(3.37%)
IFacetName	(2.25%)
SkillRating	(1.5%)
IClass	(0.37%)
IIRTagName	(0.37%)

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Palette...

Product

STAGE

ACTION

TEAM

METHODS

EFFORT

Maturity

SIZE

REUSE

DEFECT

USER

ROLE

SKILLLEVEL

SKILL

SKILLRATING

EXPERT

ADVANCED

INTERMEDIATE

BASIC

TRAINING

MAINTAIN

METHODS MANAGEMENT

OVERHEADS

LIEU DAY

SUPPORT

UNDERSTAND

DEBRIEF

OTHERLOSTTIME

D4.0

E1.0

D4.3.1

D4.3.3

D2.1

ROLLS-ROYCE

SOFTWARE TOOLS

POWER SETTINGS

PRESSURE

HARDWARE INTERFACE - G

HARDWARE INTERFACE - B

LOCATION

FLOW CONTROL

EXCEEDANCES

TEST POINTS

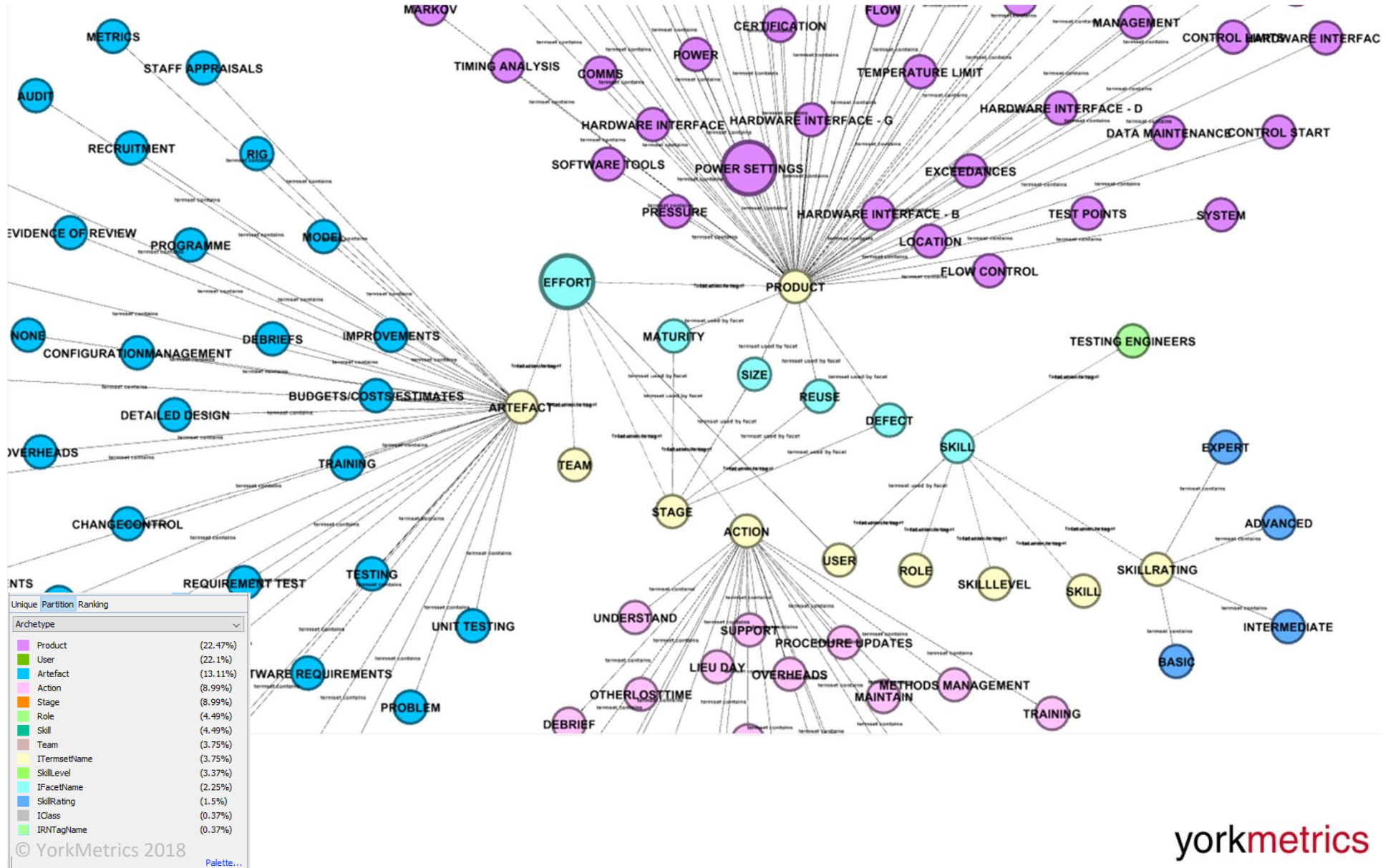
SYSTEM

DATA MAINTENANCE

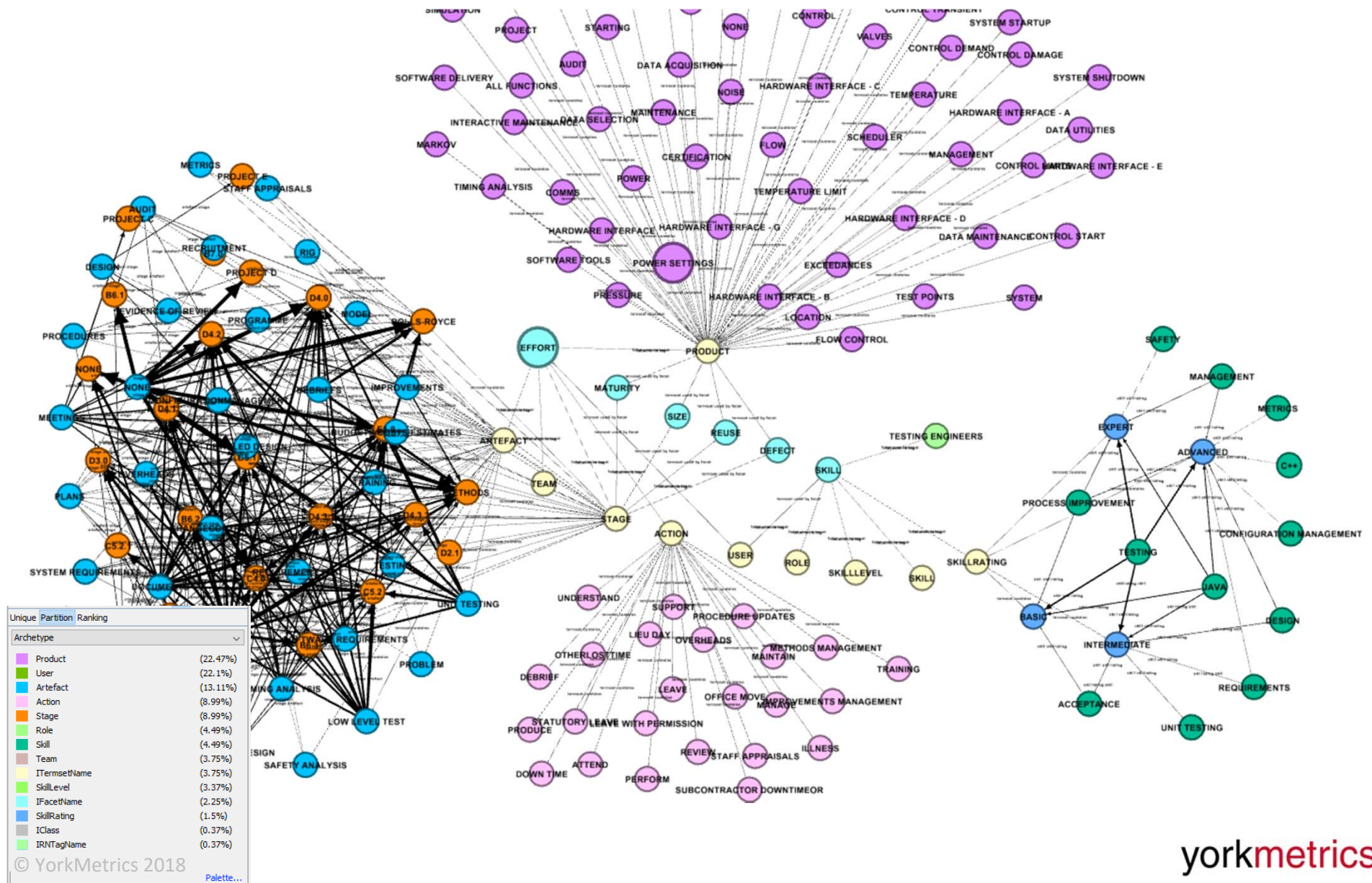
CONTROL START

TESTING ENGINEERS

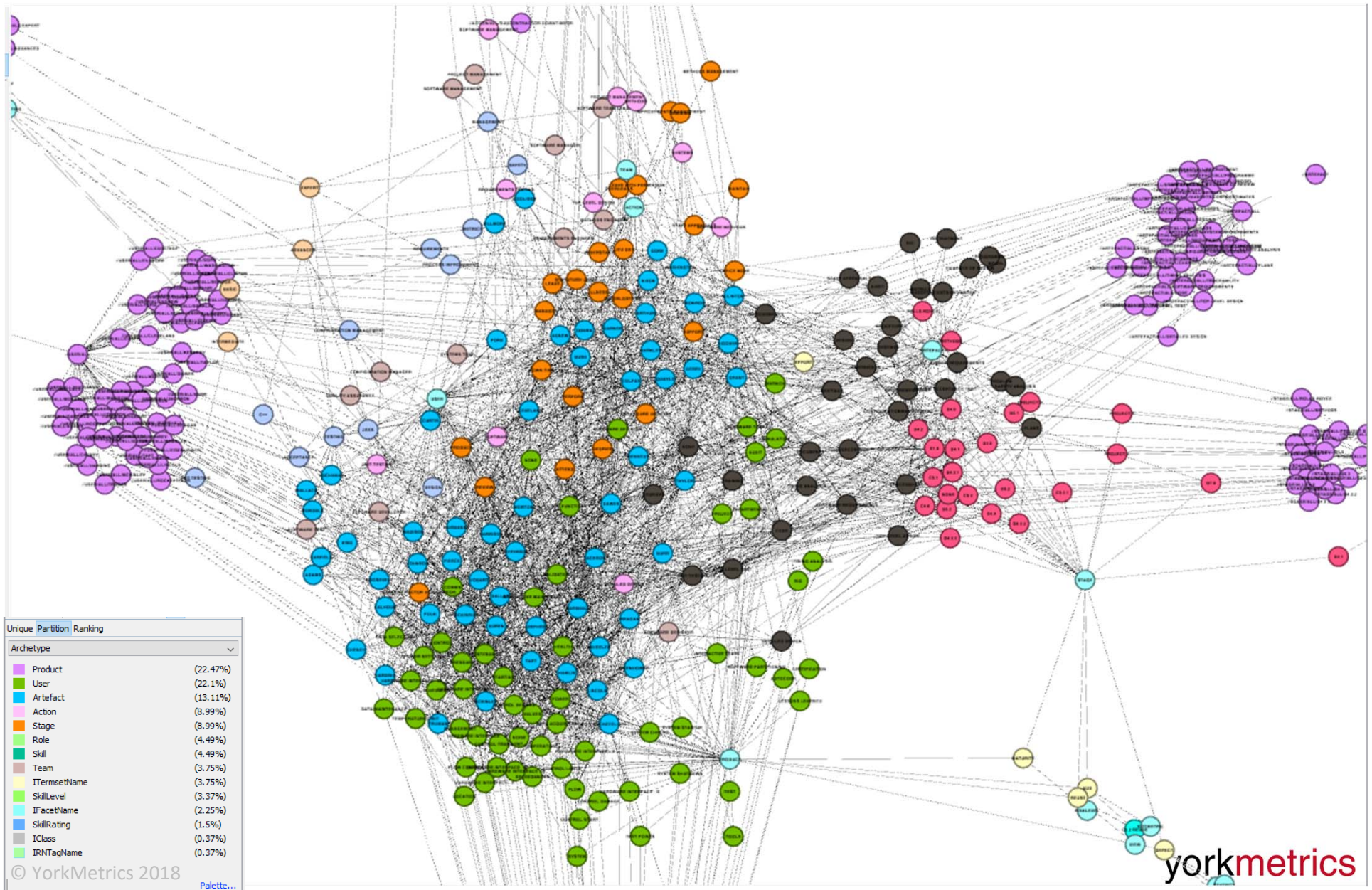
Semantic Network - Artefacts



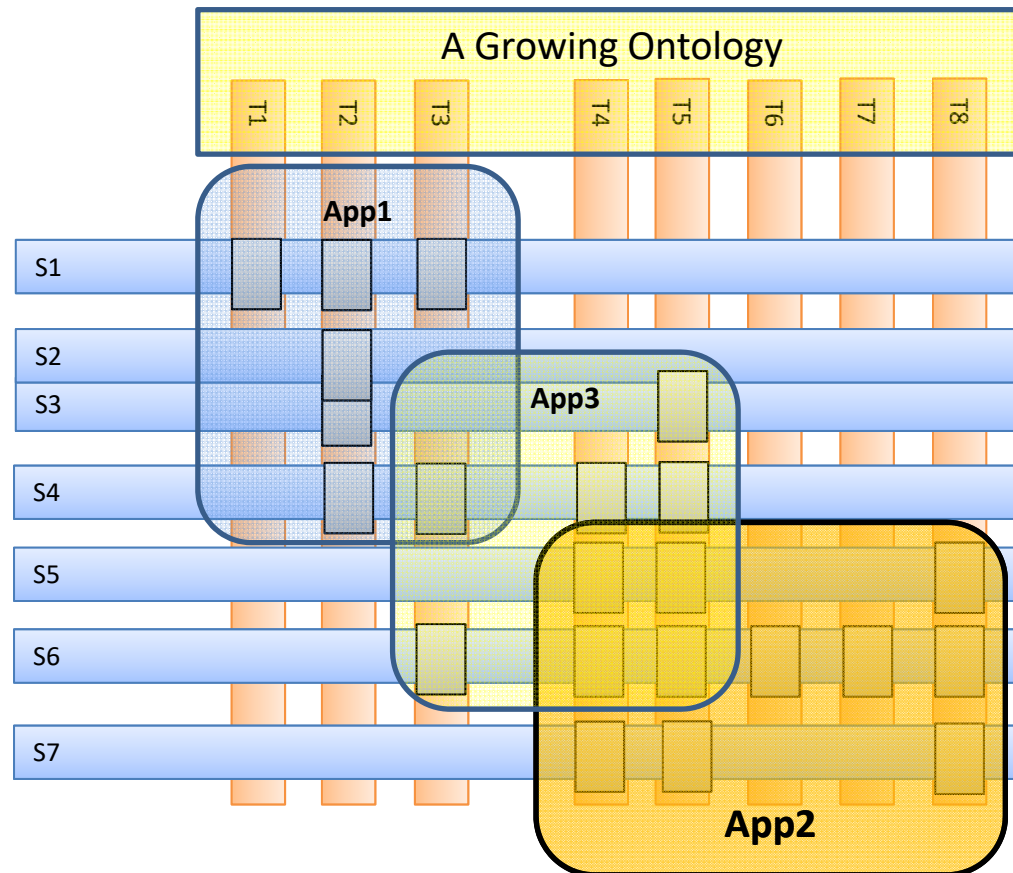
Semantic Network - Partitions



Semantic Network – Wider Graph

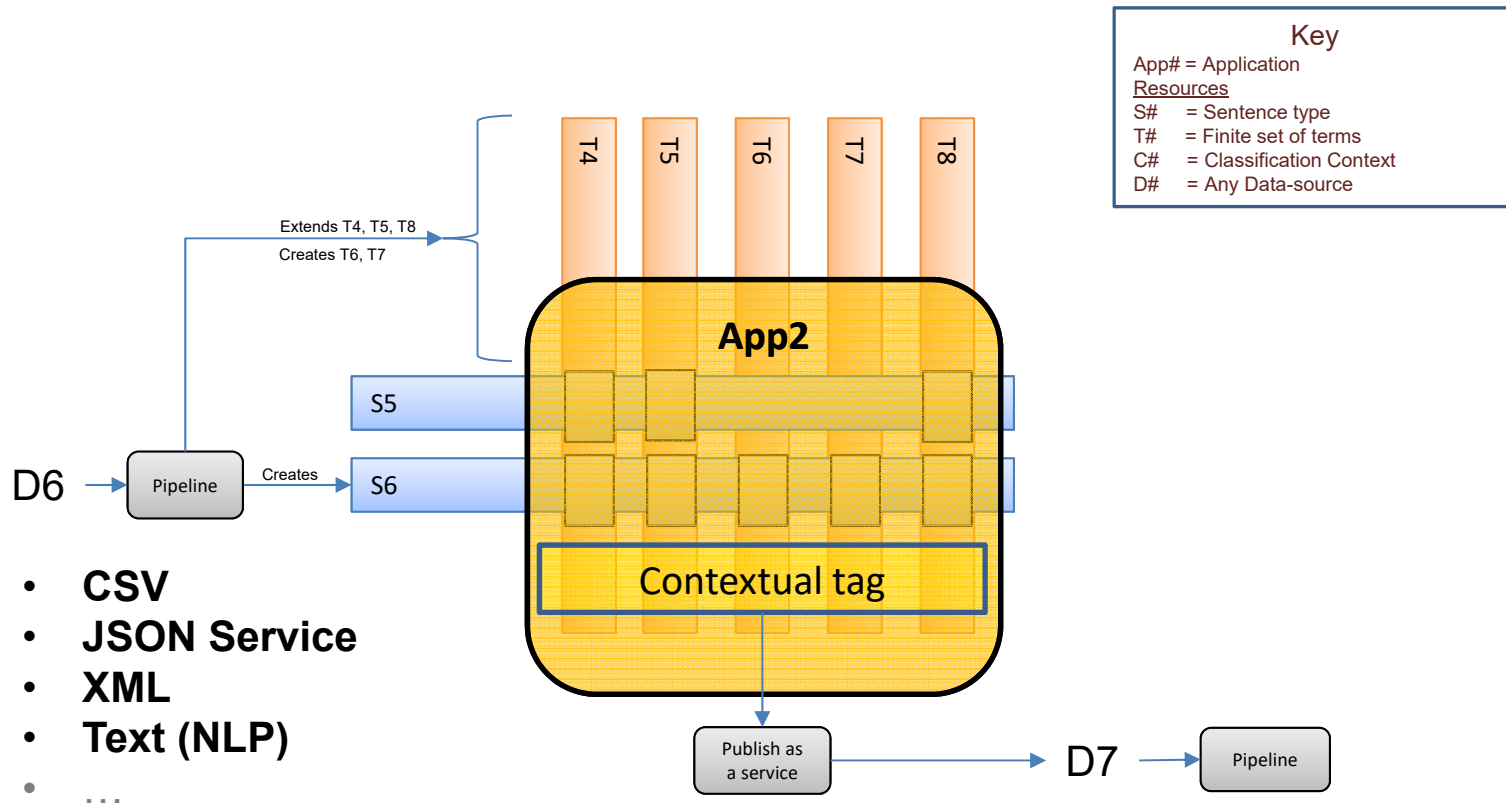


Inflexion – Classify and Control Context



Key	
App#	= Application
<u>Resources</u>	
S#	= Sentence type
T#	= Classified sets of terms

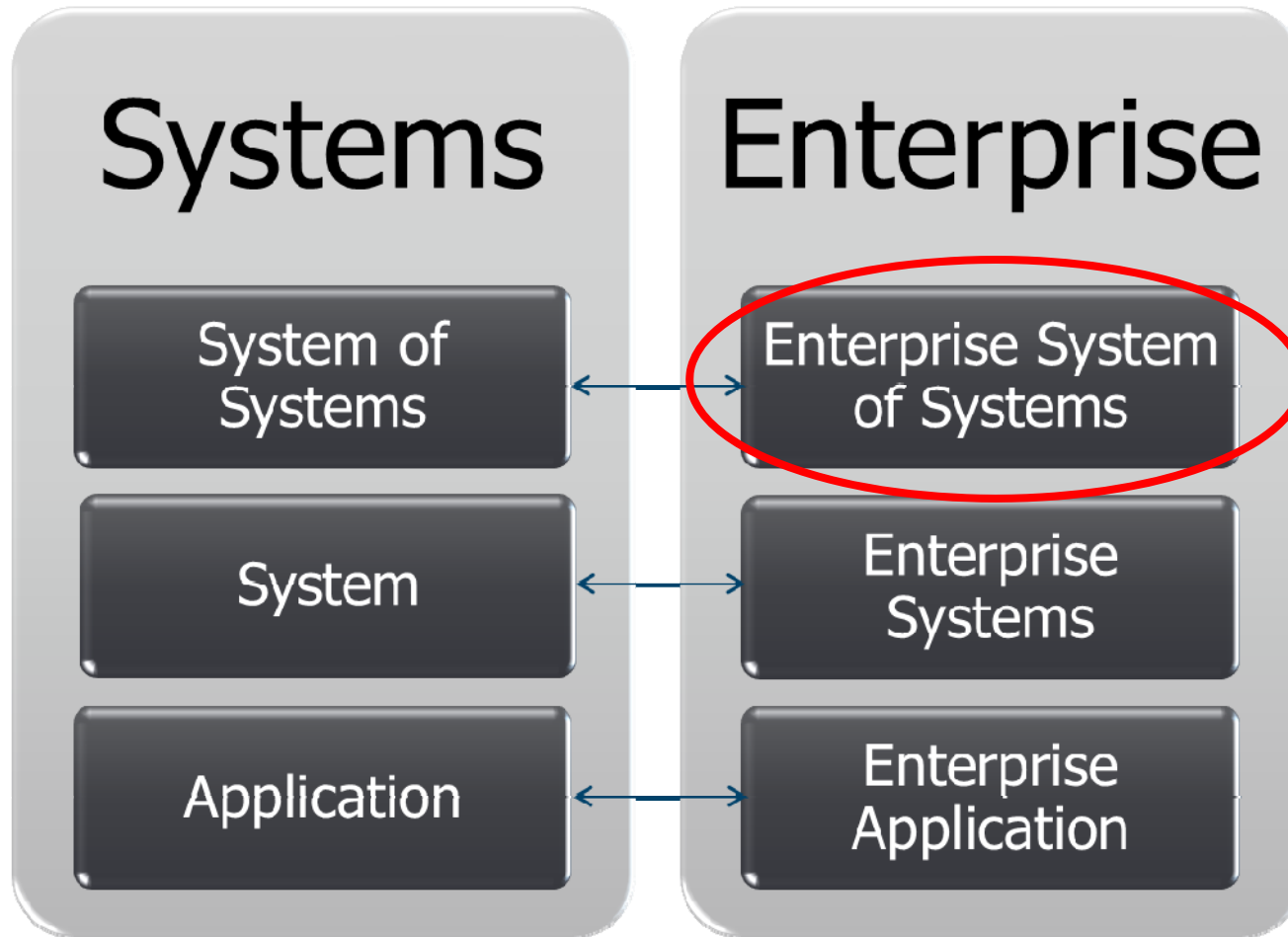
Inflexion – Data Pipeline and Context Tags



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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