

Towards a Method for Realizing Sustained Competitive Advantage through Business Entity Analysis

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Outline

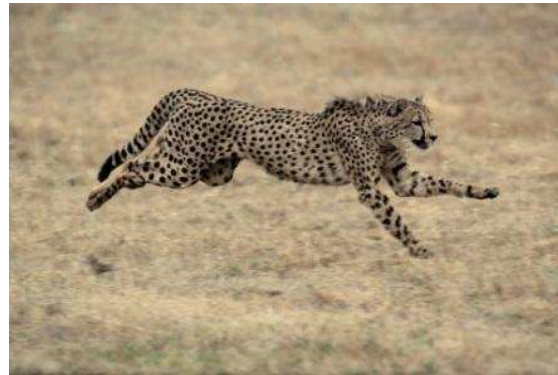
- Context of the research
- Research question
- Theoretical background
- SCUBE methodology
- Conclusions and future work

The context

- Unit of analysis of the study:
 - Organizations operating in a rapidly and continuously changing economic context.
- Basic assumption:
 - In order to obtain a Sustainable Competitive Advantage (SCA) companies need to have a flexible structure able to respond rapidly to the changes of the market and of the clients (Chao et Al., 2009, Barney, 1991, Tsourveloudi and Valavanis, 2002)

What do companies need?

- Business agility



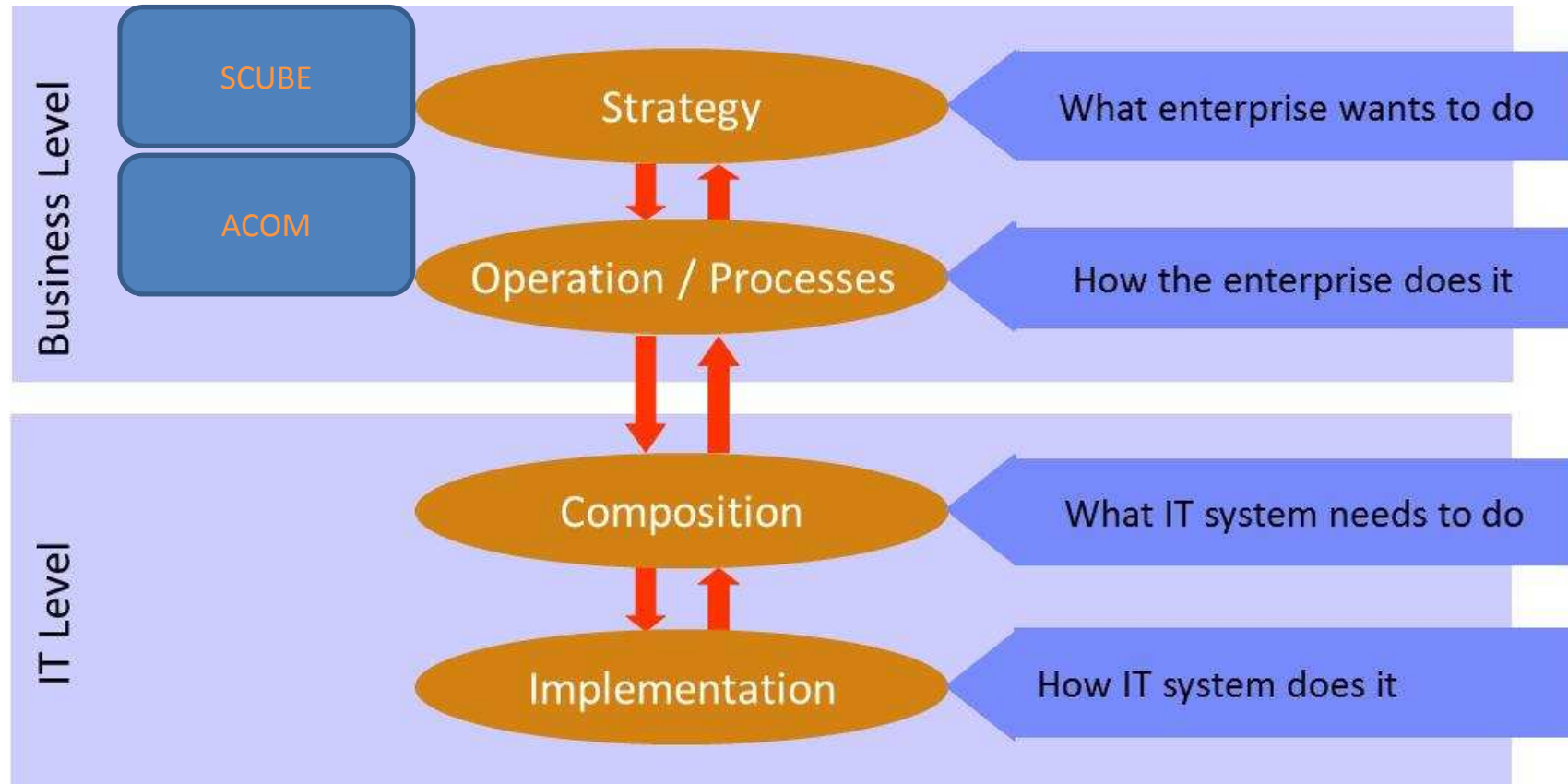
- Innovation



- Flexibility of business processes



Model Driven Business Transformation (MDBT)

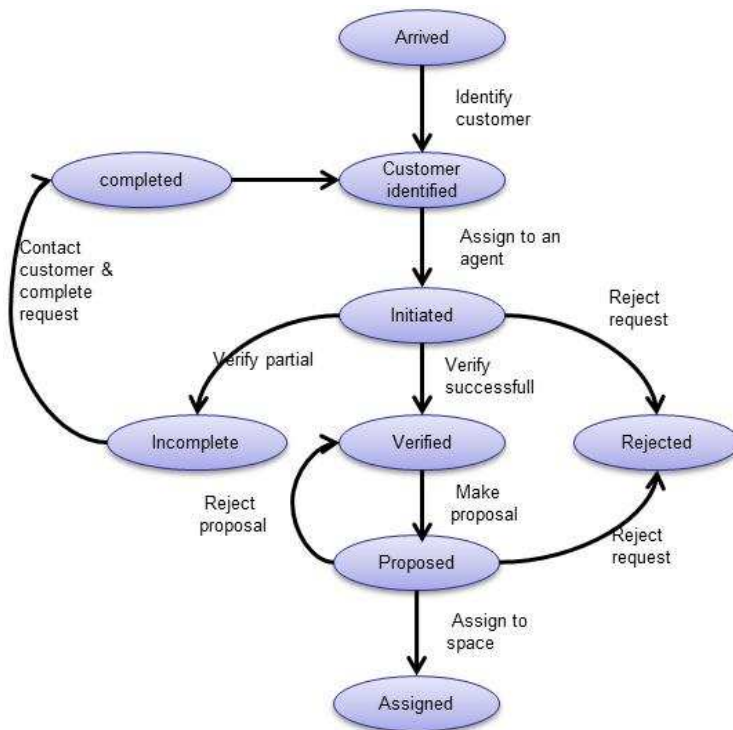


The Model Driven Business Transformation Framework (Bhattacharya et Al., 2005)

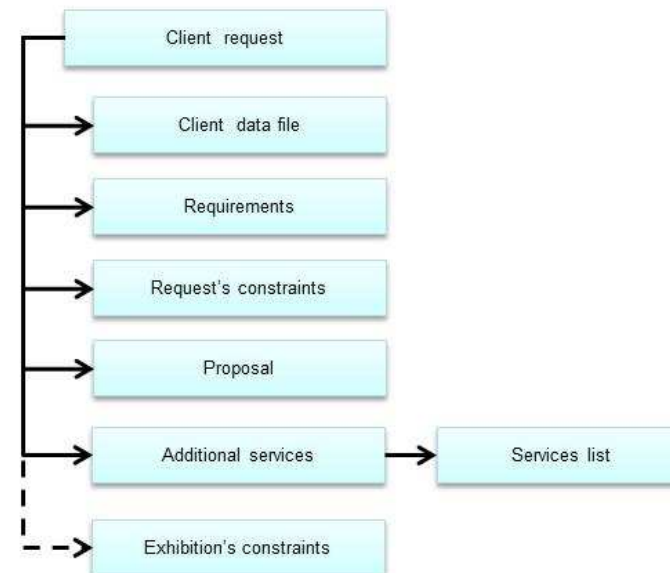
The Artifact-Centric Operational Modeling (ACOM) Approach

- Business Entity → e.g. Claim, arrangement, request

Artifact's lifecycle

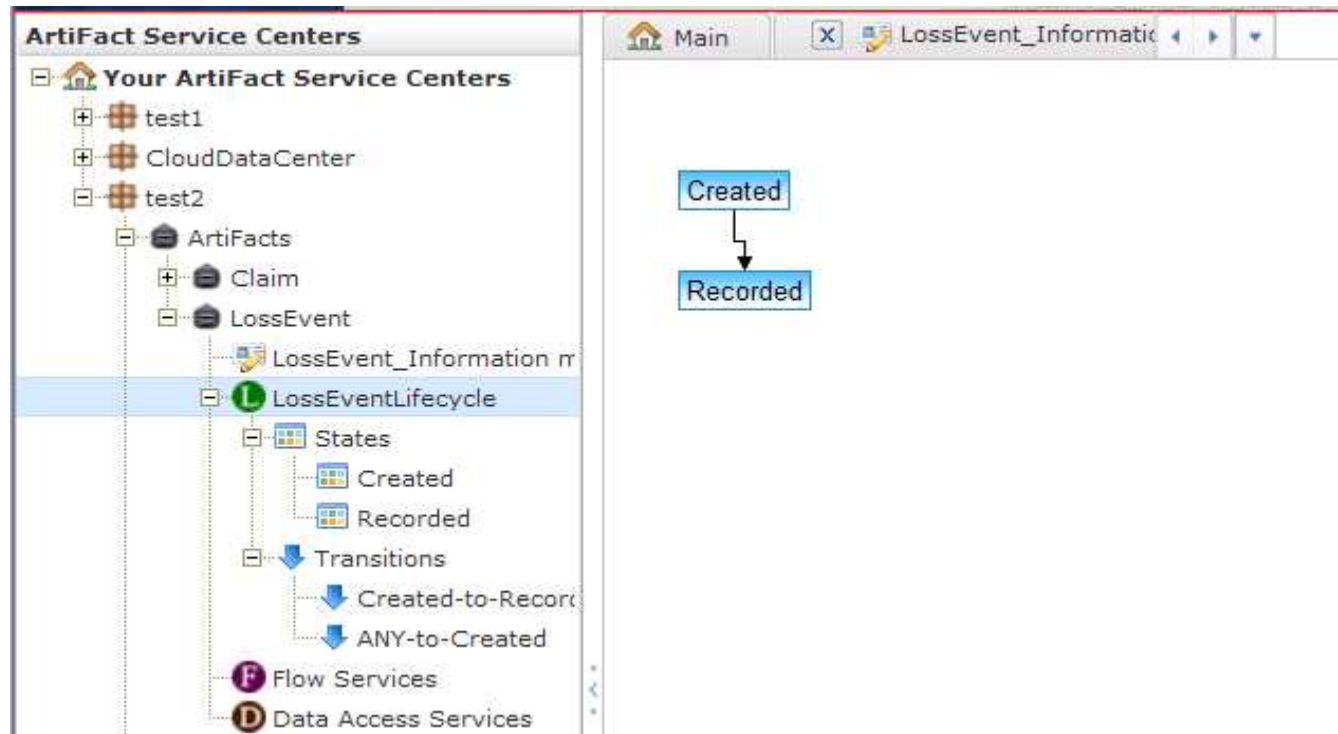


Artifact's informational model



ACOM

- SIENA is a Web-Based software that supports process modeling with the ACOM approach



Model Driven Business Transformation

Strenghts

- Alignment Strategy – Processes – IT applications
- ACOM
(base concept: Business Entity)
- Tested in customer engagements

Weaknesses

- Strategy layer not formalized
- Hard to identify the critical Business Entities in a company

Research Question

- How an organization can express its strategies in a way that is formalized, unambiguous and coherent with a process modeling methodology (ACOM),
- in order to easily translate strategic choices in actions on business processes and finally in IT applications supporting those processes?



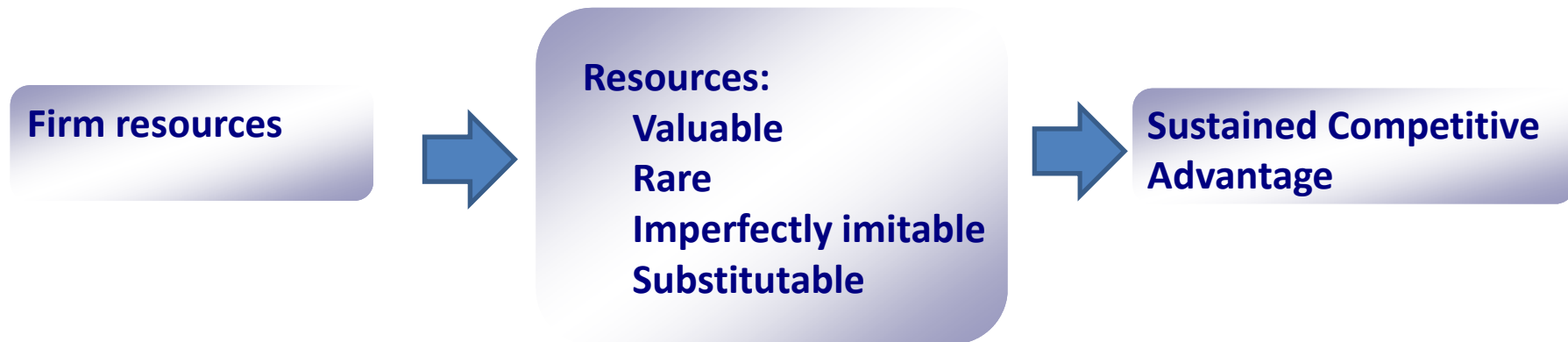
SCUBE methodology

Theoretical Background

- Management Science perspective:
 - Resource-Based View of the firm theory (Barney, 1991)
- Computer Science perspective:
 - Business Motivation Model (OMG, 2005)

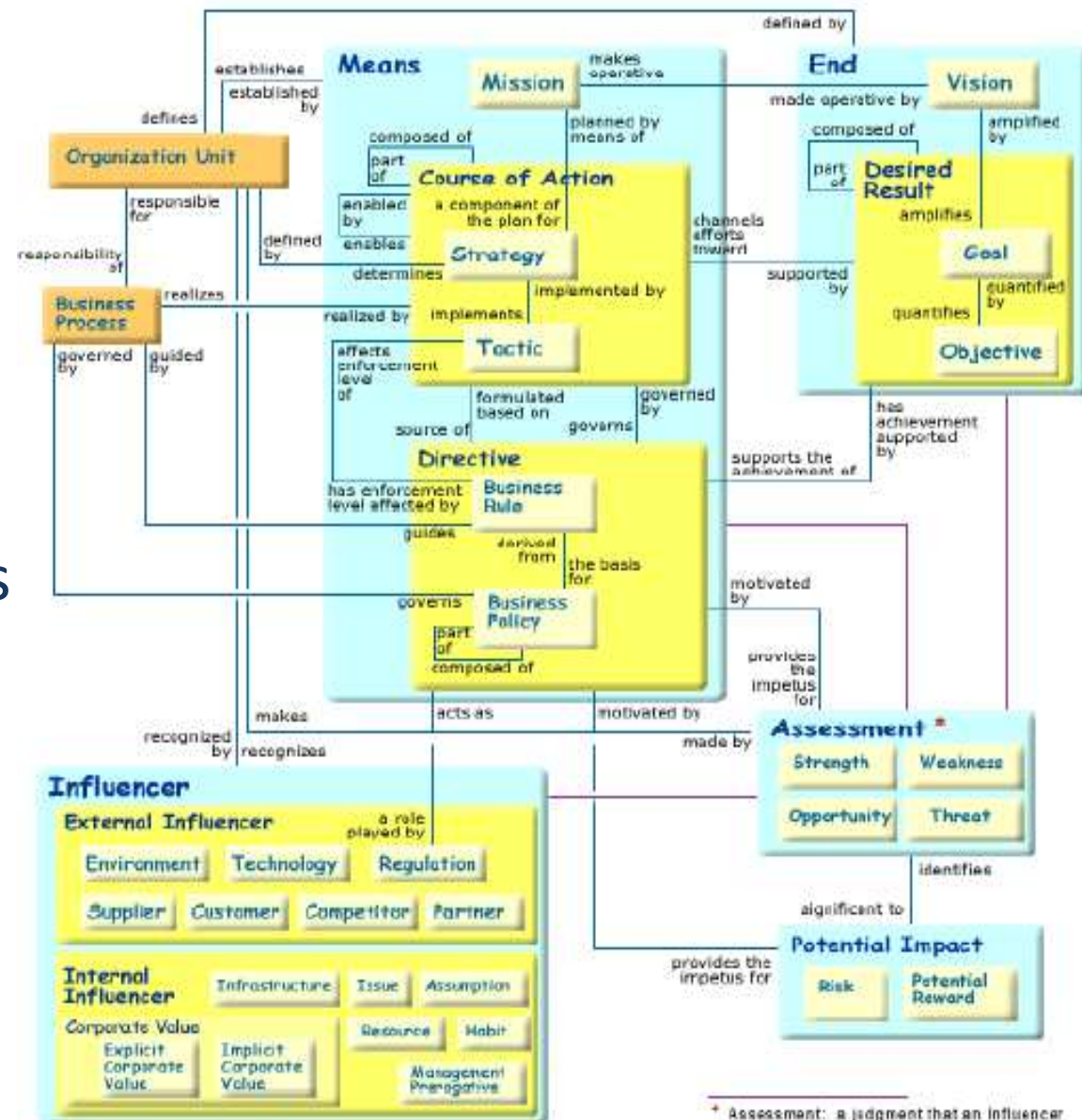
Resource-Based View (RBV) Theory

- Firms obtain a **Sustainable Competitive Advantage (SCA)** by implementing strategies that impose a relevant response lag for the competitors attempting to imitate the use of the firm **resources** (i.e. the *sources* of competitive advantage)



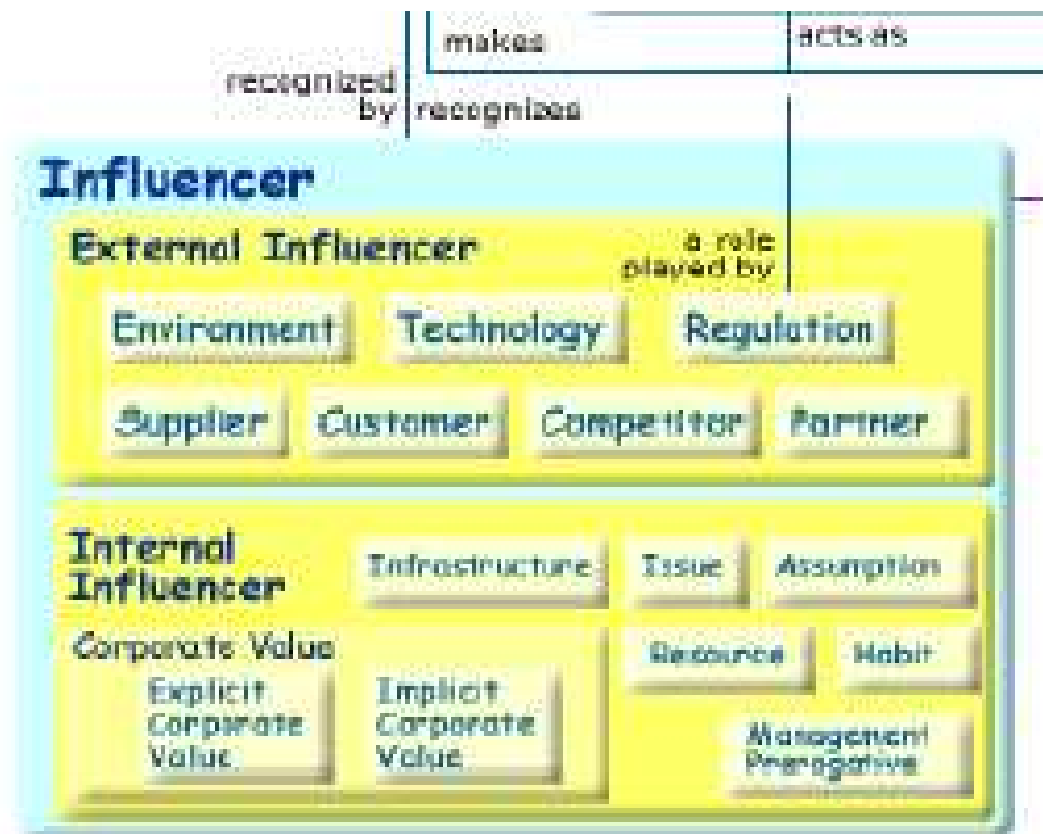
Business Motivation Model (BMM)

- Standard aimed at driving software development in a firm, starting from its strategic decisions



* Assessment: a judgment that an Influencer affects the employment of Means or the

BMM: the concept of *Influencer*



BMM

- **Why BMM?**

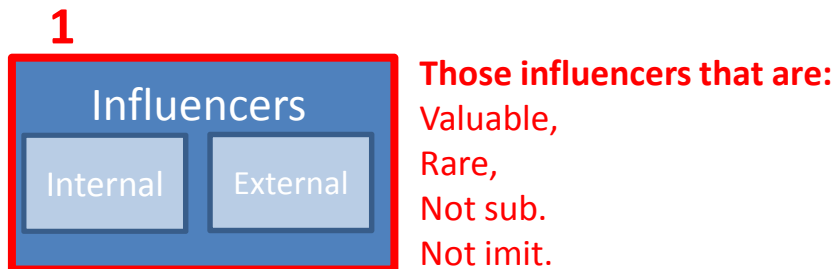
- It includes concepts related to firm's strategy besides concepts related to the operational level (i.e. business processes)
- The degree of formalization of the model is rather high (definition of basic concepts and of the , relationships among them)
- It allows identifying univocally and directly the Business Entities (coherently with ACOM)

SCUBE methodology

- **S.C.U.B.E. → Sustained Competitive Advantage Using Business Entities**
- **Input (based on BMM):**
 - “Desired Results”, strategies aiming to achieve Desired Results
 - “Influencers”, resources ...
- **Output:**
 - Business Operations enabling a SCA
 - Business Entities that implement these Operations

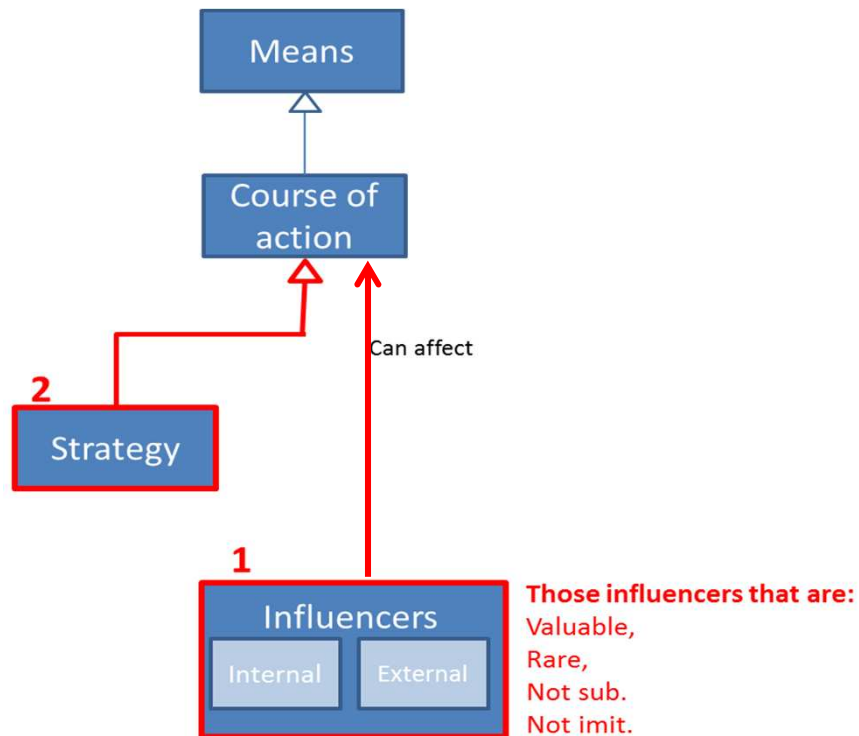
SCUBE: 6 Steps

- **Step 1:**
 - Identify the influencers for a Strategic Business Unit
 - Examine if an Influencer or a combination of Influencers is valuable, rare, imperfectly imitable and not substitutable.
 - Select the Influencers or combinations which satisfy these properties



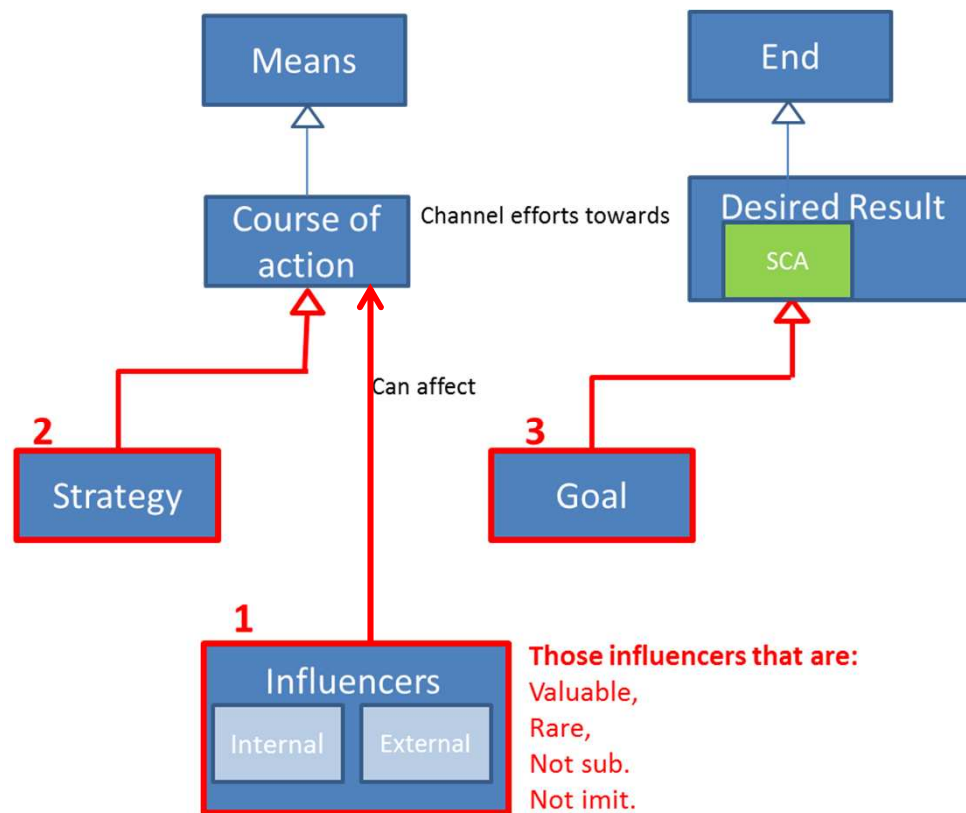
SCUBE: 6 steps

- **Step 2:** Describe Strategies that are impacted by the Influencers selected in Step 1



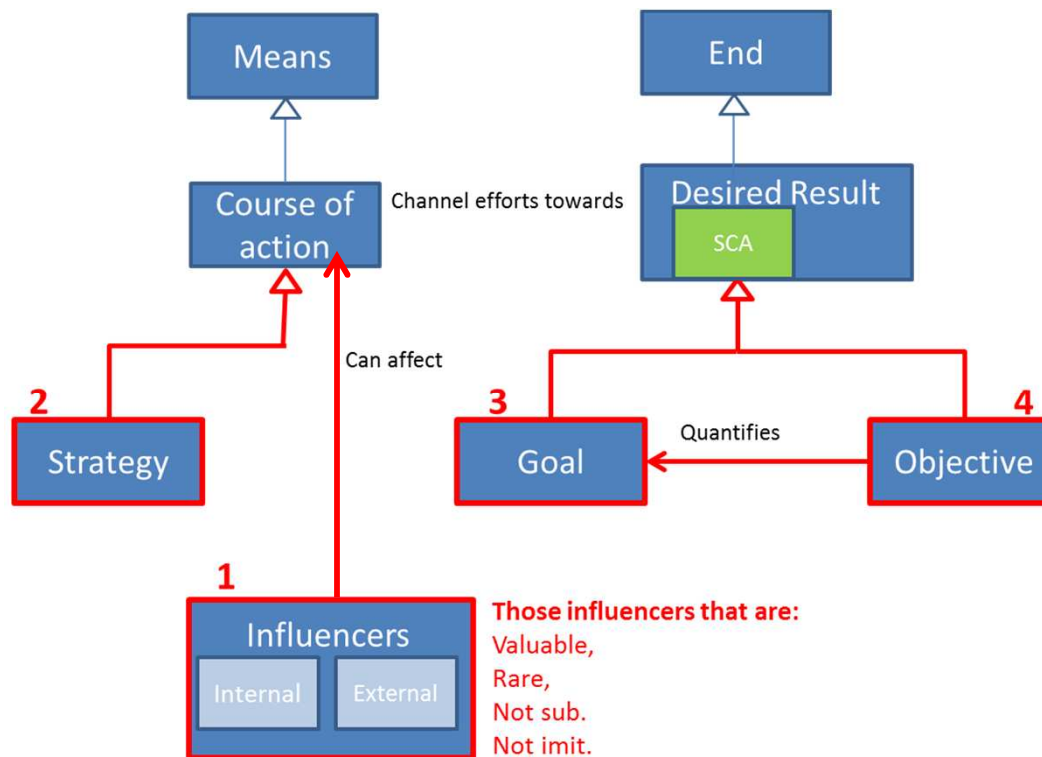
SCUBE: 6 steps

- **Step 3:** Identify Goals that are achieved by these SCA-generating Strategies.



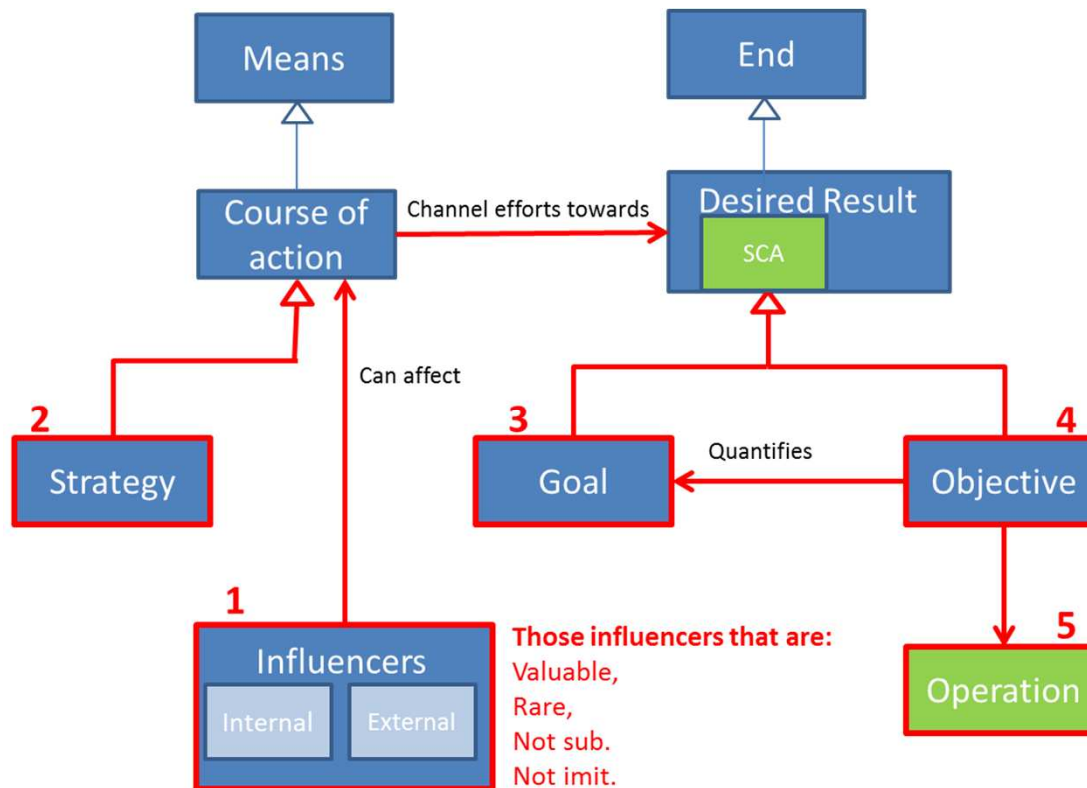
SCUBE: 6 steps

- **Step 4:** Identify Objectives which quantify each of the Goals.



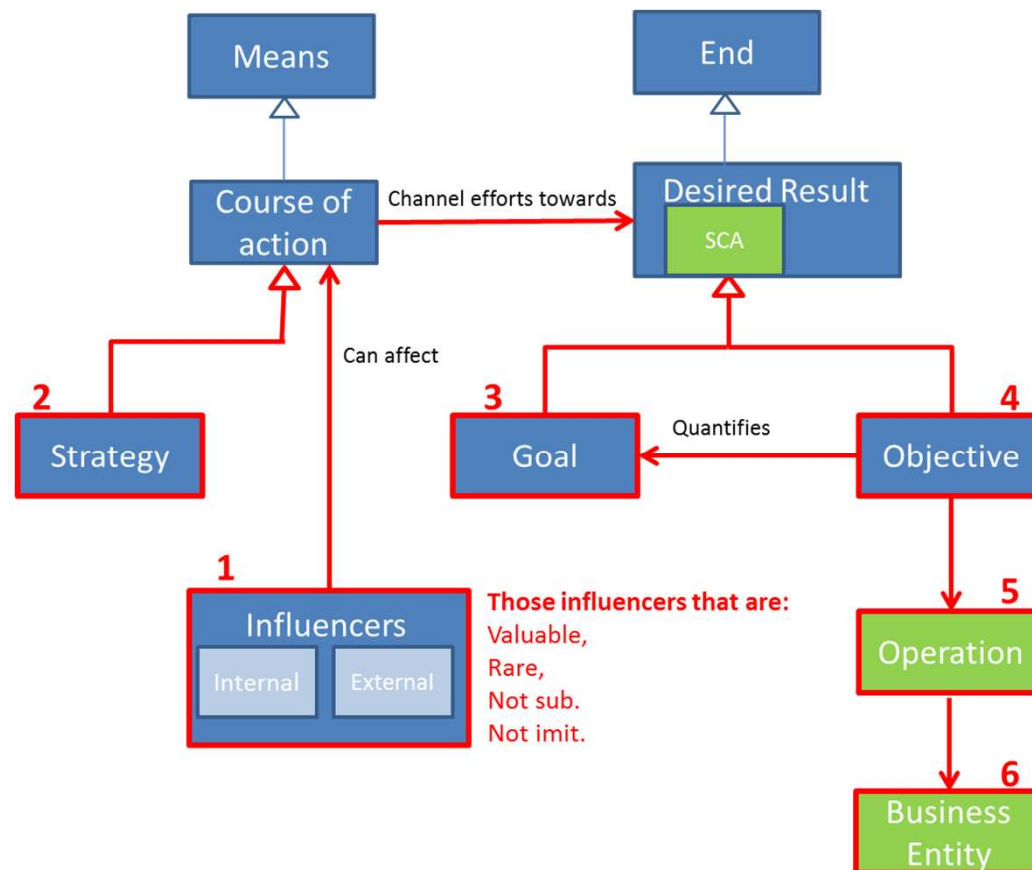
SCUBE: 6 steps

- **Step 5:** Identify Operations that achieve these Objectives



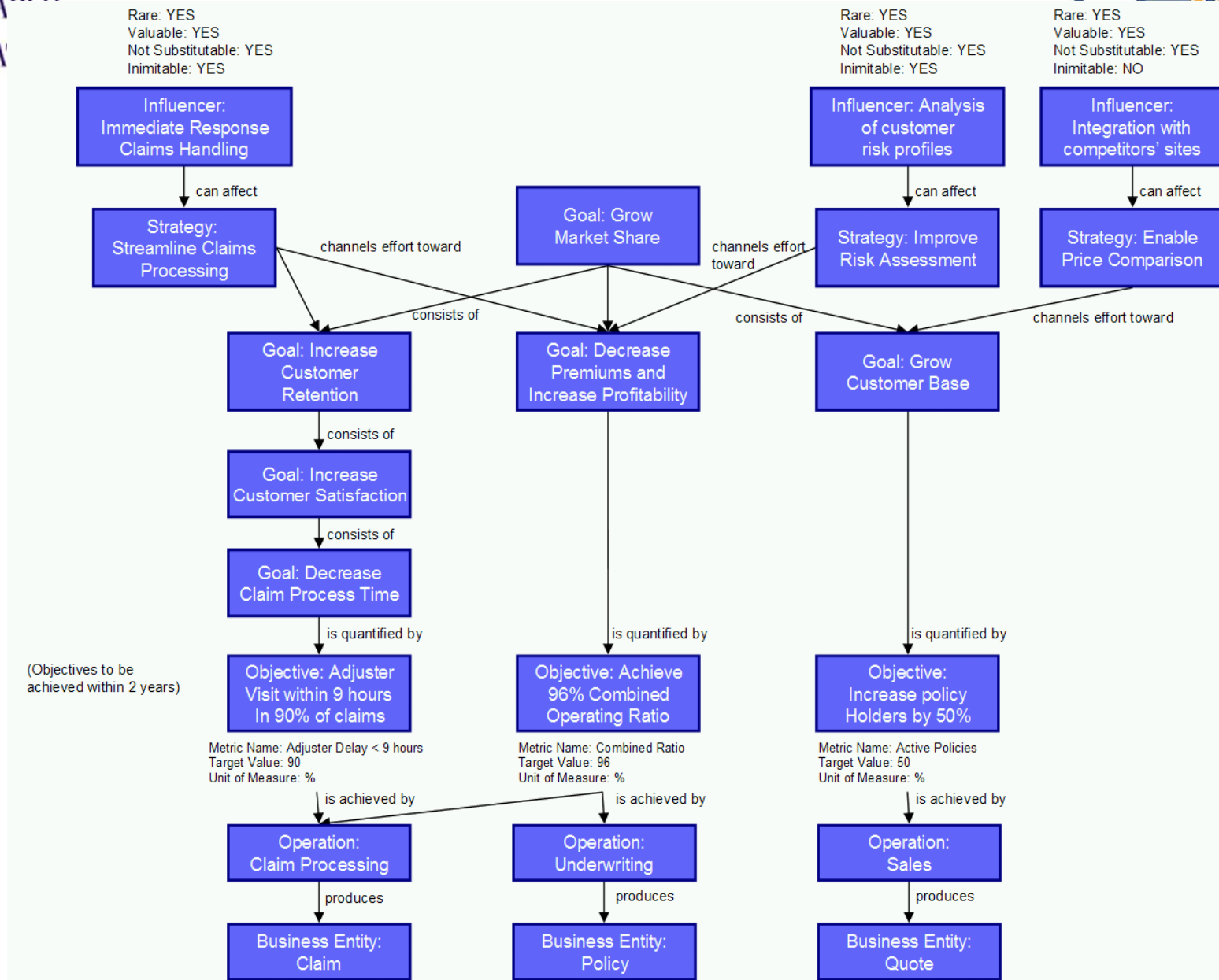
SCUBE 6 steps

- **Step 6:** Identify Business Entities produced by these Operations. Thus, these Business Entities can lead to SCA.

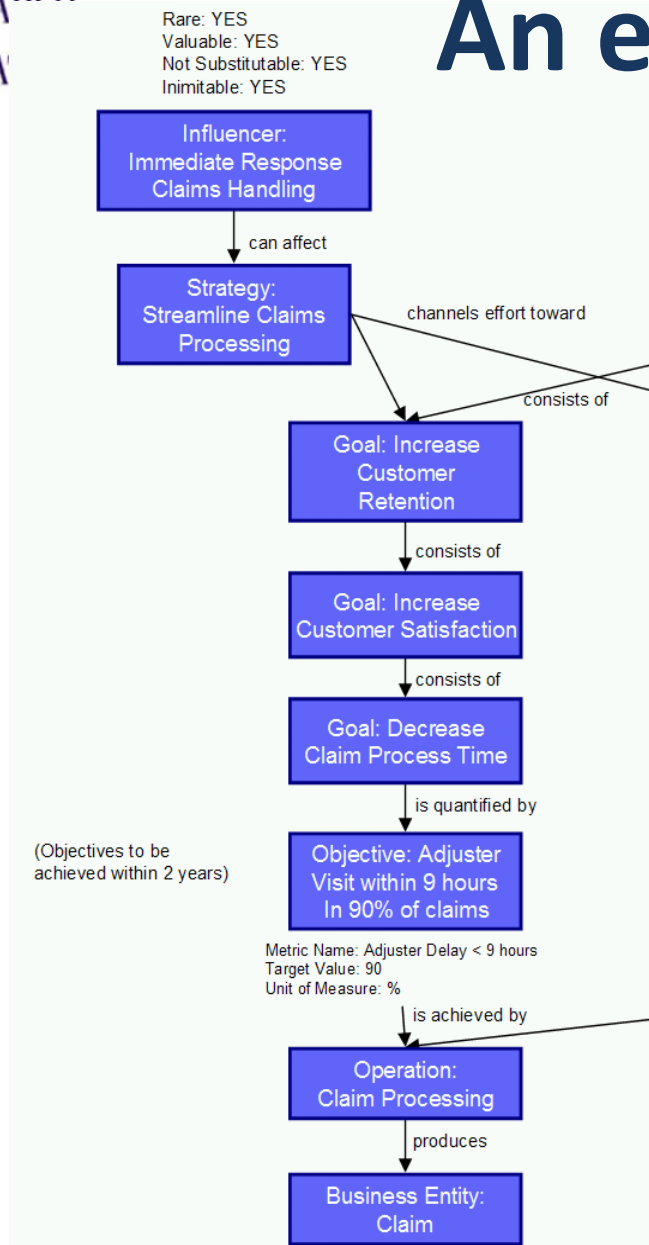


An Example (from Hammer 2004)

- A car insurance company handles claims with an *immediate response*.
- We can identify the underlying customer orientation approach as an influencer (Step 1)
- We next test this Influencer against the four required attributes for SCA defined by Barney



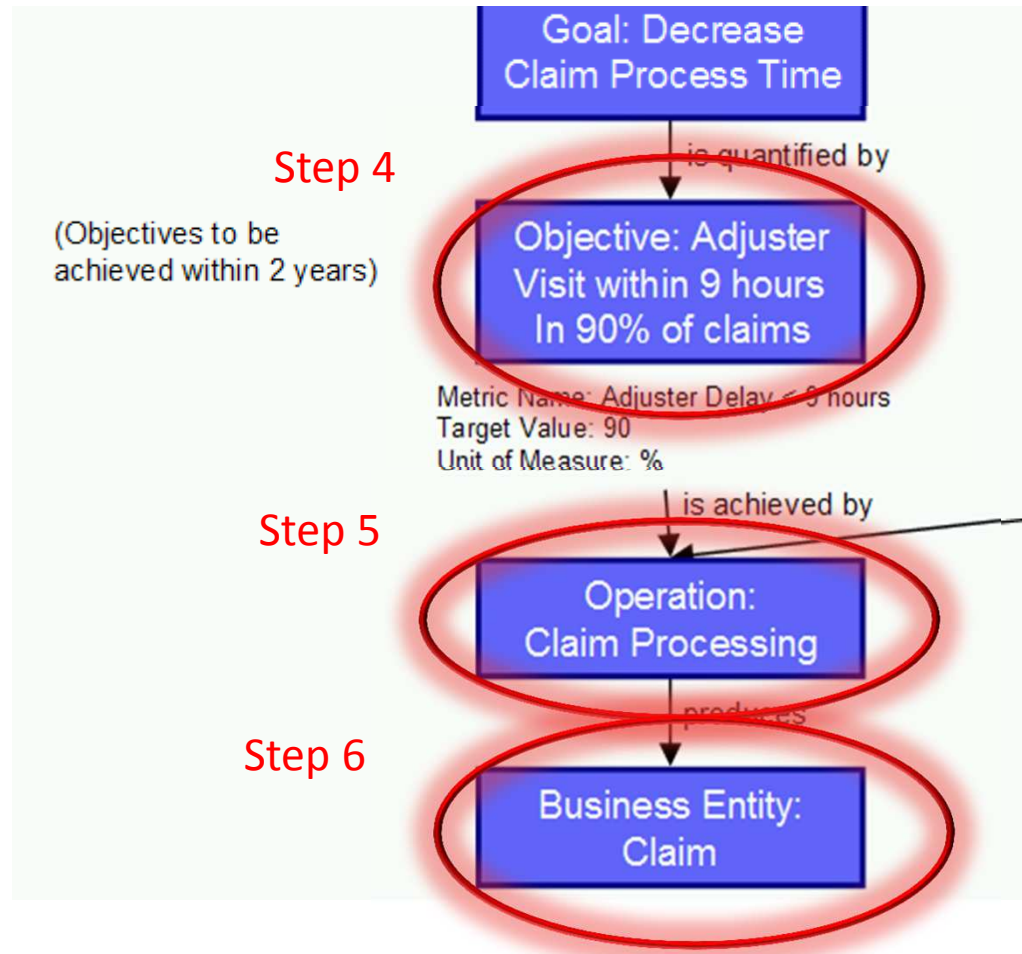
An example



An example



An example (2)



Empirical investigation

- Development of a protocol for SCUBE operationalization
- Application of the protocol in at least three cases
- Method: Interviews with top management figures and analysis of documentation within companies

Conclusions

- New methodology for achieving Sustained Competitive Advantage synthesizing and evolving concepts from Resource Based View Business Motivation Model and MDBT
- Formal linkage to strategy that has been lacking in MDBT
- Practical way that would allow any company to achieve business agility with a set of formalized steps
- SCUBE integrated with MDBT help organization in developing business solutions from strategy

Future work

- Refine the methodology after its application in real case studies
- Define SCUBE applicability domain
- Define a performance measurement system effective also at the strategic level

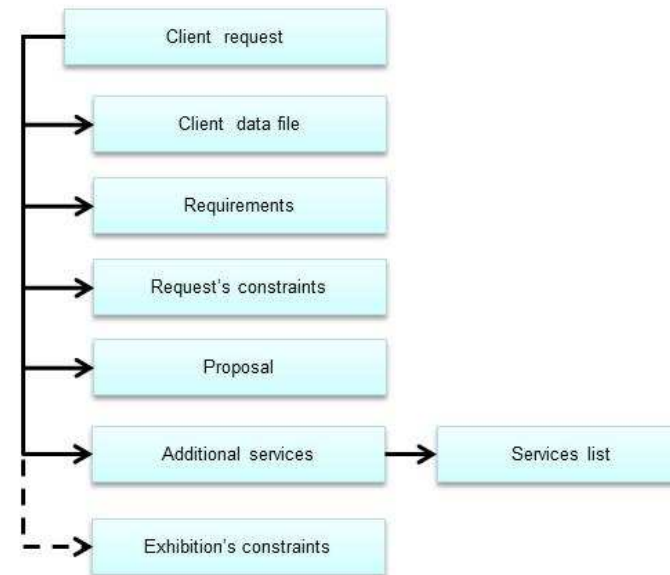
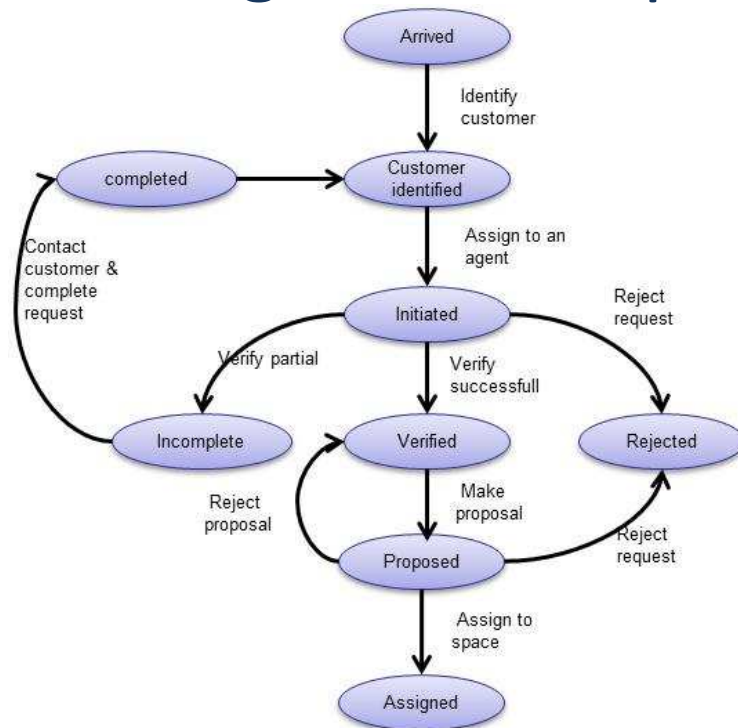
Questions

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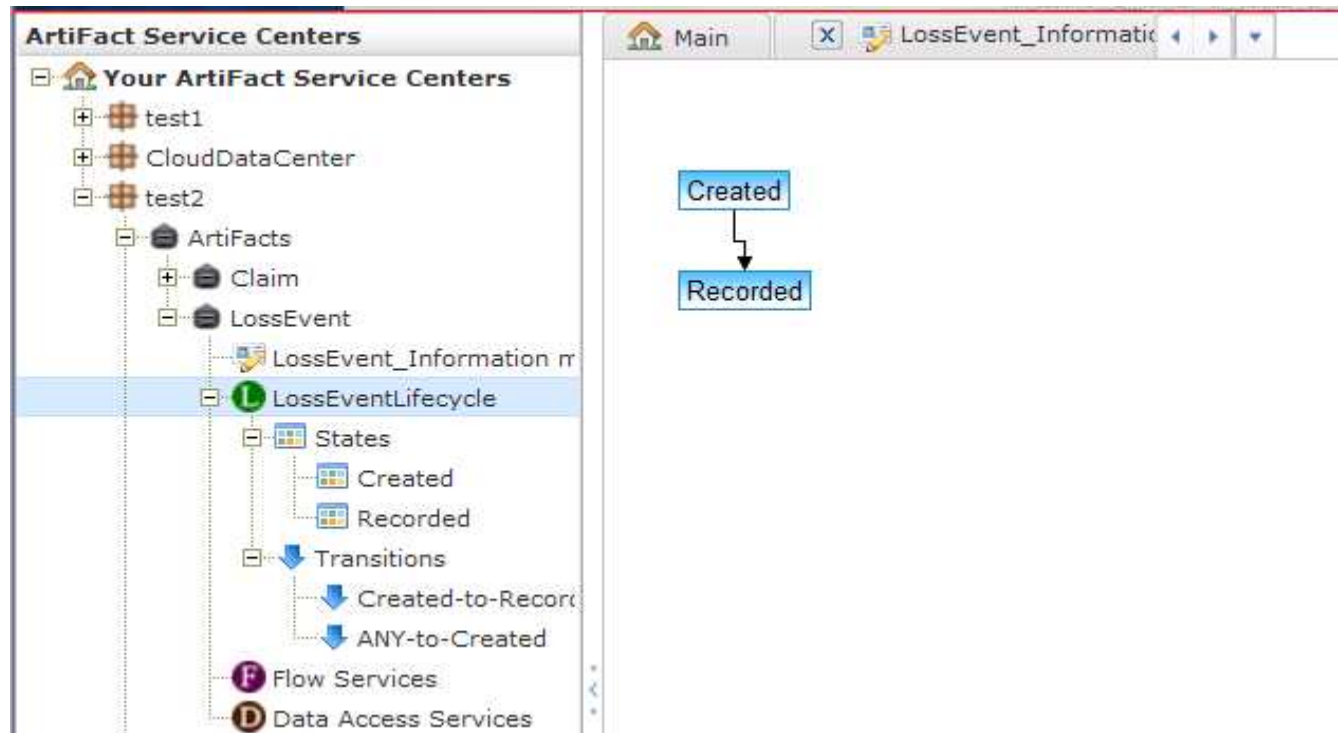
Approfondimenti (1)

- Artifact Centric Operational Modeling (ACOM)
- The business Artifact → E.g. Claim, arrangement, request



Approfondimenti (2)

- SIENA is a Web-Based software that supports process modeling with the ACOM approach



- **2. How to manage and transform the business: the MDBT framework**
- 2.1. Operational Innovation and Business Process Innovation, BPM & BPR
- 2.2. Business Process Modeling
- 2.2.1. Methods, techniques and tools for process modeling[M3]
- 2.3 The Model Driven Architecture
- 2.3.1 The Model Driven Business Transformation framework
- Description and objectives
- Applications of the framework[M7]
- A critical analysis of the framework
- 2.3.2. Activity centric and information centric approach to process modeling
- 2.4 Analysis of instruments for business process modeling[M4]
- 2.4.1. A comparative analysis
- 2.4..2. Websphere Business Modeler
- 2.4.2.1. Examples[M5]
- 2.4..3. Siena tool
- 2.4.3.1. Examples[M6]

- **3. Research methodology**
- 3.1. Qualitative research but exactly which type?

- **4. Theoretical background**
- 4.1. An overview of strategic analysis methodologies
- 3.1.1. CBM & CBM2
- 4.2. The RBV
- 3.2.1. A summary of the main contributes to the theory
- 3.2.2. A critical analysis
- 4.3 An overview of sw engenerering methodologies for business agilty
- eg business rules
- 4.4. The Business Motivation Model
- 3.3.1. Some Examples

- **5. SCUBE Methodology from a theoretical point of view**
- 5.1. Why a new methodology?
- 5.2. Theoretical background in synthesis
- 5.3. Description of the methodology
- 5.4. Examples

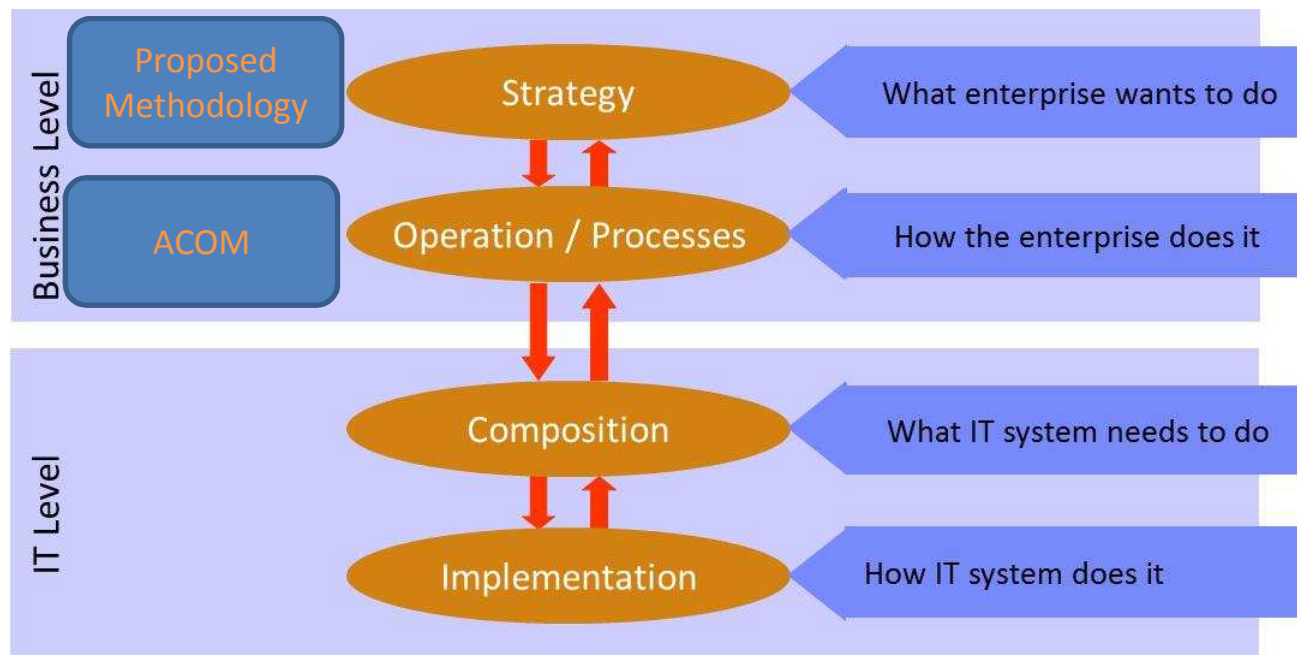
- **6. Empirical investigation**
- 6.1. To be defined
- **7. Conclusions**
- 7.1. To be defined

Attività di ricerca svolta

1. Attività di ricerca in collaborazione con il centro IBM T.J. Watson:
 1. Definizione della ricerca oggetto della tesi di dottorato
 2. Submission di 2 papers a conferenze
2. Attività di ricerca su applicazioni industriali della Service Science nel settore manifatturiero e dei servizi

Argomento della tesi di dottorato

- Obiettivo: Formalizzare il layer strategico del framework MDBT progettando una metodologia di analisi strategica, che permetta l'identificazione dei Business Artifacts (coerentemente con l'approccio ACOM)



The Model Driven Business Transformation Framework (Bhattacharya et Al., 2005)

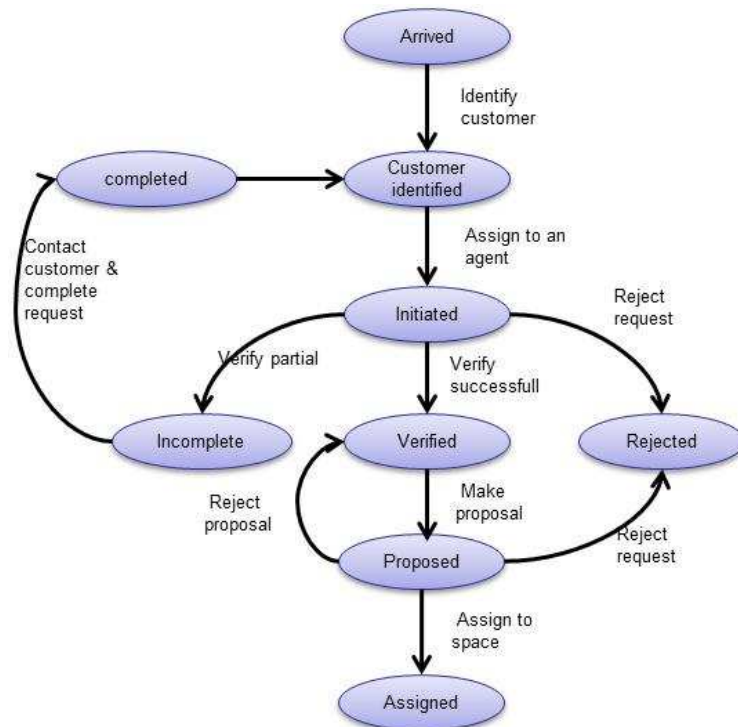
Background alla metodologia

- Artifact-Centric Operational Modeling (ACOM) approach (Bhattacharya et Al., 2005)
- The Resource-Based View (RBV) of the firm theory (Barney, 1991)
- The Business Motivation Model (BMM) Version 1.1 (The Business Rules group, 2010)

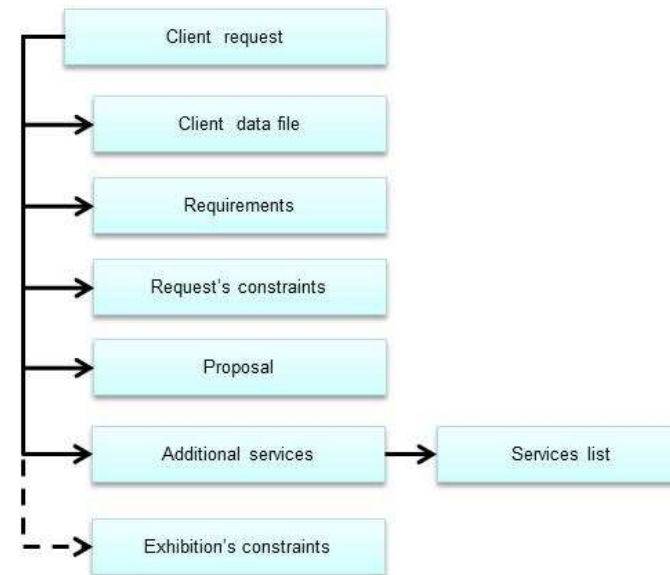
The Artifact-Centric Operational **Cetic** Modelling (ACOM) approach

- Business Artifact → E.g. Claim, arrangement, request

Artifact's lifecycle

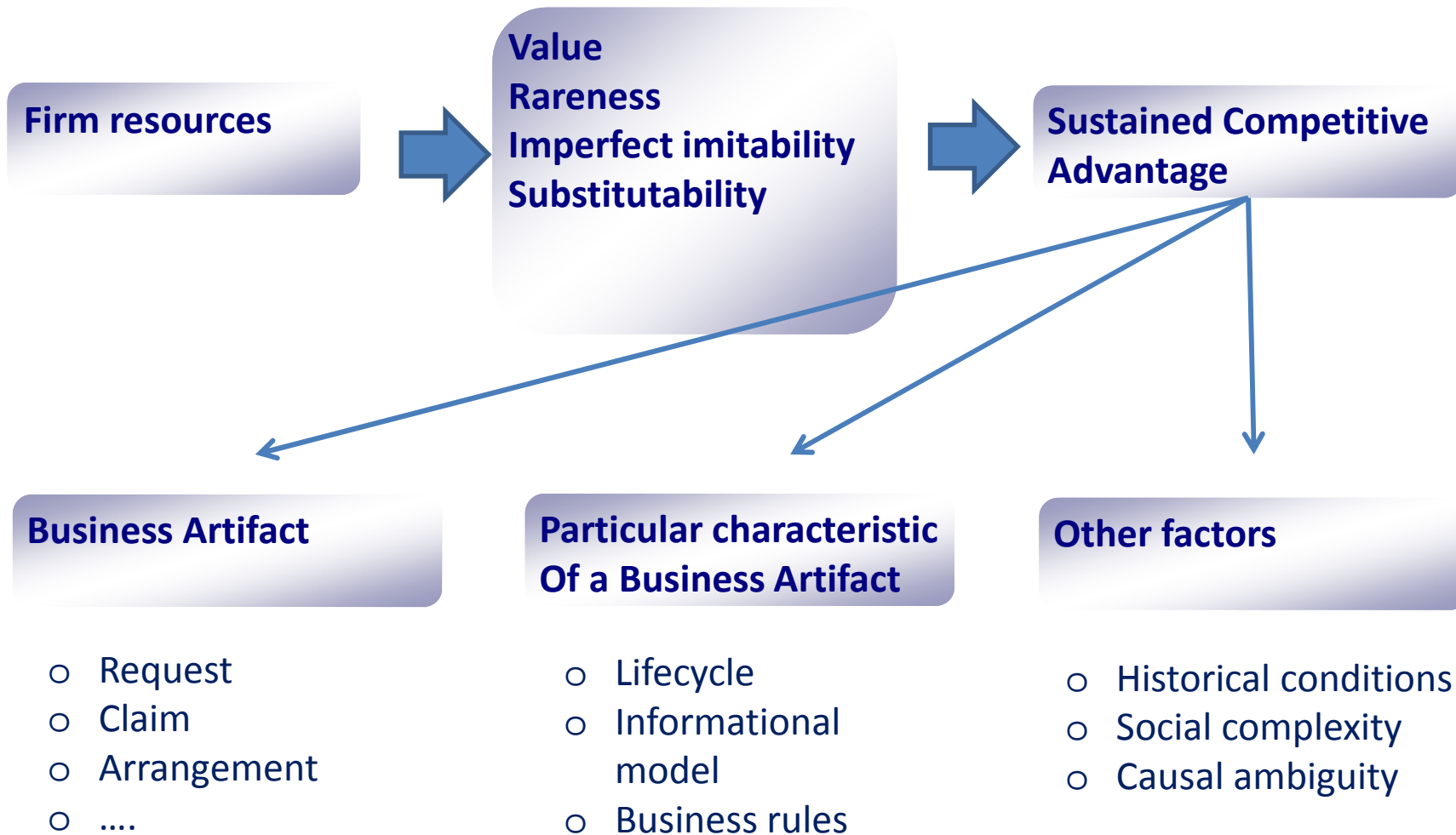


Artifact's informational model

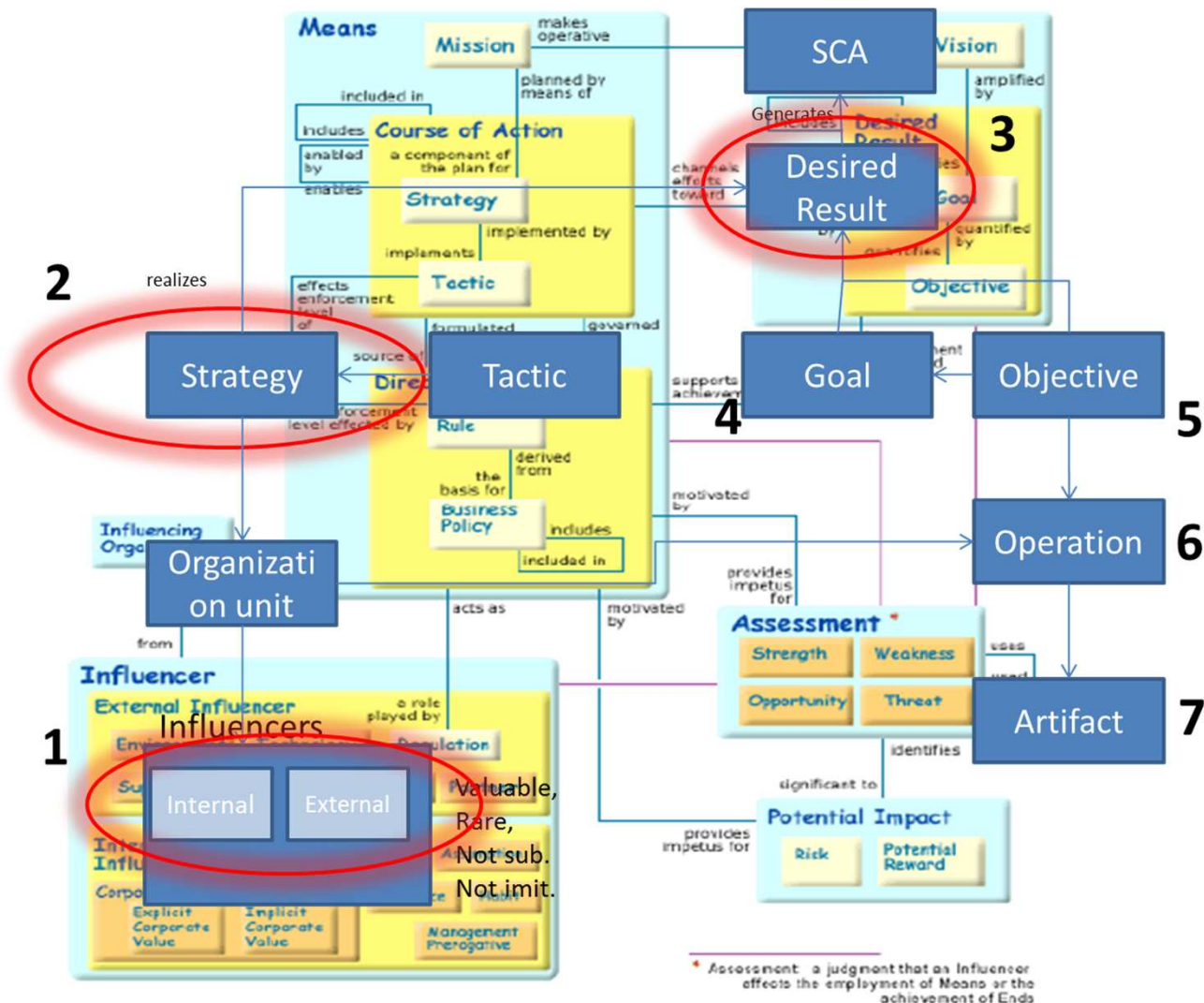


RBV Theory

Understanding the Sources of SCA



Il modello BMM



Sviluppi futuri

- Ulteriore definizione della metodologia proposta focalizzandosi su:
 - La relazione tra Sustained Competitive Advantage e Business Artifacts
 - Definizione di un sistema di misurazione delle performance dei Business Artifacts, possibili soluzioni:
 - Balanced Scorecard
 - Critical Success Factors
 -
- Applicazione e test della metodologia in un caso di studio reale

Applications

1. Analisi delle applicazioni industriali di Service Science nel settore terziario:
 - Review sistematica della letteratura; a partire da circa 200 papers (presi da giornale e conferenze in ambito Service Science e IS) 24 sono stati analizzati in dettaglio
 - Presentazione di un paper a MCIS 2010 sulle applicazioni industriali della Service Science nel terziario
2. Studio del fenomeno della «Servitization»:
 - Analisi delle implicazioni della servitization sulle organizzazioni a livello strategico, tattico ed operativo con particolare attenzione alle possibilità fornite dall'IT
 - Partecipazione come contributor al progetto di chapter dal nome “service industry” nel libro edito da W. Murphy sulla SSME

Attività di formazione scientifica

- Periodo di permanenza presso il centro IBM T. J. Watson, NY (ottobre – dicembre 2009)
 - Partecipazione ad iniziative organizzate dal centro, incontri con ricercatori e utilizzo di software sperimentali per la modellazione di processi di business
- Frequenza dei corsi di Introduzione alla filosofia della scienza e di metodi qualitativi (dottorato LIUC)
- Frequenza del corso di case study methodologies offerto dalla scuola di dottorato del Politecnico di Milano
- Partecipazione ad eventi e seminari organizzati da IBM
 - IBM Global Pulse 2010
 - Workshop WebSphere Business Process Management
 - Smarter Planet Student Council

Attività didattica

- Attività di relatore:
 - Tesi di Luca Pelagotti e Luca Colombo su Business Process Modeling
- Attività di correlatore:
 - Tesi di Matteo Veronese su applicazioni di SSME nel settore terziario
 - Tesi di Gianpaolo Truffa su «Servitization in manufacturing»
- Lezioni all'interno del corso SOME (anno accademico 2009-2010)
- Lezioni all'interno del corso Business Consulting (anno accademico 2010-2011)

Produzione scientifica

- Della Bordella, M., Ravarini, A., Wu, F.Y., Liu, R. (2010) “**Key Business Artifacts: a methodology for the strategic model within the MDBT (model driven business transformation) framework**” Mediterranean Conference on Information Systems (MCIS), Tel Aviv, 12-14 Sept. 2010
- Della Bordella, M., Ravarini (2010) “**A brave new service world? An analysis of the services sector through the lenses of Service Science**” Mediterranean Conference on Information Systems (MCIS), Tel Aviv, 12-14 Sept. 2010
- Della Bordella, M., Ravarini, A., Wu, F.Y., Liu, R. (2010) “**Operational innovation: from principles to methodology**” Italian Conference on Information Systems (ItAIS), Napoli, 8-9 Oct. 2010

An example (2)

Step 1

Step 2

Step 3

(Objectives to be achieved within 2 years)

Step 4

Step 5

Step 6

Rare: YES
Valuable: YES
Not Substitutable: YES
Inimitable: YES

Rare: YES
Valuable: YES
Not Substitutable: YES
Inimitable: YES

Rare: YES
Valuable: YES
Not Substitutable: YES
Inimitable: NO

Influencer:
Immediate Response
Claims Handling

Influencer: Analysis
of customer
risk profiles

Influencer:
Integration with
competitors' sites

Strategy:
Streamline Claims
Processing

Goal: Grow
Market Share

Strategy: Improve
Risk Assessment

Strategy: Enable
Price Comparison

Goal: Increase
Customer
Retention

Goal: Decrease
Premiums and
Increase Profitability

Goal: Grow
Customer Base

Goal: Increase
Customer
Satisfaction

Goal: Decrease
Claim Process
Time

Objective: Adjuster
Visit within 9 hours
In 90% of claims

Objective: Achieve
96% Combined
Operating Ratio

Objective: Increase policy
Holders by 50%

Metric Name: Adjuster Delay < 9 hours
Target Value: 90
Unit of Measure: %

Metric Name: Combined Ratio
Target Value: 96
Unit of Measure: %

Metric Name: Active Policies
Target Value: 50
Unit of Measure: %

Operation:
Claim Processing

Operation:
Underwriting

Operation:
Sales

Business Entity:
Claim

Business Entity:
Policy

Business Entity:
Quote

Questions and answers

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