
Risk Assessment Approach to Support IT Collaboration Network

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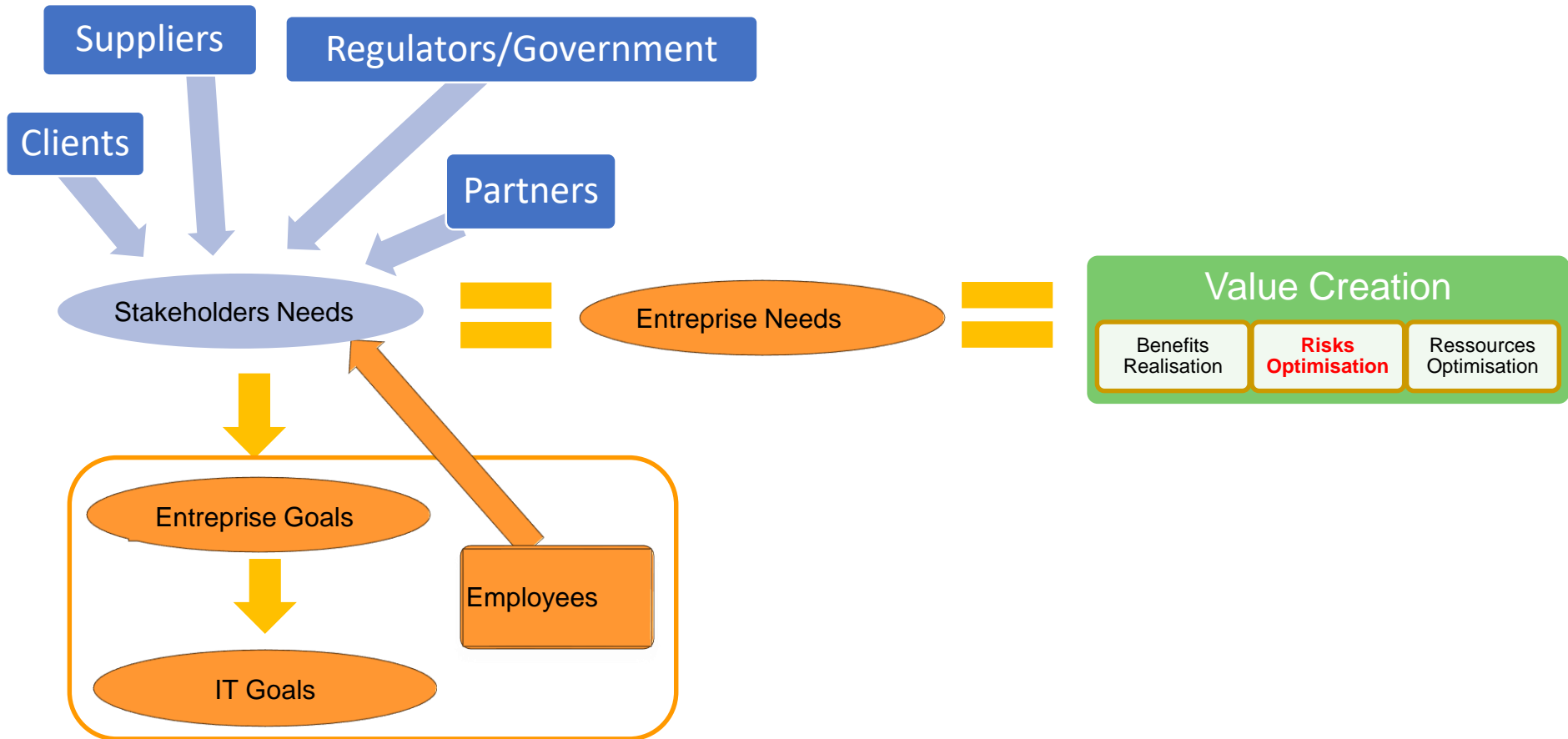
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PLAN

- **INTRODUCTION:** IT Collaboration Context and Problematic
- **Concepts:** SNA, Risk Assessment
- **Risk Assessment to support IT Collaboration**
- **APPLICATION: SUPPLIERS SELECTION PROCESS**
- **CONCLUSION**

INTRODUCTION: IT Collaboration

Context and Problematic



INTRODUCTION: IT Collaboration

Context and Problematic

- How organization should manage its relationships with stakeholders?
- How should organization choose the right partner to collaborate with?

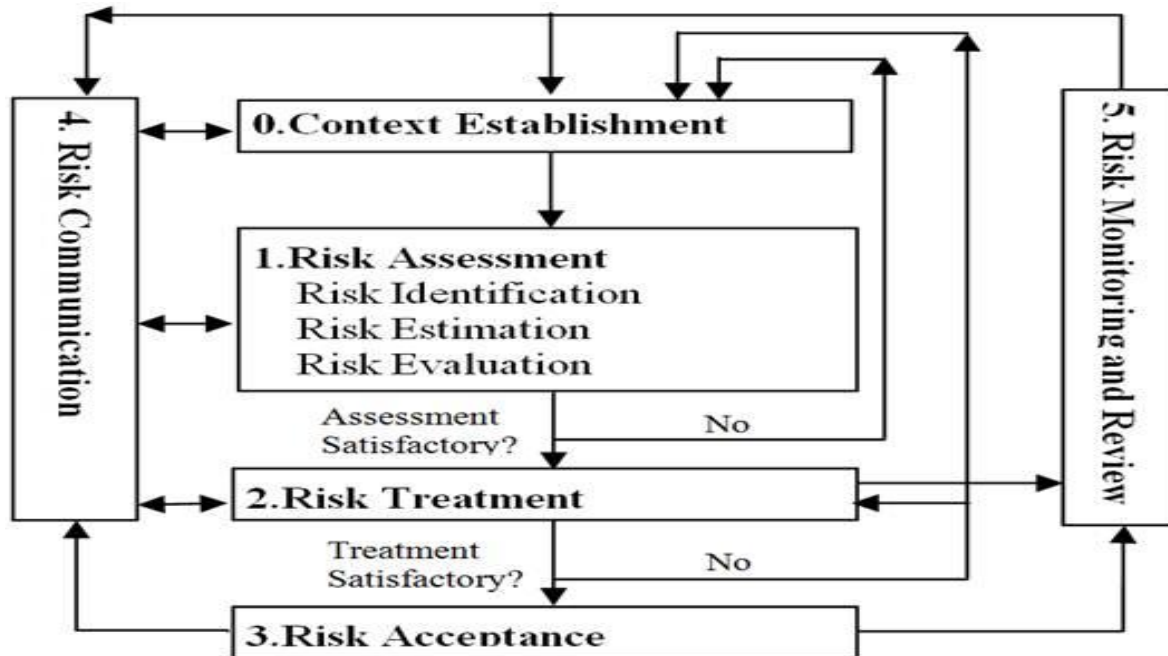
INTRODUCTION: IT Collaboration

Context and Problematic

- The originality of this work is to validate how Risk Assessment supports IT governance through network theories,
- SNA theory : Provides social network measures useful for evaluating actors and relationships,
- Application on supplier management process.

Concepts: Risk Assessment

- In compliance with ISO 27005, the methodological framework includes the following steps:



F1 - Guidelines for information security risk management by ISO/IEC 27005.

Concepts: SNA

Level	Metric	Initiator	Description
N O D E	size		Network nodes number
	Density	Scott, 2000	The overall connectedness of a network
	Network Centralization	Provan and Milward, 1995	Connectedness around particular nodes in a network
	Network Complexity	Kauffman, 1993	Number of dependency relations within a network
N E T W O R K	Degree Centrality	Freeman, 1979	Sum of connections from or to an actor how many poeple can this person reach directly
	Betweenness Centrality	Freeman, 1979	Number that represents how frequently an actor is between other actors' how likely is this person to be the most direct route between two people in the network
	Closness Centrality	Freeman, 1979	Distance of one actor to all others in the network how fast can this person reach everyone in the network

Collaboration Network and Risk Assessment using SNA in The Literature

- SNA was explored in researches to view networks as analytical tools that encompasses and explains relationship, hierarchies as variations of network structures, but no study deal with this tool to study IT Governance problematics in a Network Context.

Risk Assessment to support IT Collaboration

- Effective risk management program requires internal and external partners consideration, cooperation and control
- Proposed approach uses social analysis mechanism, to conduct qualitative risk-assessment process (Identify, assess, treat and monitor risks).

APPLICATION: SUPPLIERS SELECTION PROCESS

- An organization need to select the appropriate contractor to perform an external IT security control audit. For this purpose, and for the objectivity reason of the mission, Supplier Management Process should identify the least involved supplier in its information system.
- Supplier Management is an IT Governance Process
- SNA is investigated to better manage suppliers' risks selection

SUPPLIERS SELECTION

PROCESS: Collect Data

The main question addressed to analyze suppliers is: Which suppliers are involved and what are their collaborative relationships?

Supplier / Materials and services	S1	S2	S3	S4
Hardware	1	0	0	1
Software	0	1	0	0
Services	1	1	1	0
Telecom	0	0	0	0

T1 - incidence matrix indicating the intervention area of each supplier

SUPPLIERS SELECTION

PROCESS: Analyse DataSet

What is the level of integration of each supplier in IT Governance supplier network?

	S1	S2	S3	S4
S1	-	1	1	1
S2	1	-	1	0
S3	1	1	-	0
S4	1	0	0	-

T2- Adjacency suppliers' matrix derived from T1

SUPPLIERS SELECTION

PROCESS: Choose Indicators

- The degree of each supplier is calculated to determine its level of integration:
- S4 has the smallest centrality degree (1/3), it means that it is the least implicated in this IT collaboration network, consequently the least risky for the security audit
- S1 has a high degree, S1 can be said to be “well-connected”, witch represents a high risk to the objectivity of the audit

	Degree	standarized degree
S1	3	1
S2	2	2/3
S3	2	2/3
S4	1	1/3

T3 - Suppliers' Degree

CONCLUSION:

- This work highlights how Risk Assessment supports IT governance through network theories,
- Interactions and relationship among actors, can strongly influence IT Governance,
- This has led to apply network theories, particularly, Social Network Analysis (SNA) in risk assessment process,
- We are exploring more Networks metrics and mechanisms to perform and extend our Risk Assessment Approach to Support IT Collaboration Network