

“IKINET – International Knowledge and Innovation Network”

“Innovation and knowledge creation in the SMEs of an Aeronautical Industrial Cluster”

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Teorical Framework

Principal Concept

- Innovation is a not linear process in which enterprises and its environment have a complex interaction. This interaction produce and came from some resource, most of all intangible asset, developed by firm and organization that are in the same area.
- Between these intangible assets the relational skill has a relevant rule in the short and long network.

Objectives

- We intend to analyze aeronautical cluster in Campania region, and particularly:
- The network between large enterprise and SME and between them and not industrial organization;
- To develop instruments to enforce relational skill and so knowledge's flow between all the actors of the local cluster, so is possible to develop bent to innovation and consequently local competitiveness

The Organization of the Aeronautical Industrial Sector 1/2

- The sector is organized with an international supply chain in which competitiveness on costs is quite important and relevance is on reliability, quality certification and time to market respect.
- This structure of the supply chain is strictly related to high cost that came from the begin of innovation process to the prototype of new airplane.
- High development cost are strongly related to:
- High technological level, so also a little increase on performance involve a large amplification of airplane's cost.
- High technological complexity, so there aren't enterprises so large that have all the techniques necessary to build an airplane inside.
- These factors bring to a Break even point really far in the time.

The Organization of the Aeronautical Industrial Sector 2/2

The fast overview of the sector underline the needs of the sector respect to:

- **Market** no one country has an internal market so large to absorb a number of long range airplane to parvenu to break even point, so is important to involve in the supply chain enterprises of country that are potential market;
- **Technology** no one enterprise have inside all the technology that are necessary to build a new aircraft, so is important to implicate enterprises that have all the involved technologies;
- **Finance** development cost are really high and break even point is really far in the time, so is important to involve enterprises that can take a share of financial risk.

Motivation for Innovation

Large part of enterprises find their stimulus in implementation of innovation according to customer needs.

This trend is more accentuated in the smaller enterprises but here there are the only examples of innovation for not aeronautical market.

Larger enterprise are more independent into fix innovation's target, also in direction of new products and new market.

All the firms with larger autonomy have internationalization strategy (Foundation of new enterprises in USA, French, Canada, Australia and a large network for selling and assistance).

Obstacles to Innovation 1/2

All the SME think that larger part of impedimenta to implementation of innovation come from financial factors:

- Financial rate of interest is 2-5 points higher than in the north of Italy*
- Enterprises turnover is really low because of SMEs don't buy raw materials but receive them from customer so turnover is equal to added value*
- Financial Institutions aren't involved in the firm's innovation strategy and give money only on the base of real guarantee*
- Public finance for innovation don't give certainty on cash flow*
- Internal resource are necessary for ordinary administration, customer pay on average after 120/150 day.*

Obstacles to Innovation 2/2

Marketing factors are, also, one of principal factors that are obstacle to innovation that have target different from usual customer, more of all for smaller enterprise that are “blind” respect final market or non aeronautical market.

Technical factor aren't, generally, an obstacle to innovation because firm technology is really focalized on technical competence and because locally there are a lot of University and Research Centre with high competence and research capability in different technical area.

Managerial factors are, some times, an obstacle because for smaller enterprises is really difficult maintain qualified resource

Sources of Knowledge 1/2

The process of knowledge accumulation is a requirement for all kind of innovation: knowledge is high specifically for the aeronautical products / process.

Producers of equipment and of specialized material have a small role in the innovation process: machinery are quite standard and special equipment are developed by customer and use of new materials are authorized only by who have responsibility for airplane certification.

Customer are the principal font of knowledge, also by to make together on project: particularly for homogeneity needs in technical area related to customer's core technology.

Sources of Knowledge 2/2

- *It's common procedure to hiring of technical and manager expert, like consultant, that came from large enterprise frequently the principal firm's customer;*
- *Relationship with local Public Research Centre are really regular and quite intense, also for smaller enterprises. Present relationship is multilevel and go from generic collaboration on degree thesis and stage to partnership in research project;*
- *Little number of enterprises have relationship with non local research centers.*

Management of Innovation Process

- *Large part of enterprises have an organization centered on entrepreneur that came from technical culture.*
- *Formalized process of knowledge creation or of knowledge transfer is implemented only in enterprises more structured and of larger dimension.*
- *Collaboration in knowledge creation and transfer with customers and Research Centre is a normal procedure but is really rare with other SMEs of the cluster.*
- *Public administration haven't a rule in support of innovation processes.*

Conclusion

Lack of a non industrial primer for innovation policy of the industrial cluster

Lack of specific instrument for the sector: POR 2000/2006 “Regional strategy for innovation”

- 1) Promote innovation's demand without specific target for the sector
- 2) Regional competence Centre are really active more of all with large enterprises and have only technical and scientific competence with lack of managerial and organizational ones

Particularly:

Ø 2002- CARN- Campania Aereospace Research Network

Ø 2003- IMAST-Distretto tecnologico sulla Ingegneria dei Materiali Polimerici e Compositi

are only for large enterprises and institutions.