Trust modeling and integration in cost reduction within collaborative networks
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Motivation & Objectives

TRUST: Belief in another agent's goodwill or veracity; a belief which, in some sense, goes beyond or against available evidence (Encyclopedia of Applied Ethics).

Trust is a critical factor fostering commitment among economical relations partners. The aim of this work has been to model trust and insert it in cost equations to see its influence on cost reduction within collaborative networks as well as supply chains.

Methodology

Trust modeling

Proposition of a new list of trust types that regroup all the factors that influence trust in an economical relation.

Trust has a different signification for each person (and changes even for that person) depending on:
- Person or enterprise trusted
- Geographic or cultural aspects
- Kind of industry
- Supply chain position
- Institutional environment

Trust needs at least two agents T12 and T21

Trust can be asymmetric (T12 ≠ T21)

Trust evolves, it is not a static concept

Actual trust in a relation

Thanks to a questionnaire, industrials define and note actual trust in their relation with a partner

By the Multi Criteria Decision Making (MCDM) method Analytic Hierarchy Process (AHP) we leave the task of saying what trust is in each case to the industrials giving a relative weight to each kind of trust.

Thus the distance to the optimal level of trust can be identified and improvement actions taken. For better understanding the Figure shows a 3D diagram (trust will have 5D)

Conclusions

We have created an innovative model for trust with 5 types of trust, each one with its factors. Thanks to the Analytic Hierarchy Process we are able to give a variable meaning to trust, enabling to use it in all kind of economical relation.

We also created a fuzzy logic model that relates levels of trust with cost reduction in a case study of the Collaborative Network SwissMicrotech.