

Value based System Architecting: Illustrated by Designing a Task automation Platform

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TCS Research,

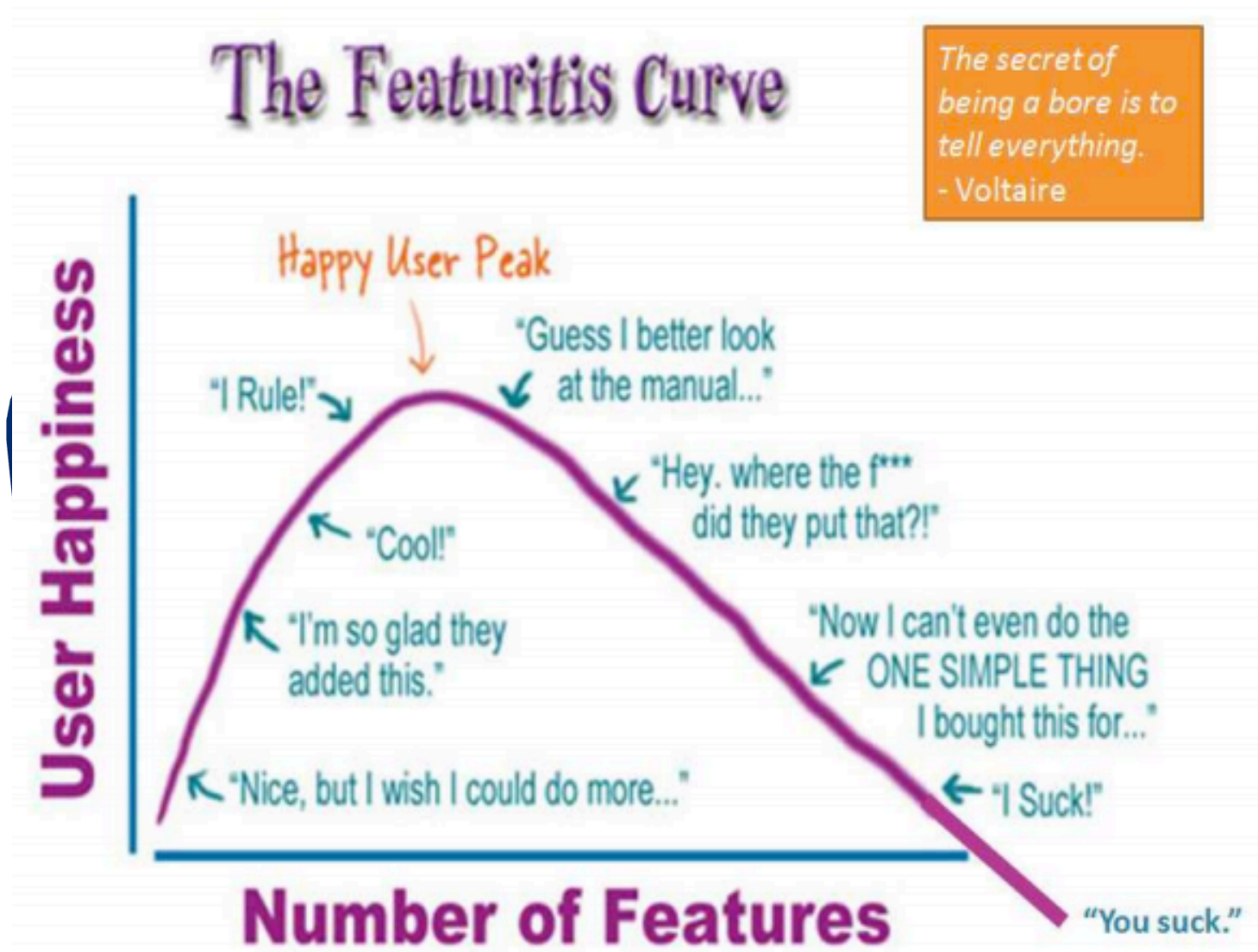
Tata Consultancy Services Ltd



26th annual **INCOSE**
international symposium

Edinburgh, UK
July 18 - 21, 2016

Motivation – Value Co-destruction !!!!



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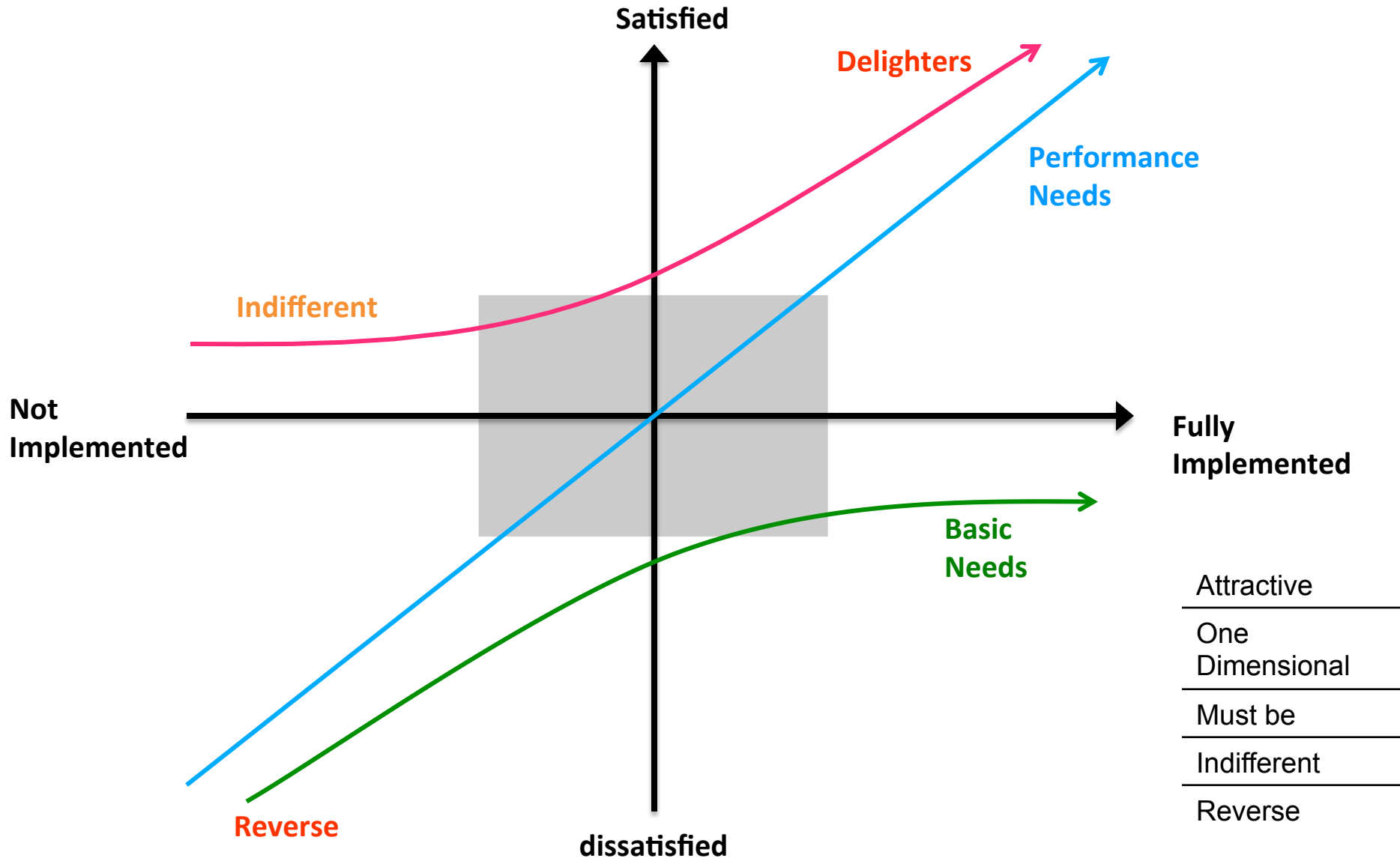
Jan Bosch, 25th INCOSE Symposium

Terms and Definitions

- **“Value”** is a measure of worth of an offering by a customer, and potentially other stakeholders and is a function of:
 - usefulness in satisfying a customer need
 - relative importance of the need being satisfied
 - availability relative to when it is needed
 - cost of ownership to the customer
- **“Quality”** is a set of essential and distinguishing attributes that have a pragmatic interpretation of the offering’s inferiority or superiority

Design business offerings that deliver value to its stakeholders in a guaranteed manner

Rationale – Kano Model



Underlying Theme – Value x Quality Correlation

**This happens
in Producer's house**

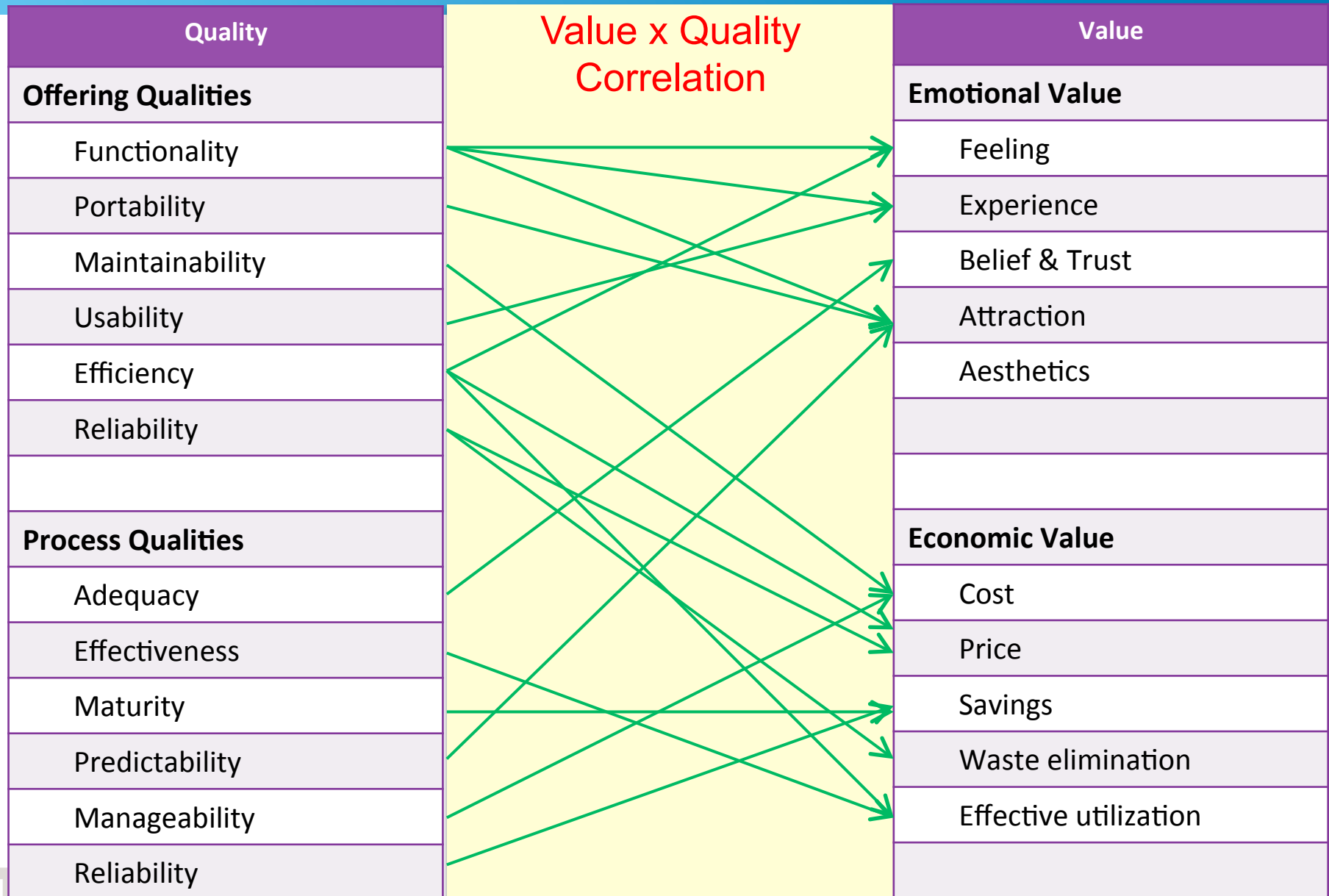
**Engineer
Quality into
Offerings**

**This happens
in Customer's house**

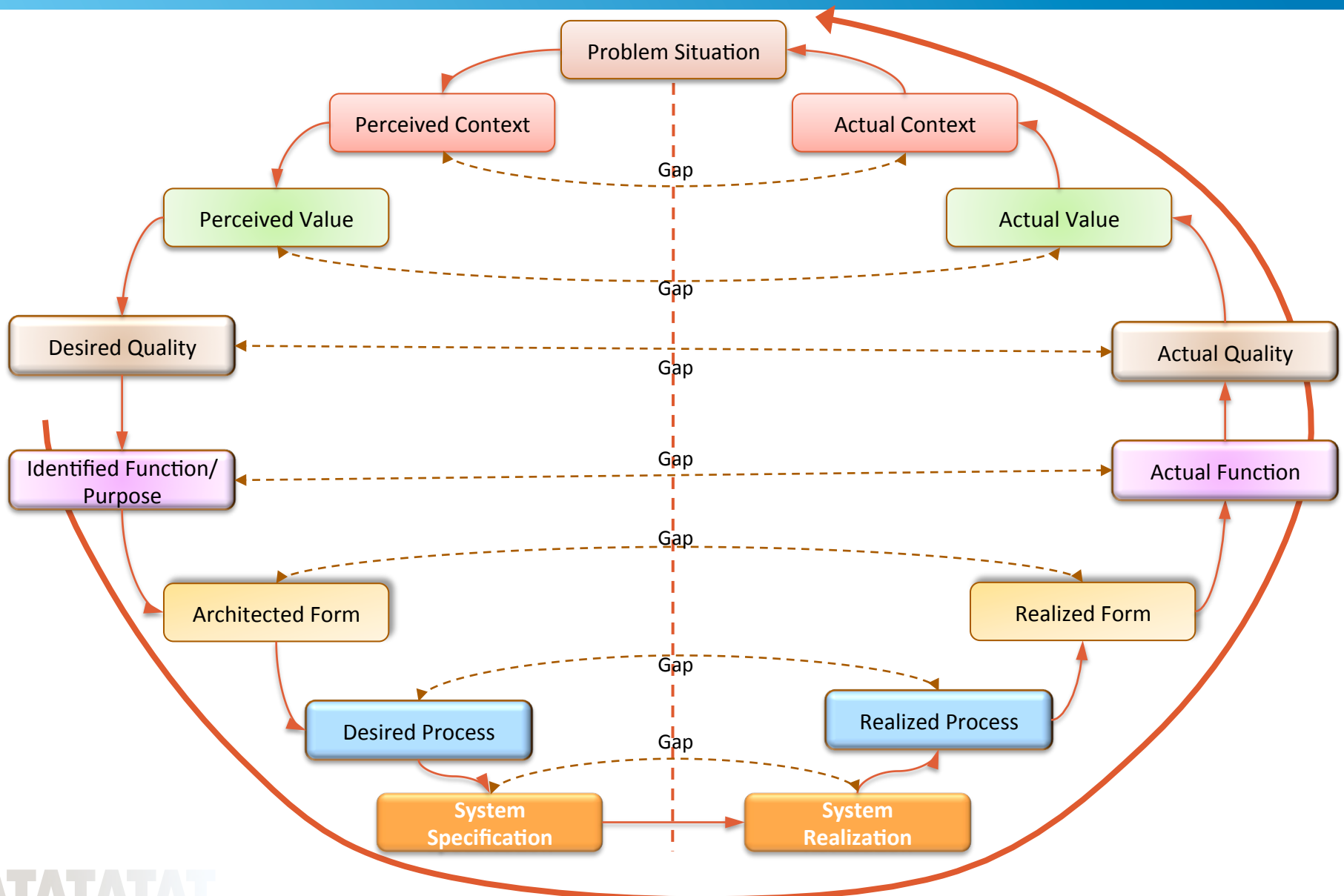
**Experience
Value due to the
Offerings**



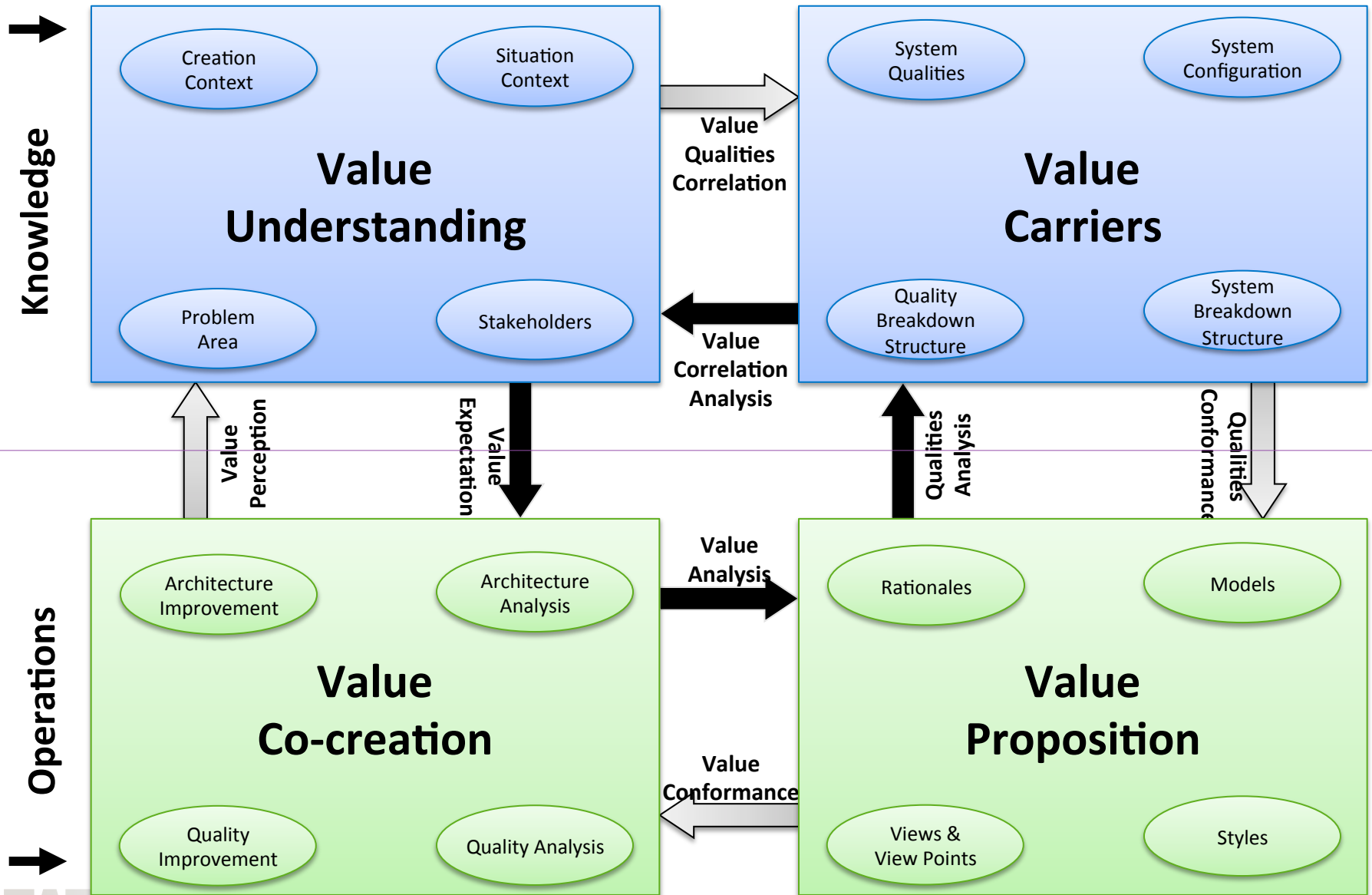
Underlying Theme – Value x Quality Correlation



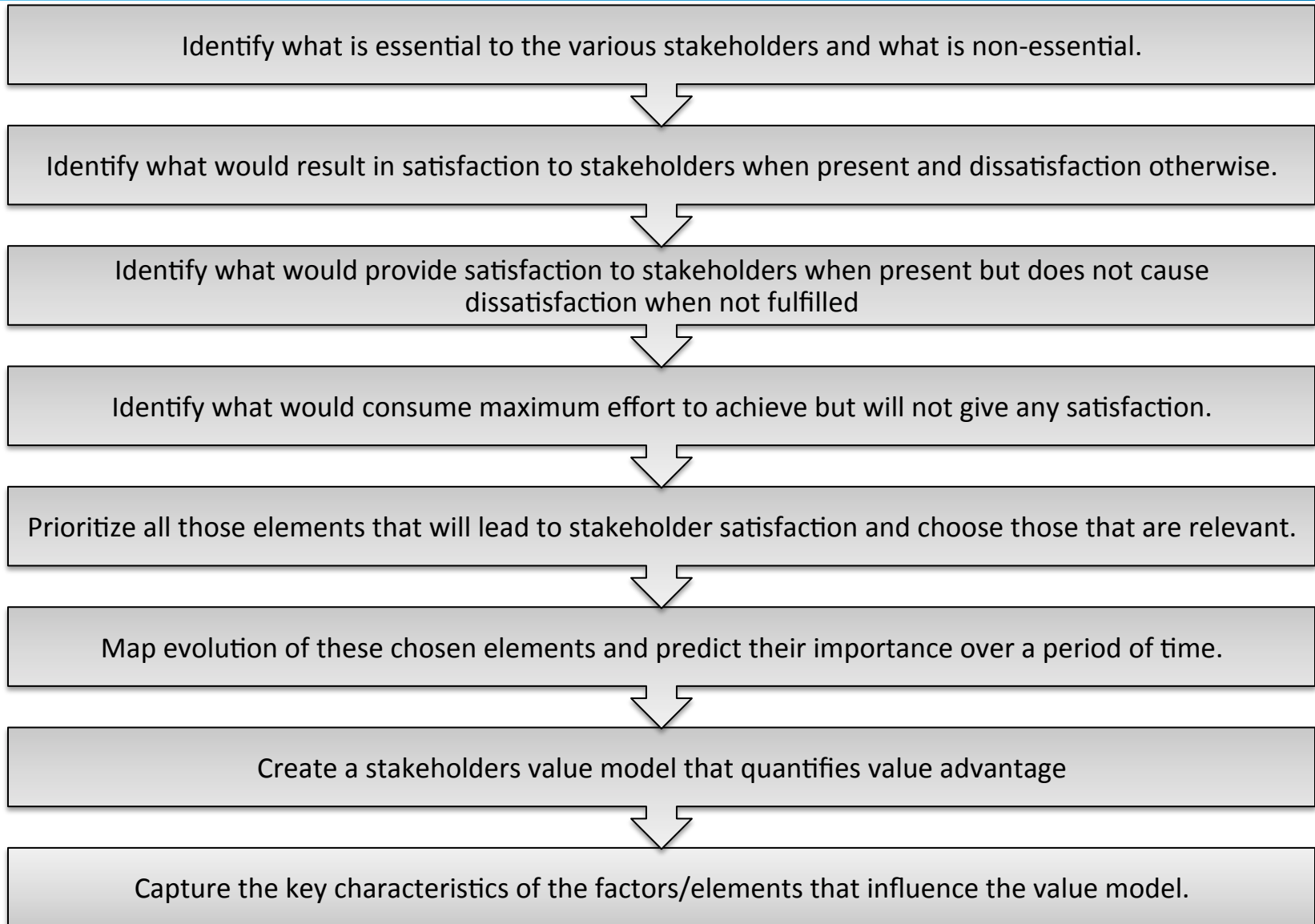
Underlying Theme – Value creation Cycle

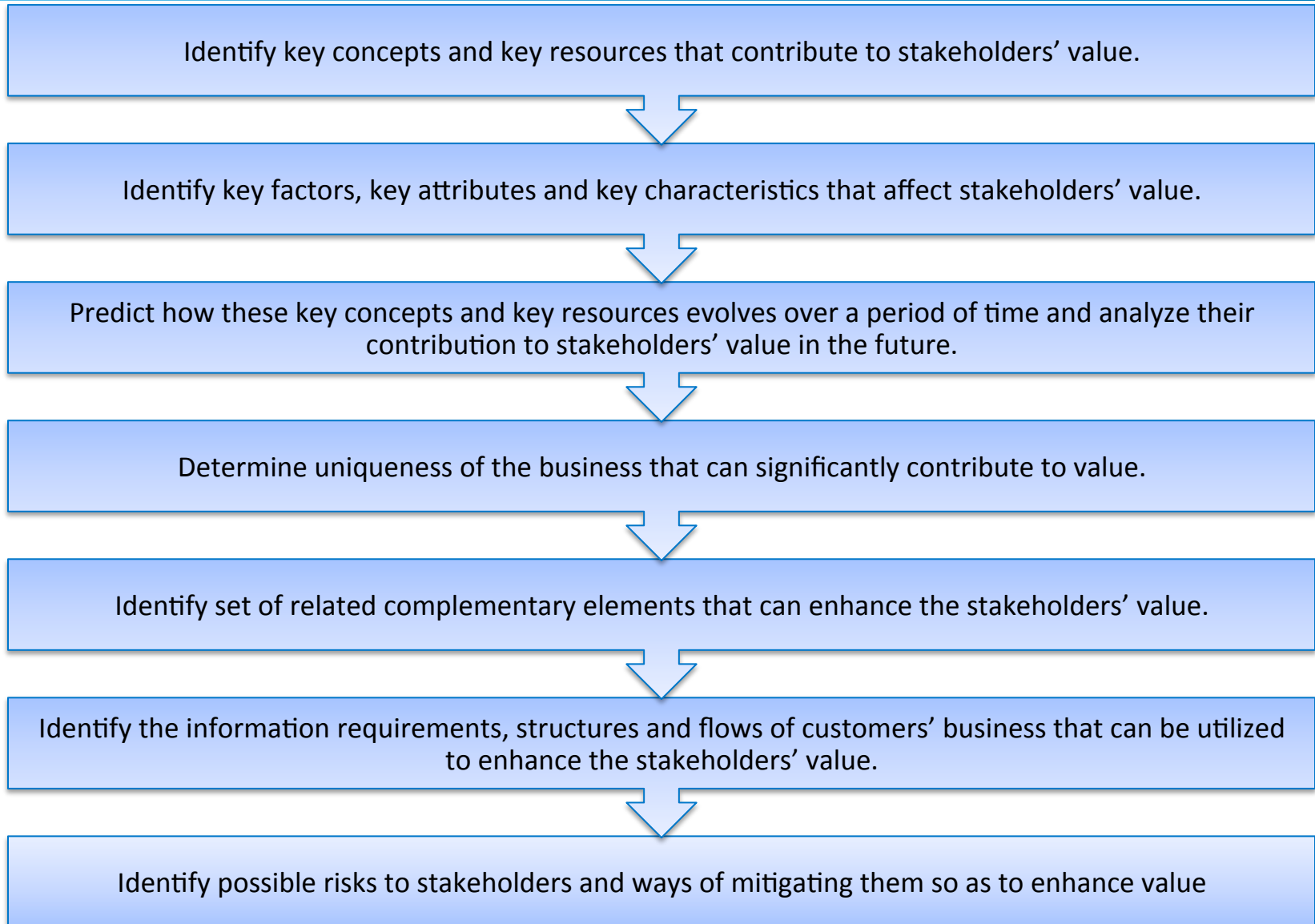


Value Creation – Conceptual Model



Understand Stakeholder's Value





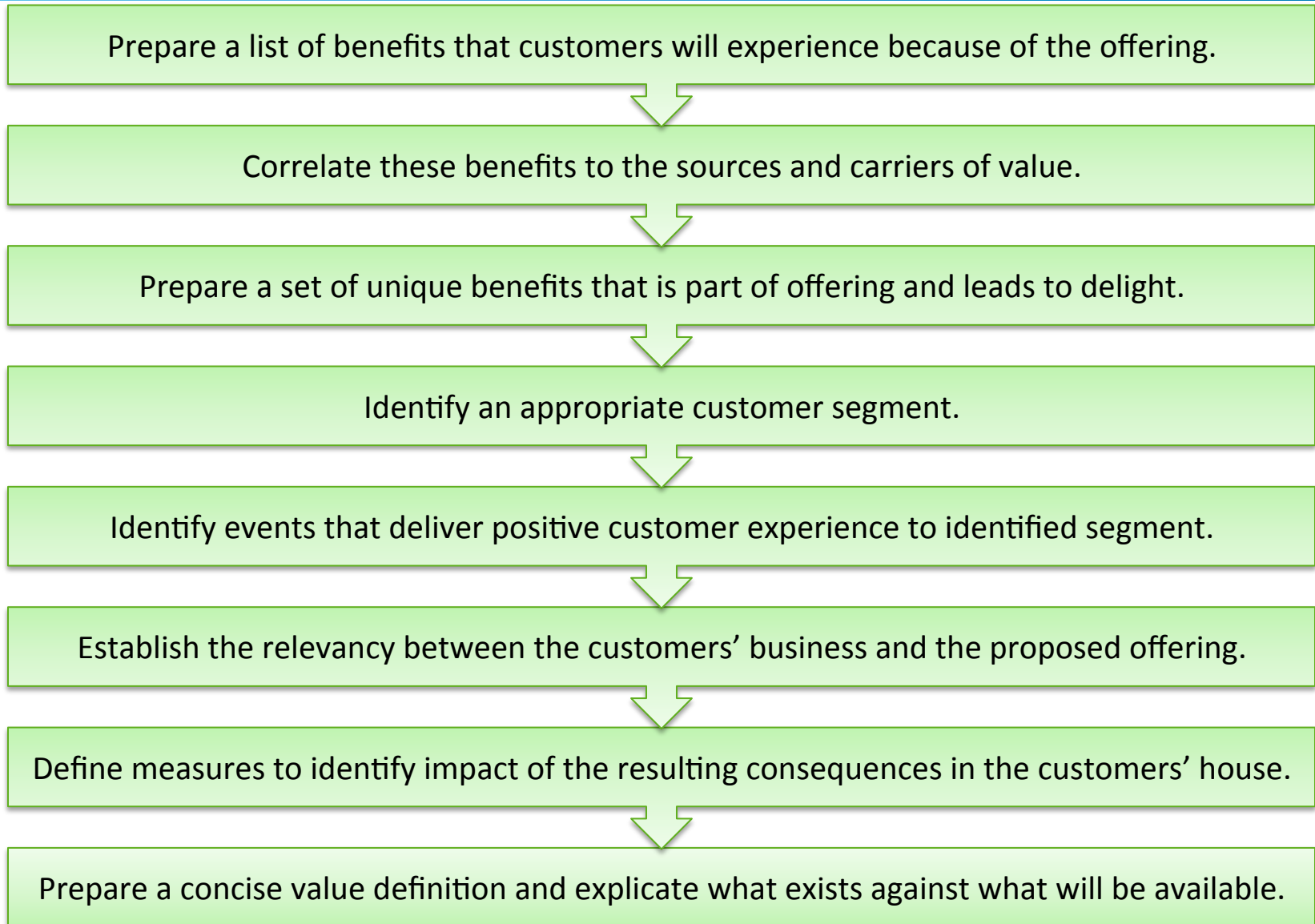




Illustration: Architecture of Task Automation System



- 26th INCOSE Symposium



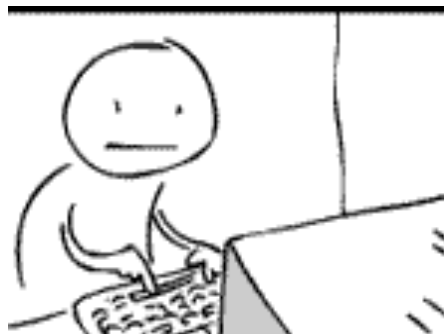
Problem Context – Business Process Services Execution



Prepare Specification
(~8\$ per hour)



Customer Sign-Off



Make Changes
(~8\$ per hour)



Verify Changes
(~8\$ per hour)

> 1 million employees in India

> 40% attrition rate

Burn out stress syndrome

740 billion\$ global market

Scale, Productivity &
Throughput

Quality Requirements:

99.99% Levels of Accuracy

100% Confidentiality

100% Repeatability

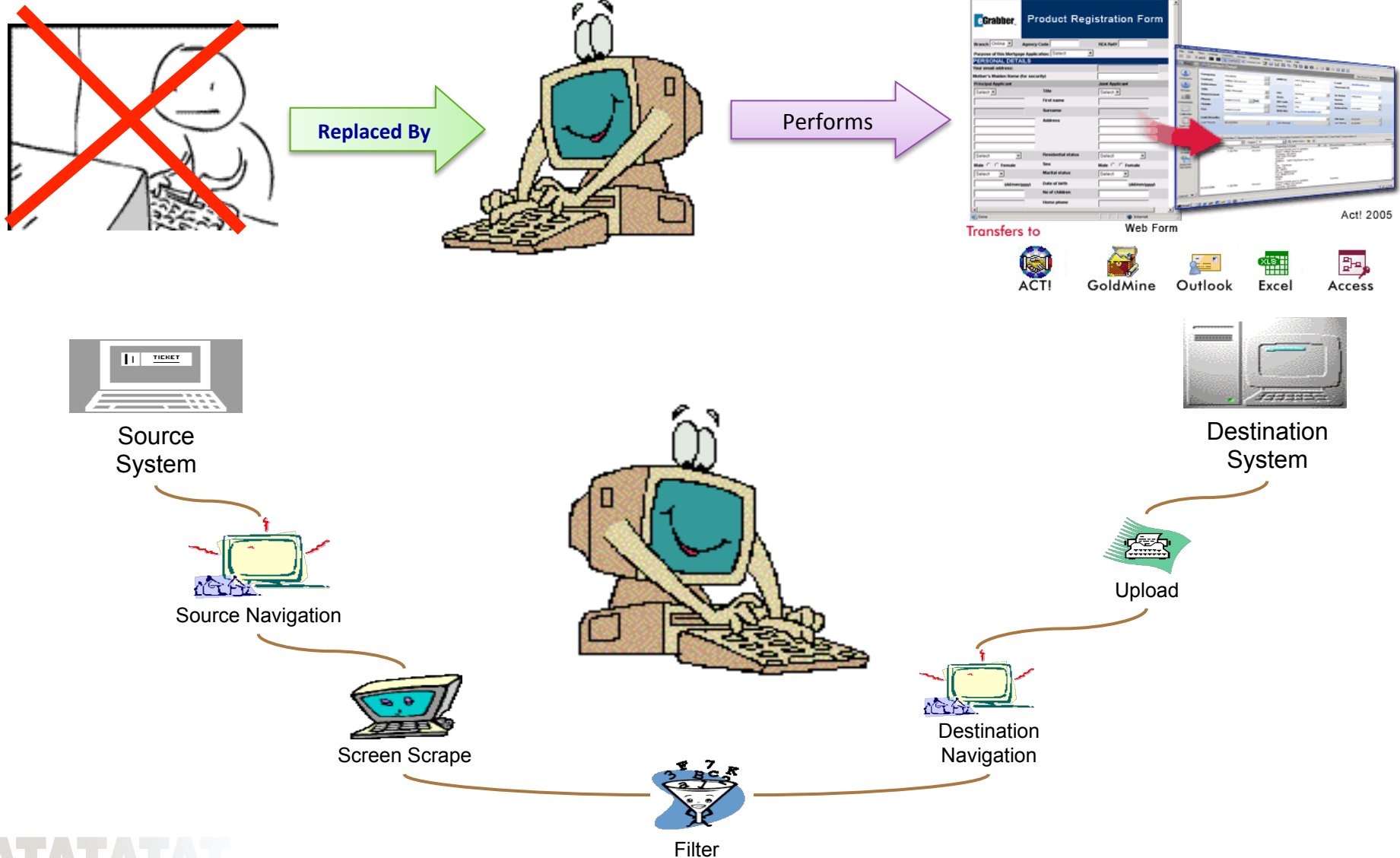
100% on Schedule

100% Work in Customer
Time Zones

Value Understanding

	Stakeholder	Stakeholders' Value
1	Customer	<ol style="list-style-type: none"> 1. On time, On demand, High quality work 2. Pay Less, Gain More (Decreasing Cost) 3. Innovative Solutions & Processes
2	Customers' Customer	<ol style="list-style-type: none"> 1. Accurate Information 2. Any time, on demand, System availability
3	Service Provider	<ol style="list-style-type: none"> 1. Non-linear growth 2. Brand and Market Share 3. Increasing Top-line 4. Increasing Profits
4	Agents	<ol style="list-style-type: none"> 1. Learning & Growth 2. Value adding work 3. Increasing Income 4. A decent Social Life
5	Governments	<ol style="list-style-type: none"> 1. Less Outsourcing 2. More Job Opportunities 3. More Tax
6	Customers' Employees	<ol style="list-style-type: none"> 1. Less Non-value adding activities 2. Job Security 3. Increasing Income

Solution Context – Robotic Process Automation



Value Carriers

Levels of Discourse	Quality Attributes
Problem Domain	Dynamic Change, Confidentiality, Customization, Decision Support, Scalability
Solution Space	Accuracy, Reliability, Repeatability, Availability, Universality, Simplicity, Versioning
Architectural	Process Modelling, Process Automation, Process Analysis, Process Orchestration, Data Modelling
Engineering	9 x 4 levels of Connectivity, Recoverability, Traceability, Continuity 9 x 5 levels of Confidentiality, Reliability, Accuracy, Data Protection Low Memory Consumption & Autonomous
Technical	Modifiability, Process Standardization, Systems Integration, Screen Scraping, Scheduling
Construction	Modularity, Extensibility, Structural Integrity, Run-time Composability, Exception Handling
Deployment	Package-ability, Accountability, Operability, Completeness, Adaptability, Scalability
Initialization	Ready to Use, Default Configuration, Help System
Operational	Productivity, Throughput, Intelligence, Flexibility, Sensitivity, Consistency



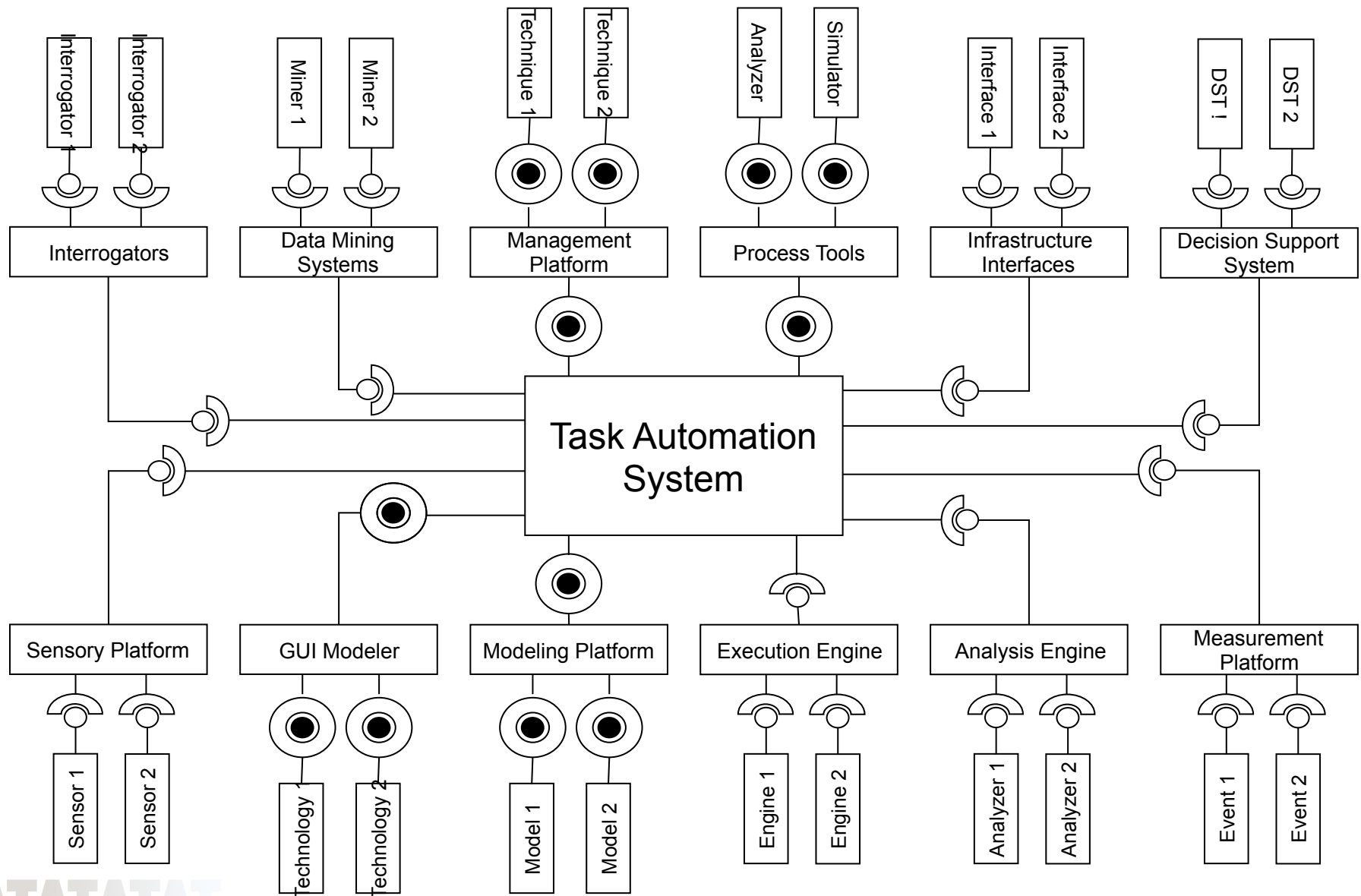
Value x Quality Correlation

Stakeholders' Value	Quality Attributes
On time, On demand, High quality work	1. Dynamic Change, Confidentiality, Customization, Availability, Accuracy, Scalability
Accurate Information	1. Accuracy, Reliability, Consistency, Traceability, Accountability, Systems Integration
Increasing Top-line & Profits	1. Productivity, Throughput, Reliability, Completeness
Value adding work	1. Intelligence, Flexibility, Sensitivity
Less Non-value adding activities	1. Process Modelling, Process Analysis, Extensibility
A decent Social Life	1. 9 x 4 levels of Connectivity, Recoverability, Traceability, Continuity 2. 9 x 5 levels of Confidentiality, Reliability, Accuracy, Data Protection 3. Low Memory Consumption 4. Autonomous
More Job Opportunities	1. Process Modelling, Data Modelling

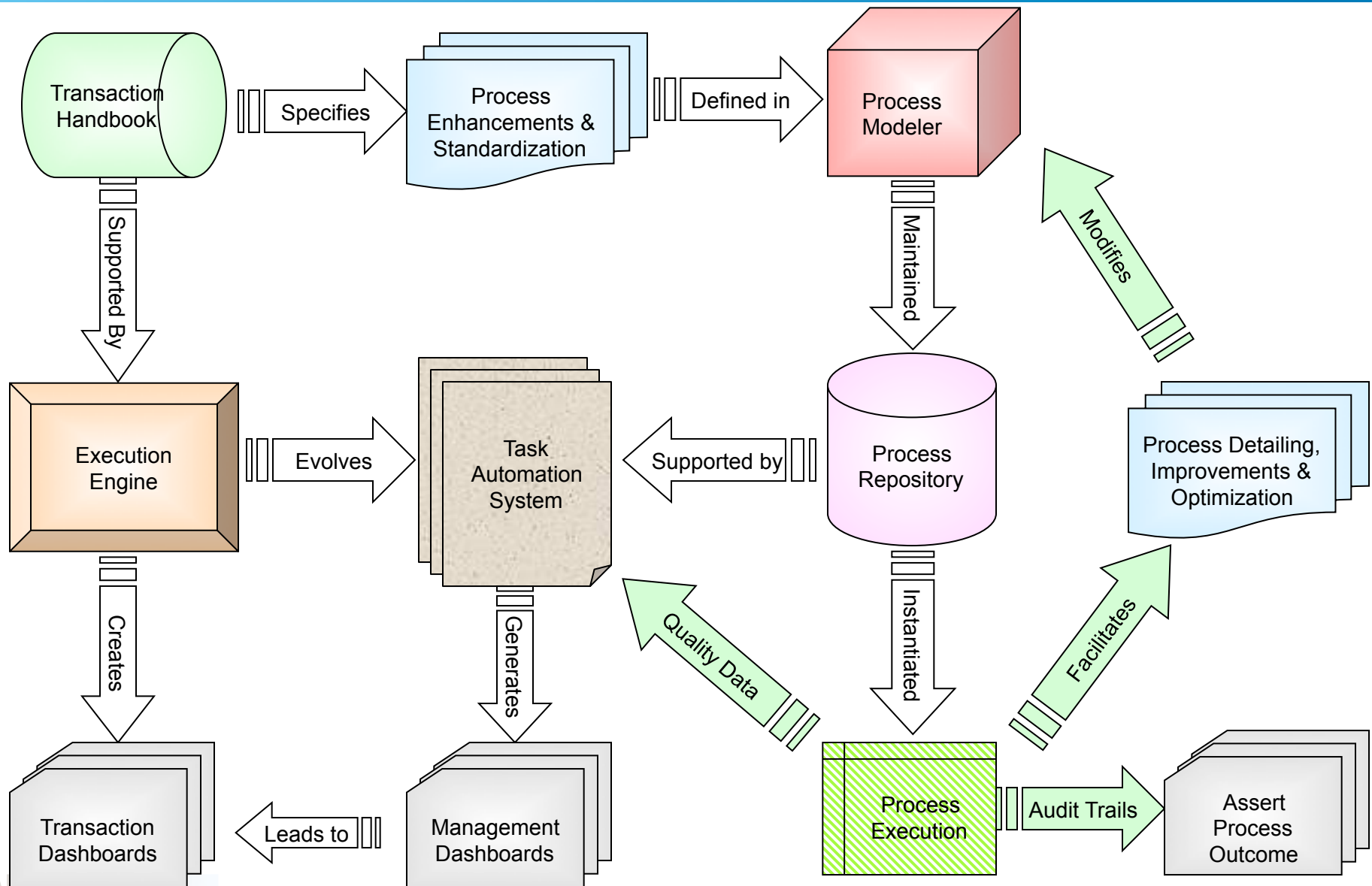
Value Proposition

- People have more capabilities than used when doing tedious work and are empowered to do creative work

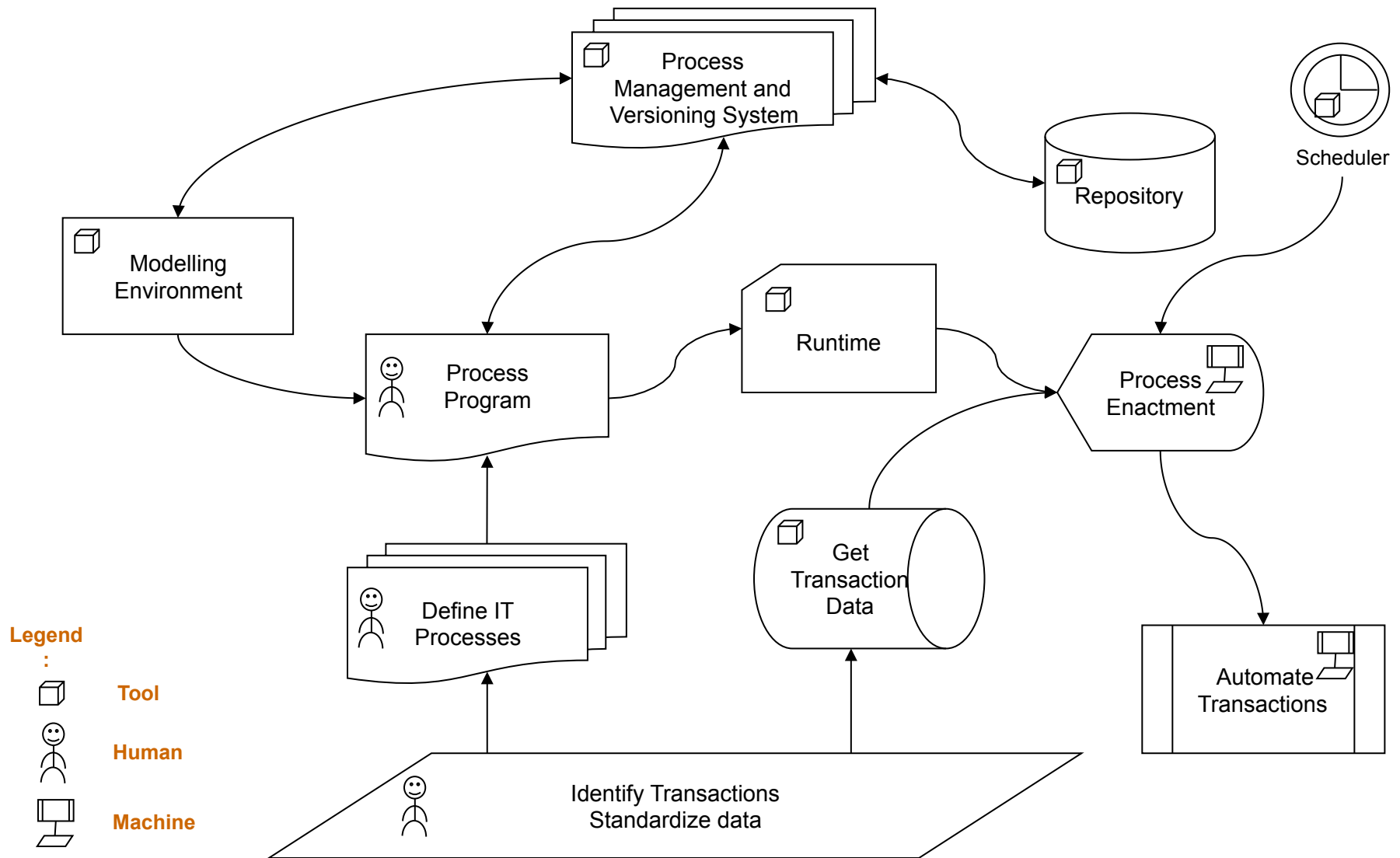
Architectural Views – Components View



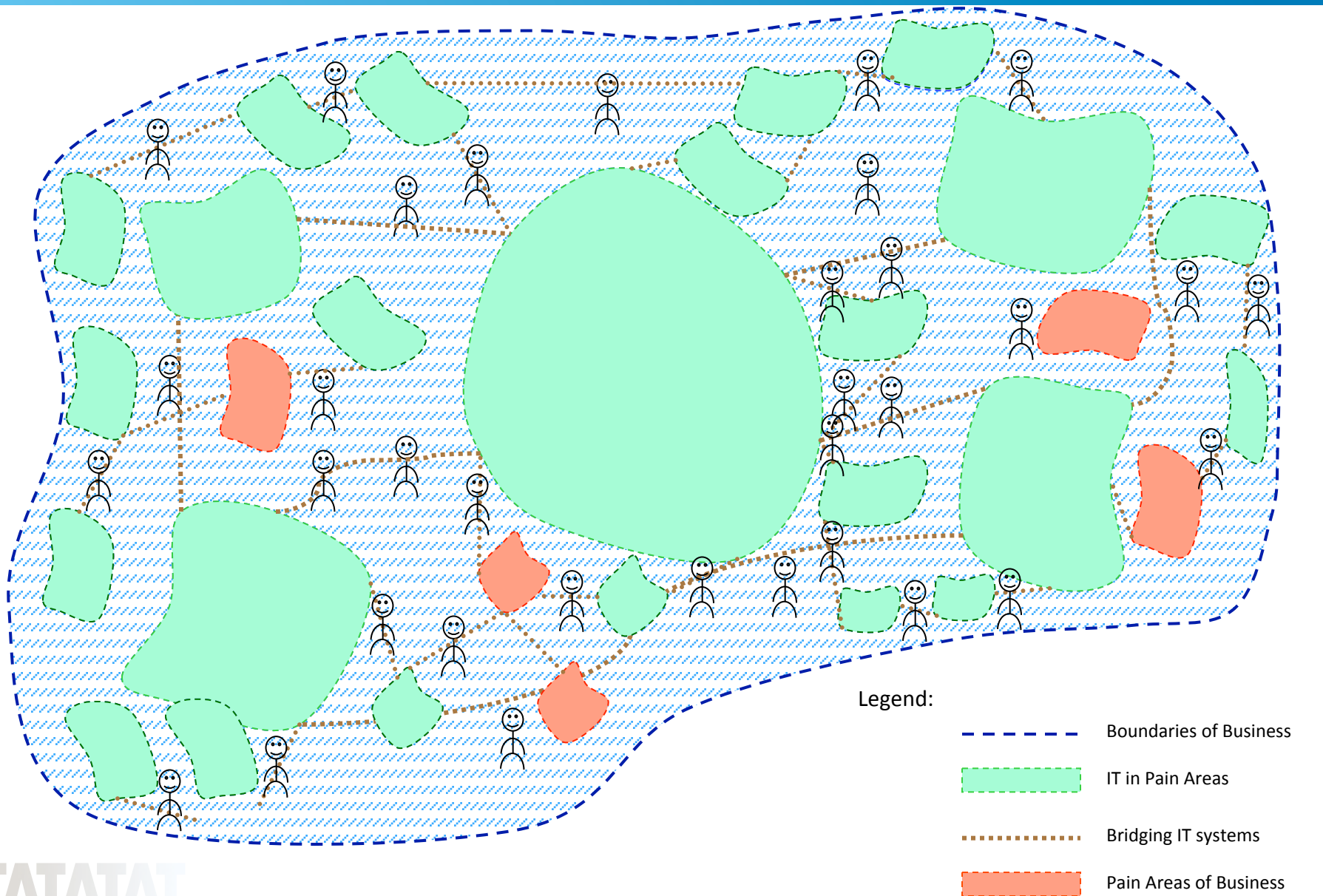
Architectural Views – Implementation View



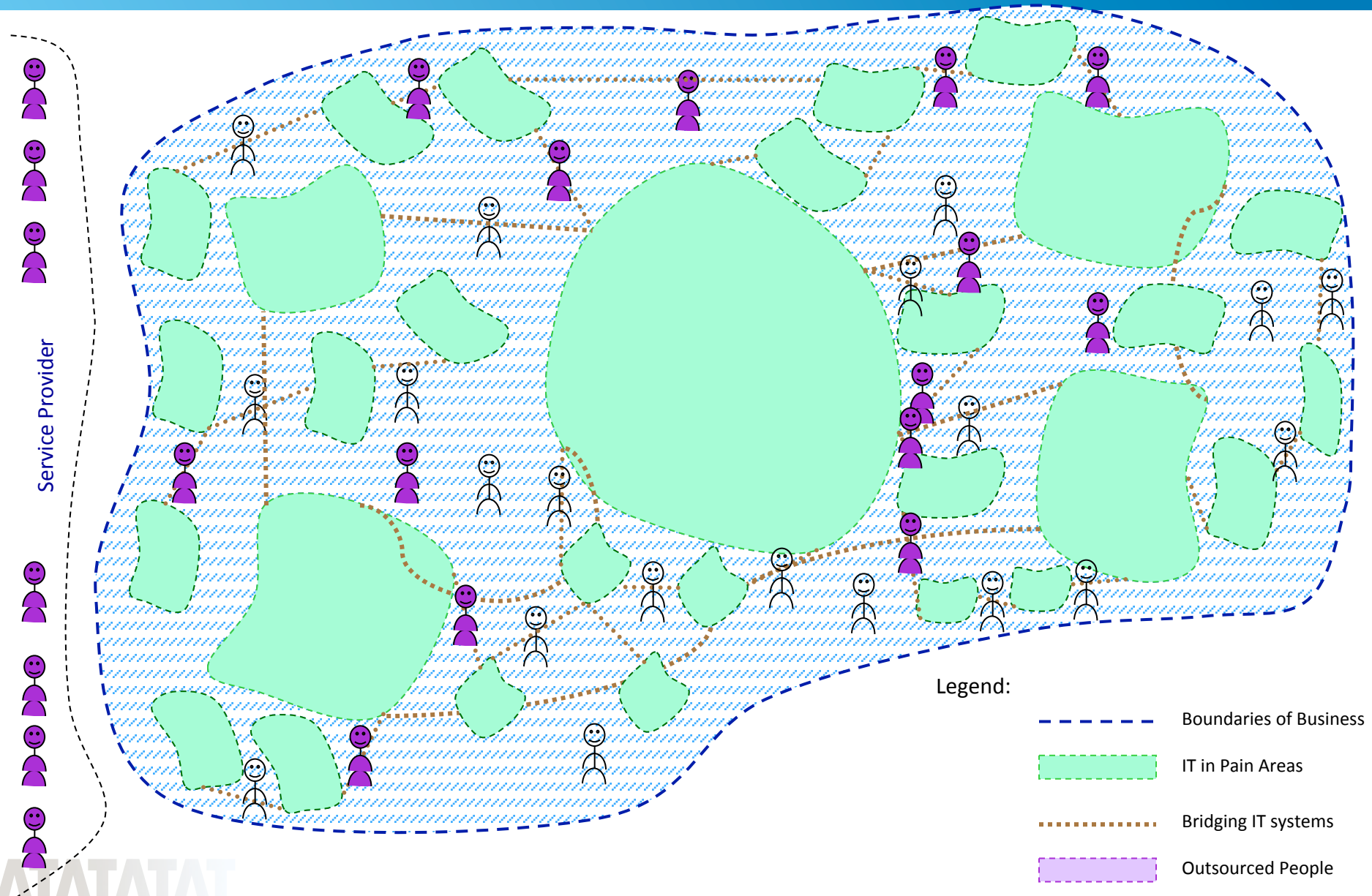
Architectural Views – Operational View



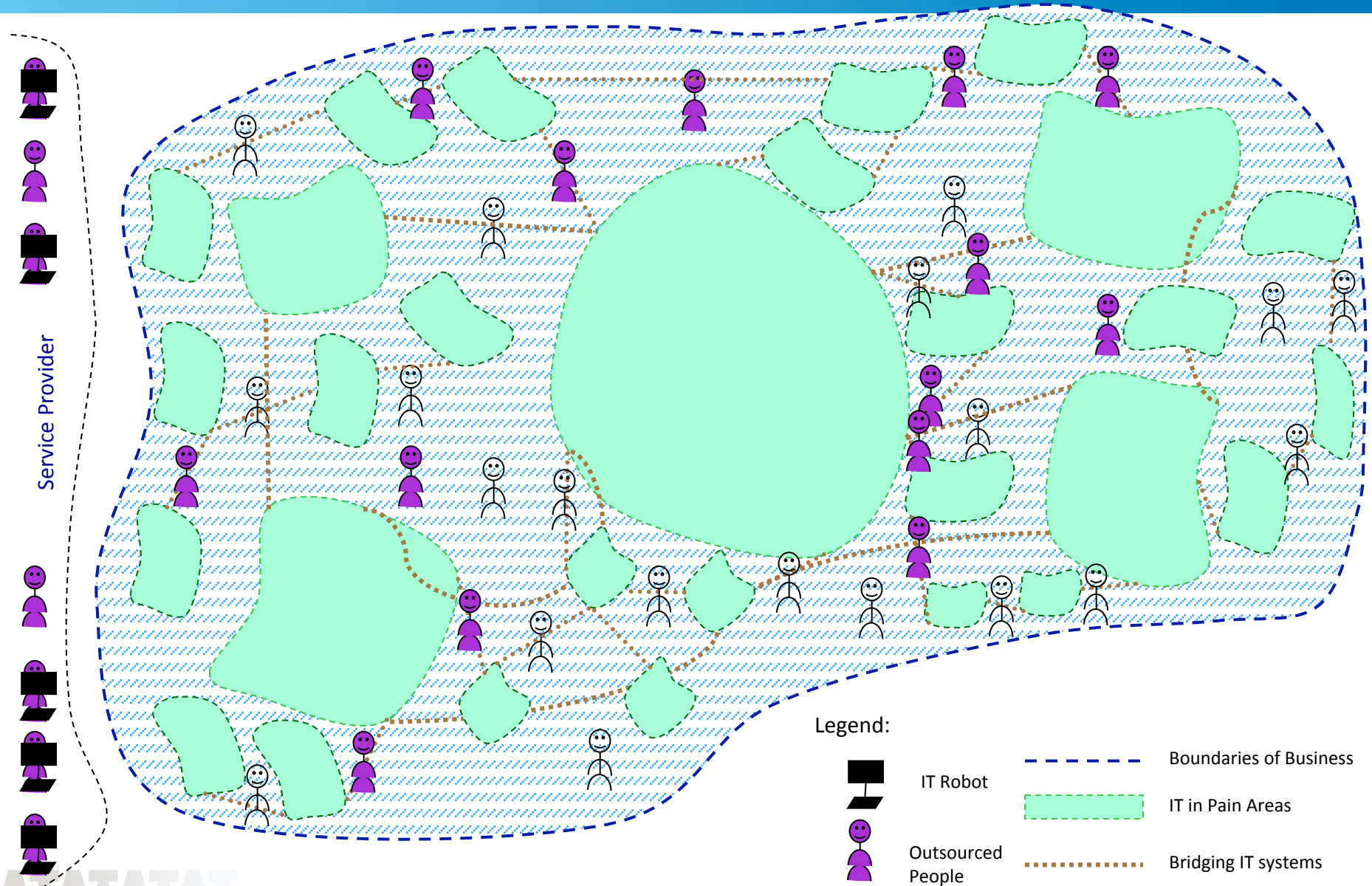
Value Co-Creation



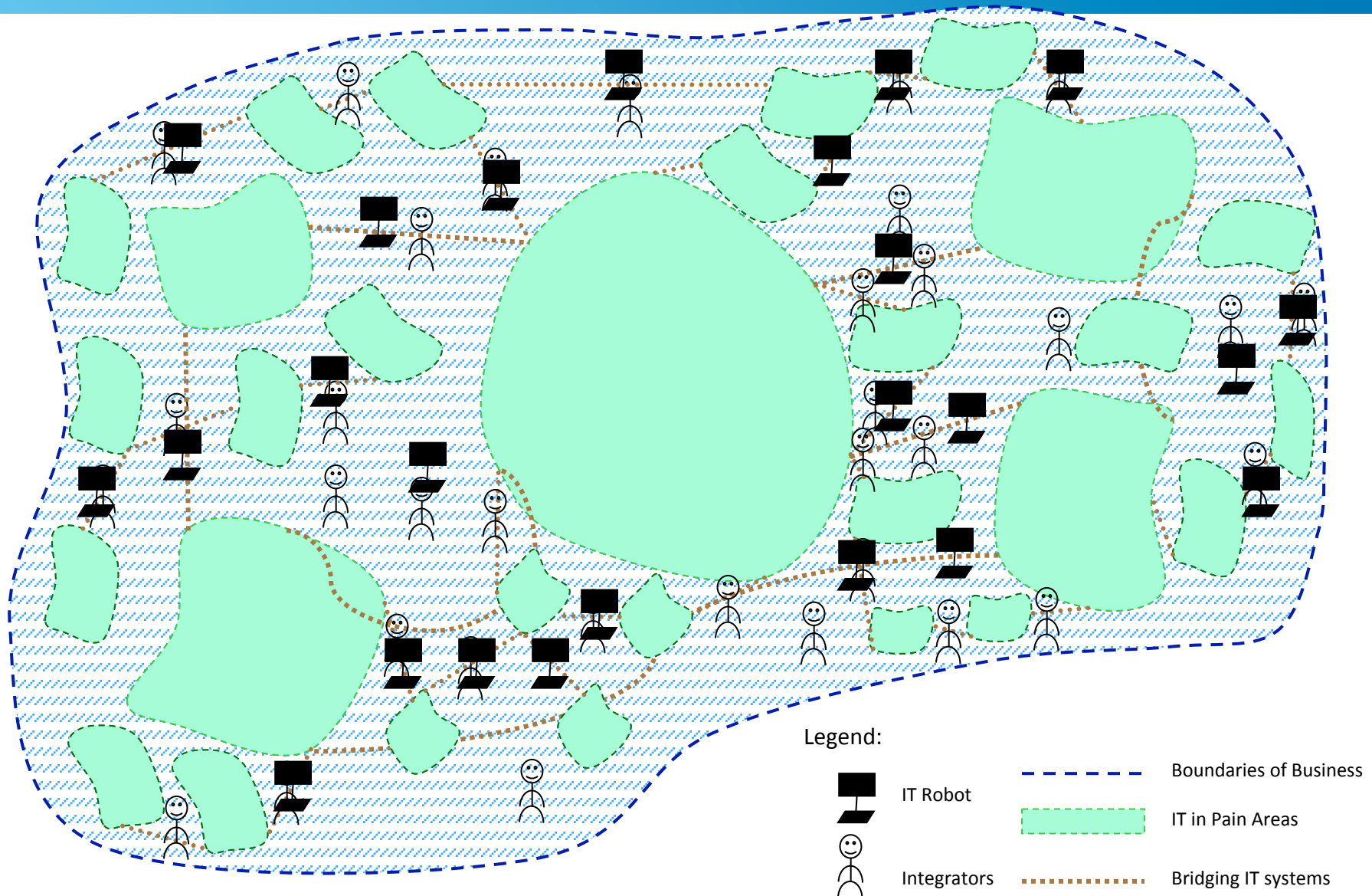
Value Co-Creation



Value Co-Creation



Value Co-Creation



Take Away

- Map Stakeholders' Value to Quality
 - Value x Quality Correlation
- Design Processes for Delivering Quality
 - Process x Product Correlation (ISO 30103)
- Co-Create Value

Value → Quality → Process

Value Understanding	Value Carriers
Value Co-Creation	Value Proposition (Specification)

Thank You



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