

**INFORMATION AND COMMUNICATION TECHNOLOGIES AS “ENABLERS” OF
AGILITY IN ORGANIZATIONS : AN EMPIRICAL STUDY IN THE INSURANCE
SECTOR.**

(Part : Information Technologies in Global Business)

“As the critical infrastructure for the “information economy”, the advanced telecommunication networks are radically redefining the geography of economic opportunities by setting the technological basic for what information is available where in what form, and under what condition”.

Li, F. (1994).

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1.- INTRODUCTION

The change from a suppliers to a buyers market joined to the development of electronic transactions in the organizations have caused a need to improve management styles in the customer relationships in order to answer to single needs (Blattberg et al., 1994 ; Rayport and Sviokla, 1995).

An uncertain economical environment, higher degrees of competition, globalization, fragmentation of markets, a decrease in customer life cycles, a faster development of new products and the customer increasing exigencies to get products or services at a better price are all factors that have showed that the value of products and services depends more often in the information they have.

These, at the same time, become pressures that highly demand organizations different ways to operate in their internal and external operations.

Traditional firms that work under a centralized administration and a hierarchical structure don't adapt easily to an ever increasing unpredictable environment.

In order to answer quicker to customer needs, a great flexibility and a high capacity to innovate is demanded.

The information and communication technologies play an important role in this field. First, one can get greater quantities of information about consumers to offer them products and services that better match their needs. In the second place, they facilitate the flow of information about the existence of these products or services, allowing a faster interaction among different items that take part in some processes, in a dimension where geographic and time distances are being removed.

The telematic technologies allow an important synchronization between consumer action and firm reaction. Firms now answer more often in "real time".

Organizational managers agree that a good management in their customer relationships is a critical success factor and that is the reason why they look for a better application of these technologies. Telematics technologies are able to transform intra and inter firm relationships, and their markets (Jelassi, 1994).

The increased importance of direct electronic connections above different elements in the value chain in the firm has been notorious during the last years in some articles or books (Kalakota, Whinston, 1996, Klein et al., 1996, Pigneur, 1996).

Public and private networks allow the development of electronic markets (Kalakota, Whinston, 1996), transforming themselves in essential elements to formulate strategic management. Amongst some of the impacts caused by these transformations, those that to the effect of this research have interest, are particularly the relationship between firms and customers, firms and distribution channels, firms and other firms inside a concrete sector, as it is the case of the insurance sector.

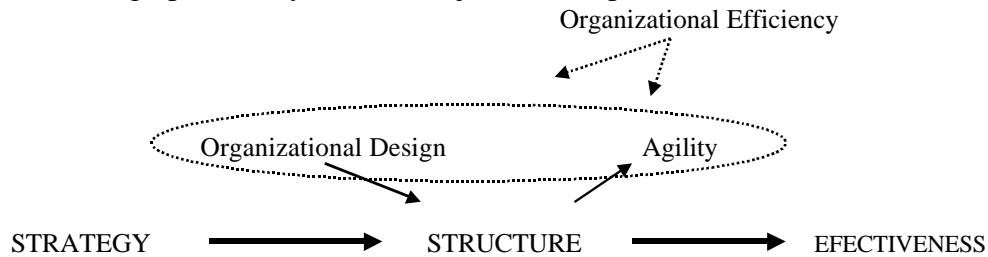
The fast dissemination of information and communication technologies leads to important transformations in the processes that firms develop and the new possibilities of communications in an inter, intra and extra level. The application of information and communication technologies enables the conception of new mechanisms in the coordination and collaboration of activities inside and outside the firm with customers and collaborators.

In this context, what it is the pretension of the present work is to study the "enabler role" of information and communication technologies in organizations through an empirical study under the case study methodology applied in the insurance sector.

2.- THE BASIC ANALYSIS MODEL

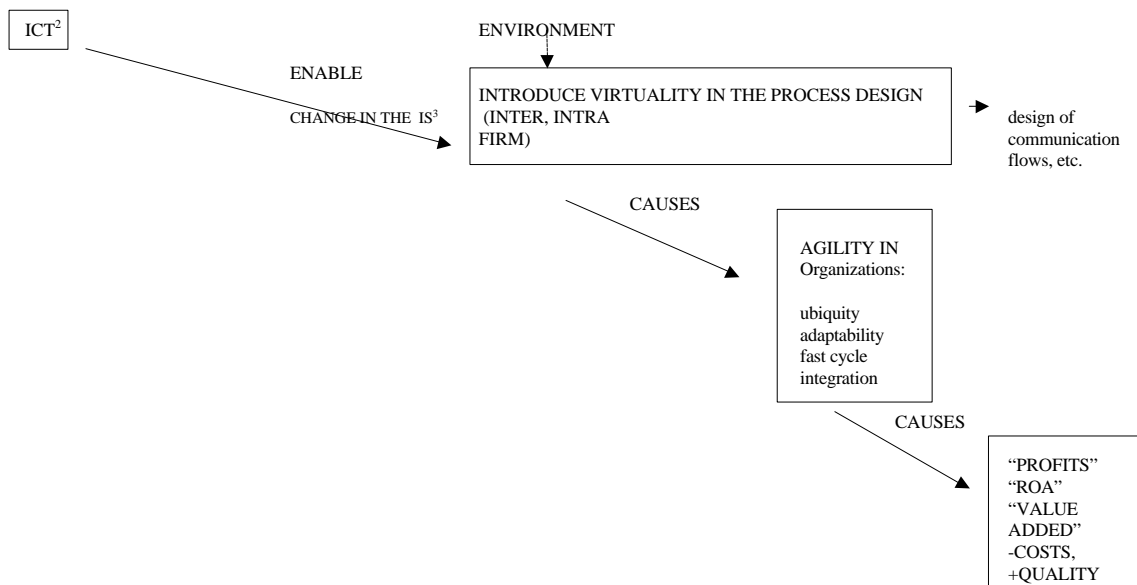
Organizations are created with specific objectives, reflected under the business strategic concept. The performance of the right processes to reach objectives, case in which firm effectiveness¹ is achieved, is hold inside a concrete structure. This structure, as a consequence of the disposition of design parameters in the organizations, through both dimensions, differentiation and integration, provokes agility in the business processes that are hold in the structure, which helps to get the required effectiveness.

Figure 1 reflects in a graphical way what it has just been explained :



The information and communication technologies cause an “enabler” effect in the design of processes in an organization, reflected under the assumption that they introduce virtuality in the processes design of different nature, mainly inter, intra firm relationships. This cause-effect relation is developed in an environment that, in some ways, is strong enough to make it happen. The fact that some processes can be now considered virtual ones causes agility in the organization, measured through the conjunction of four dimensions that affect organizational performance such as ubiquity, adaptability, fast cycle and integration. In the end this agility effect can be measured through some variables such as “profitability”, “return on assets”, “value creation”, “cost structure”, “quality”, and so on.

Figure 2, shows the above scenario, in a graphical way:



¹ In the sense of level in which the organization reaches its objectives (Etzioni, 1965).

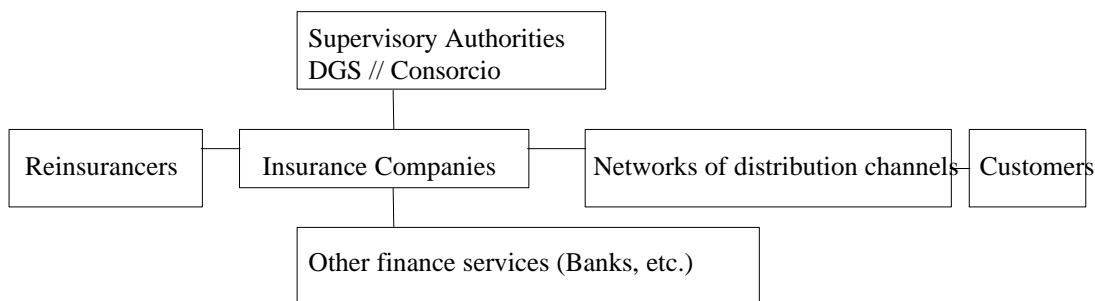
² ICT, is a short way to express Information (I) and Communication (C) Technologies (T).

³ IS, is a short way to express Information (I) System (S).

The interactions hold in an insurance company vary amongst the different entities that take part in the insurance management, besides, they are all coordinated by a different mechanism (authority, cooperation, market) :

- insurance agent-insurance firm
- insurance broker-insurance firm
- bank-insurance firm
- alternative distribution channels-firm
- insurance firm-same insurance firm
- insurance firm-other companies
- insurance firm-customers
- customers-channels of insurance products.

Figure 3 shows the Insurance Industry main Structure:



Which are basically each of the characteristics that in view of the present research we use to define an organization as agile ? :

AGILITY

Agility is a reasonable answer to the challenges in an environment highly stressed by change and uncertainty (Goldman et al, 1995).

Companies can decrease their product-service cycles by dynamically integrating business processes, creating interactive relationships with customers and suppliers through a business process redesign.

Agile firms have a high degree of cooperative interaction inter and intra firm. It reflects a new way of manufacturing, selling, buying and so on, and it implies the performance o new ways of commercial relationships and new ways to ensure firm development.

Agility allows companies to react faster and it implies a proactive attitude to customer requirements.

To achieve agility, it is necessary to intervene in some organizational parameters of design. In some cases, this means a new management style which includes a new and different use of elements and relations produced in the company. This is going to require substantial investments to get technologies in order to make change possible.

Three different movements have been considered of particular importance with the aim of pushing firms to agility business capabilities :

- empowerment.

- Different processes integration.
- Concurrent operations.

Cooperation⁴ is the key to agility in a sense of sharing work to get the objectives that in other ways are not achievable. It gives advantages of cooperate and compete⁵.

By properly using information and communication technologies, every firm has the potential to join part of their capacities with other firm capacities wherever they are.

Cooperation between firms with complementary resources and experience reduces costs, risks and time of procedures. They increase the possibility to dispose of physical and human resources. Through virtual processes, as a consequence of an appropriate company application of information and communication technologies, one can get core competencies distributed in a wide number of different and independent firms. The basic idea that lies in here, it is the one to organize a group of resources with relevant abilities in a team in the searching of some aims well defined.

Firms therefore become agiler by conforming some virtual processes, necessary to achieve some objectives, to say:

- share infrastructure, research, development and risk.
- Opportunities of product development by linking essential internal competencies and from other firms.
- Increase the size by reducing cost.
- Entering new markets by agreements in order to add value.

Information and communication technologies as enabler tools can act in some organizational aspects as design, coordination, distance reduction, and so on. The traditional concept of space and time is changed in organizations when networks are used.

Elements of organizational agility :

Ubiquity

The development of electronic networks to process information has the effect to reduce distance all around different physical places in the firm and makes the decision of centralization possible wherever localized units are independent in order to maintain a fast answer to local fluctuations.

Telematics technologies can influence in two main organizational aspects :

- ⇒ firm configuration : the way in which activities are going to be distributed in the value chain.
- ⇒ Firm coordination : the way activities are going to interrelate each other : data transmission don't depend just on the volume of information transmitted or in the distance ; the base of the payment depends only in time connection and the bandwidth.

Porter (1996) explains that the problem with a global strategy comes from the way one should manage the value chain to compete in a global scale. He distinguishes : advantages derived from the global activity system, which means a global coordination of activities, and some derived from the geographical distribution of activities in diverse localizations.

⁴ Agile firms integrate key competencies and resources in a team.

⁵ Some authors have adopted the term cooptation in order to refer themselves to the congruence of cooperation and competition. Firms nowadays cooperate with competitors.

Customers, providers and some other entities implied in the management have access to firms through networks. This makes it possible to develop “front office works” in a remote way in the same way “back office work” is being done.

Two are the main advantages of ubiquity :

- Cost reduction.
- Less time consumption.

Through the use of networks, one can produce a constant flow of information establishing connections with different people in the management process. Collaboration allows the communication and cooperation with different dispersed members in a team that can share in an effective way all their acknowledge augmenting the possibility to reach economies of scope.

Agile organizations often use the so called “High performance work systems”, that in a deliberated design integrate human and technical resources to work. They are composed by simplified business processes and work flows, advanced technological tools: ubiquity electronic communications allow work redesign in the way it is required.

Fast Cycle/ Shorter answer time

We have moved from a traditional model based on decreasing costs and increasing quality, to a nowadays model in which, on trying to answer to the environment, firms need to move fast insisting on the “response time”. To do that it is necessary to develop organizational redesigns looking for removing the “waste” or “death times”.

It is not a question of trying to find the best way to performance processes, however to develop them in order to reduce time consumption. To get this, it is necessary to induce radical changes in the way the organization operates.

With the idea of avoiding unnecessary times in processes, the time based competition was born. Stalk and other people from the Boston Consulting Group, defended the term as a result of studying the “just in time” system in Toyota.

Time based competition is a logic extension of the “just in time” principles that have impacted production systems, in different aspects, such as new product development, engineering, customer service, distribution and so on.

Just in time system produces a reduction in times, space reduction, quality improvements and it allows to operate with flexibility in order to deliver goods or services (Blackburn, 1991).

Ways of adding value are changing, not only in production but in distribution, in money movement. Value is added by changing the way something is approaching to the customer.

It is a need to analyze “every process waste” to improve it.

Time is relatively easy to metric : time passed, death time, service time, preparation time, and so on.

Technological Integration/Cooperation

Cooperation is an alternative way to operate in an organization versus integration. Information and communications technologies make the change possible. Alliances, contractual agreements or interest networks are ways of cooperating.

Telecommunications technologies can make decrease in a wide way, the costs of developing interchanges in transactions. As costs are reduced, many business activities, developed through an

vertical integration, will be changed to the “marketplace”. The networks will then serve in many cases as the market.

Information and communication technologies take part in the coordination mechanisms that make it possible the work dispersion in small, disperse units. Big companies can, in order to realize some activities, split up in a group of little articulated units that have the flexibility required by the environment, mixing in this way the advantages of the big and small size. Independent integrated teams with autonomy in every activity, allow to reach new relationships with external organizations to get the called “spread firm”.

As information is transmitted by electronic ways, some costs, related with entrepreneurial relationships decrease, such as coordination costs, physical distribution costs and so on. This electronic integration can have various forms : data electronic integration, lean production, electronic markets, hierarchies, network organizations, and so on.

Cooperation policies between firms, the practice of alliances and subcontracting, make decrease the risk in the firms. The system becomes more flexible. If something goes wrong, there are less resources to mobilize.

To achieve integration and cooperation by intra and inter firm policies, it is necessary to develop internal mechanisms of coordination⁶ that enable learning and innovation in an firm level.

The possibility to apply information and communication technologies to the desintegration processes leads to look for some ways of coordination as integration, connectivity, availability, capacity to share, and so on, in organizations.

Firms must cross the borders of specialization and differentiation, by considering a work force based in a variety of groups that make efforts to converge. Every team of workers is formed around a concrete project (Mintzberg, 1993).

The probability of the creation of new markets will depend directly in the friction⁷ degree among the different participants. If the friction degree among different participants decreases, it is possible to increase the probability of the creation of new relationships that look for improving efficiency in commercial relationships between suppliers and customers. The last objective consists on getting improvements in transaction costs, apart from that specified in activities subjected to change.

The interconnection that takes place among participants in firm operations implies, sometimes, a higher fidelity due to the changing costs generated, and this determines a supplier-firm network dependency and the other way around.

Cooperation agreements between firms drive to decrease the degree of market competitiveness in the market. The increase of cooperation agreements modify the traditional concept of competitive market : nowadays it is not a question of firm rivalry but of firm cooperation.

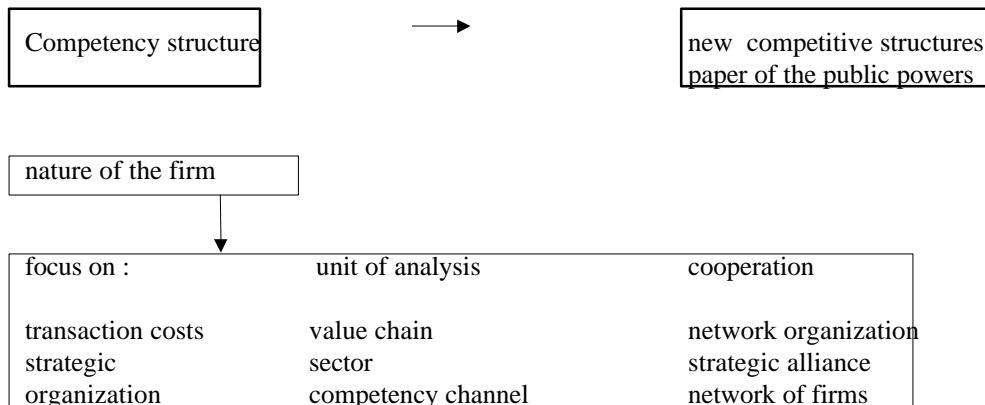
Since the transaction costs point of view, cooperation between firms is an intermediate coordination system that has the advantage to make transaction costs to decrease by more stable contracts out of tensions of total activity interaction.

The competencies of a firm are composed by knowledge and experience acquired by learning. Since a resource and capacities focus, cooperation between firms means a greater division of labor and companies tent to specialized themselves more in some processes that conform the central nucleus of their capacities by leaning themselves in other more specialized.

Cooperation agreements are produced in the inter organizational systems through sharing a same system or application (O’Callaghan, 1991).

⁶ Such as teams, committees, work groups and so on.

⁷ Friction means the avoidance of diverse geographic, cultural, idiomatic and temporal barriers.



Font: Andreu, Ricart, Valor (1996).

Adaptability

Firms need to adapt to the environment they work into. We have moved from a sequence strategic/structure/process to another one strategy/process/structure.

The autopoiesis` concept demands human beings constantly redesign their structure, get structural fits and constantly alter their internal organization.

A way to get these structural fits is by learning. Different forces have contributed to the capacity of adaptability in organizations such as technology, competence, oversupply, globalization, customers queries, govern participation, propriety, labor force and so on.

The need to offer products and services in a fast way converge with the idea of flexibility in the organizational structure which is the base of integration of people and processes decision⁸. In this way, telematic technologies make it possible cohabit different options, excluded before, eliminating prior constraints.

3.- HYPOTHESIS

Three main hypothesis and some other derived from them, are contrasted in the present research based on a case study methodology.

- H1 : An appropriate application of telematic technologies to the information systems leads to a virtualization of processes
- H2 : Virtual processes make the development of agile organizations possible.
- H3 : Agile organizations get on average better results than the rest of organizations not consider agile ones.

The derived hypothesis are :

Adaptability

⁸ Information and communication technologies allow to centralize and decentralize decisions at the same time.

- ⇒ A proper application of telematic networks to information systems in the organizations allows interfirm relationships to be adapted to new environmental situations, due to the fact that it makes easier to break and better coordinate the activities of the value chain.
- ⇒ The proper application of telematic networks to information systems leads to the appearance of virtual processes.
- ⇒ The application of telematic networks to information systems make new ways of working to appear (such as telework, groupware, and so on).

Ubiquity :

- ⇒ The proper application of information and communication networks to information systems in organizations provokes the appearance of virtual relationships amongst those who take part in the concrete processes.
- ⇒ The ubiquity of information systems supported by telematic networks leads to a decrease in coordination costs.
- ⇒ A proper application of telematic networks to information systems makes it easier to coordinate disperse activities, which can improve the firm capacity to get scale economies in activities through sharing parts of work amongst diverse locations.
- ⇒ The application of telematic networks to information systems in the firm develops new ways of giving service in a global context.

Electronic integration-cooperation:

- ⇒ The application of telematic networks to information systems makes it easier to reduce structural dimensions by focusing on “core competencies”.
- ⇒ The application of telematic networks to information systems in the firm drives to look for inter firm agreements in order to leverage one’s basic competencies.
- ⇒ The application of telematic networks to information systems leads to processes integration and to increase some processes specialization.
- ⇒ The application of telematic networks to information systems in organizations leads to significant vertical integration reductions and the following decrease in firm size.

4.- EXPLANATION OF THE CHOSEN SECTOR

The insurance sector is a mature one. It mainly deals with information: obtaining, treating, storing and diffusing information.

It is characterized by the need of processing and spreading constantly information in a group of permanent interrelationships produced among customer, distribution channel and company with other companies in direct insurance, reinsurance and coinsurance.

It is a strongly regulated sector in which some homogenized legal requirements are imposed by different insurance products.

It uses specific and generic private and public telematic networks for the inter, intra relationships of processes.

It is a highly sensitive sector to the importance of cost reductions in the relationships the different implied entities have in the management of the product and service and in the differentiation services that have to be with highly standardized products.

It is a sector in which the different essential competencies of diverse actors that take part in the management of the product, service are well distinguished.

The Insurance Sector Environment

The insurance activity belongs to the service sector. The insurance products are intangible ones. There is a reverse of the productive process, based on an statistical experience. Due to the financial nature of insurance processes, sometimes in the long run, since a “promise” of a determined service is made, in case an event takes place. The insurance activity is highly controlled by the State: the material and formal dispositions imposed by the insurance entities make complex the development of the own activity.

Since the eighties, the insurance sector has had a considerable increase in productivity, specially in the branch of life.

It is still scarce the degree of sector development in Spain in comparison with other countries. All this in conjunction with the increase expectations, has made spread foreign entities and the creation of new societies, lots of them belonging to financial and banking groups.

There is still in the sector a high degree of atomization, apart from the impact of the subsequent legal dispositions appeared, born to conciliate a higher firmness in the insurance companies.

The sector lived during 1995 a period of transition marked by the approval, in the month of November of the new law⁹, which is implying a transposition to the Spanish law of community directives.

This new law has opened a new stage in the ongoing of the Spanish insurance sector, which must front challenges derived from the needs and demands of citizens.

The new law introduces an only authorization, which allows to insurance companies to operate in the whole community environment with an only authorization of the local administration. This implies a second part of changes, after the ones that took place in the eighties which implied an increasing entrance of foreign firms in the Spanish sector.

The firms are trying to adapt their strategies to the new law. Some of the performed activities are those related with the specialization and diversification of products, the improvements in the management and the fusions and concentrations. By redesigning processes through learning about the new circumstances, the companies try to fight against foreign competitors.

5.- METHODOLOGY

The empirical study has been achieved on a case analysis base. In order to contrast the hypothesis, six leader companies in the use of information and communication technologies have been selected, as follows:

One multibranch company with an agency distribution.

One monobranch company with an agency distribution.

⁹ The LOSPP, Law of Ordenation and Supervision of Private Insurances, that was approved the 8th of November of 1995.

One multibranch company with direct selling.
One monobranch company with direct selling.
One multibranch company with bank selling
One monobranch company with bank selling.

The case methodology has been considered as an appropriate one due to the fact that a group of contemporary events have been observed and because the aim here is to develop the following points in a deeper degree:

To explain the causal linkages in real interventions, which are very complex for experimental strategies or questionnaires.

To describe an intervention and the context in the real life it has occurred.

To describe some exemplar uses of certain technologies based on different marketing strategies, specially those that have to do with product distribution and the offering of services.

As an initial explanatory analysis, it has been checked that although a high rate of companies count on a group of telematic technologies, few of these ones are now applying them to the business processes.

The tools used to the research have been mainly :

Interviews with the General Management and managers from diverse functional areas.

Direct observations.

Economical information from the annual company reports and from the DGS¹⁰ annual statistics.

The observational time has been 3 years in every company : 1994-1996.

6. RESULTS

In a summary way, here come the most relevant results, as a consequence of the developed research, in which, for those analyzed cases, the prior hypothesis planned have been contrasted :

Perception of critical success factors:

In a descendent order (from more to less important), the different evaluated companies have considered some characteristics as Critical Success Factors in the sector, to say :

1. The relation between cost of the product and quality in the service offered to the customer.
2. Efficiency in the distribution channel.
3. Firm specialization.
4. The cost of the distribution channel.
5. The knowledge of the market.
6. The communication cost with the entities implied in the management of the product.
7. Fastness in the sinister procedure.
8. Flexibility to incorporate new products/services.
9. A wide capacity to solve in an individual way problems of diverse nature to the customer.

¹⁰ DGS comes from General Insurance Management Organism, it is the main Official Control Organism in the Insurance Sector in Spain.

10. The localization of the distribution channel.
11. Fast communication with the customer.
12. Quickness in the contact with the entities implied in the management of the service.
13. Professionally in the distribution channel.
14. To offer a products and services different from the competitors ones.
15. The time spent from the solicitor to the insurance contract.
16. An easy accessibility to the implied entities in the management of the insurance out of the company.
17. An easy accessibility to the implied entities in the management of the insurance out of the company.
18. A wide branch of products.
19. The localization of the firm.

In all concerning with the use of information and communication technologies, it has been stressed :

SERVICES :

ISDN
 Communication via modem
 Electronic data interchange (EDI)
 local area networks (LAN)
 Numbers 900
 video conference services
 Internet
 Intranet
 Infovia

In the analyzed companies, they all have already implemented the following telematic technologies :

TECHNOLOGIES :
remote expert systems
digitalization of images
videotext
auditext systems for analyzing incidents
interactive systems with customers
e-mail
electronic data interchange
electronic systems for working in group (groupware)
electronic systems for data flow (workflow)
Internet
Infovia
Intranets

The most used Information Systems are :

INFORMATION SYSTEMS

Systems for the relation with customers on-line
Systems for customer attention by telephone
Automatic flow systems (workflow)
Electronic commerce by electronic data interchange (EDI)
Remote access to databases
Selling force
Communication by internal electronic mail
Communication by external electronic mail
Voice recognition systems
Remote expert systems

Benefits from an appropriate use of Information Systems/Information and Communication Technologies :

FACTORS TO STRESS :
Reduction in the operational costs
Reduction in the labor force
Reduction in paper
An automation of administrative circuits
A decrease in interruptions
A decrease in death times
Some processes before developed sequentially now can be concurrent
A faster response to the competitors initiatives
A quicker customer response
A higher velocity in data entrance
A higher velocity in data processing
A higher velocity in the sinister treatment
A lesser time of access to the external communication of the firm
A lesser time of access to the internal communication of the firm
A better interaction with the distribution channels in general
The information subjected to the use of different entities is actualized before
Higher possibilities of cross selling for products
A more profound knowledge of the customer needs
Better access to the customer
Better access to the distribution channel
Better access to the channel in general
The information received by the information systems using telematic networks is better (less mistakes, a higher degree of reliability)
Better interaction with distribution channels in general
Better coordination with distribution channels in general

The impact of information and communication technologies in the organizational characteristics :

FACTORS TO STRESS

The procedures in the company are well defined
People know well their roles
Information that flows through these technologies arrives on time generally
The process of contracting a insurance product is shorter in general
The process of treating a sinister is shorter
The relationship with different distribution channels is faster
Processes are shorter in general
Decisions are easily decentralized
Decisions are easily centralized
In the distribution channel there are always actualized information about products
The computer system composed by telematic networks makes the acquiring of information easier
The computer system composed by telematic networks makes the processing of information easier
It is relatively easy to know where the information can be
The insurance contract can be particularized to the individual specific conditions
There are not special normalization problems of information, specially in manipulating codes in relation with data, etc.
In the productive aspect, the organizational problems, such as standards, are solved
In the commercial aspect customer organizational problems, such as commercial conditions, tariffs, risks, and so on, are solved.
There are procedures that allow to evaluate the use that some implied entities make of the information and communication technologies
The inter personnel communication inside the firm flows well
The communication with the commercial agents flows well
The communication with the commercial brokers flows well
The communication by direct selling flows well
The communication by using other alternative distribution channels flows well
The communication inside different functions flows well
The communication outside different functions flows well
In general, data are captured there where they are generated
The information that the firm generates in geographical disperse locations is available in less time wherever is needed for individuals or groups

Actual contribution of IS/ICT to the following aspects in the firm :

STRESSED FACTORS
It contributes to an important reduction in the cost of the product/service
One can improve sells by influencing over selling factors, the fixing of prices, customer fidelity, and so on.
Processes can be made in a different way
The contract time for any insurance modality is improved
The time to treat a sinister is improved
Shorter processes are achieved
A better access to market information is achieved
A better intra functional integration is achieved

A better inter functional integration is achieved
The internal coordination is improved
The external coordination is improved
The interaction with customers or suppliers through electronic connections is improved (EDI, e-mail, and so on)
The interaction with different distribution channels is improved by electronic connections (EDI, e-mail, and so on).
Duplicities in processes are removed.
It is possible to operate in distant locations as if it was at home

BIBLIOGRAPHY

Andreu, R. ; Ricart, J.E. ; Valor, J. (1996).- “La Organización en la era de la Información : Aprendizaje, Innovación y Cambio”, Universidad de Navarra, Arthur Andersen.

Antonelli, C. (1996).- “Localized technological change and Schumpeterian growth regimes”, *the Manchester School*, vol LXIV, n° 4, dec, pp. 351-369.

Bartlett, C. ; Ghoshal, S. (1996).- “Beyond the M-Form : toward a Managerial Theory of the Firm”, <http://www.gsia.cmu.edu/bosch/bart.html>.

Benjamin, R. ; Wigand, R. (1995).- “Electronic Markets and Virtual Value Chains on the Information Superhighway”, *Sloan Managment Review*, winter, pp. 62-71.

Blackburn, J. (1991).- “Time-based Competition”, Irwin.

Blattberg, R.C. ; Glazer, R., Little, J. (1994).- “The marketing Information Revolution”,

Harvard Business School Press.

Brynjolfsson, E. (1994).- “Information Assets, Tecnology, and Organizations”, *Management Science*, vol 40, n° 12, dec, pp 1628-1643.

Caperelli, D. (1996).- “Leading the company through the chokepoints of change”, *Information Strategy*, spring, pp. 36-44.

Cochrane, J. ; Temple, J. ; Peterson, J. (1996).- “Shapes and shadows of things to come : a plan for forecasting an organizations, technological needs and opportunities”, *Information Strategy*, spring, pp. 13-29.

D.G.S. (Dirección General de Seguros) (1996).- “Informe de Seguros y Fondos de Pensiones”.

Daniels, J.L ; Daniels N.C. (1997).- “Diez atributos básicos para un nuevo esquema mental”. *Harvard Deusto Business Review*, n° , pp. 53-63.

Dowling, M.J. ; Jeffrey E. ; Mc.Gee, J. (1994).- “Business and Technology Strategies and New Venture Performance : a Study of the Telecommunications Equipment Industry”, *Management Science*, vol 40, no. 12, december, pp. 1664-1675.

Drucker Foundation (1997).- “The Organization of the Future”, Jossey-Bass Publishers.

Etzioni, A. (1965).- “Organizaciones Modernas”, Uteha, Méjico.

- Fernandez, J.A. (1997).- “La tecnología de la información, factor estratégico en la segunda mitad de los 90”, *Harvard Deusto Business Review*, nº , pp. 98-106.
- Filori, J.C. ; Dir, S. ; Warney, F. (1994).- “Avenir de la société de l’information, telecommunication-technologies de l’information”, Club de Bruxelles, Fundesco.
- Goldman, S. ; Nagel, R. ; Preiss K. (1995).- “Agile Competitors and Virtual Organizations. Van Nostrand Reinhold
- ICEA (1997) “Home shopping”, informe nº 682.
- ICEA (1996).- “Indicadores internos de calidad”, informe nº684.
- ICEA (1996).- “Informe económico del sector asegurador del año 95, informe nº 664.
- ICEA (1996).- “Encuesta sobre la evolución de la informática en el sector asegurador”, informe nº 654.
- ICEA, (1994).- “Comunicación en el sector asegurador”, informe nº601.
- Jelassi, T. (1994).- “Computing through Information technology : Strategy and Implementation”, Prentice Hall.
- Kalakota, R. ; and Whinston, A. (1996).- “Frontiers of Electronic Commerce”, Addison-Wesley Publishing Company, Inc.
- Kesner, R. ; Palmisano, P. (1996).- “Transforming the global organization : integrating the business, people, and information technology at Camp Dresser & McKee, Inc.”, *Information Strategy*, winter, pp. 6-13.
- Klein, S. ; Pigneur, Y. ; Dchild, B. (1996).- “Electronic Markets in Switzerland”, Swiss Science Council, no. 16/1996.
- Lampel, J. ; Mintzberg H. (1996) : “Customizing customization”, *Sloan Management Review*, Fall, pp. 57-68.
- Li, F. (1994).- “The geography of business information”, John Wiley&Sons.
- Maphre (1996).- “Marketing y gestión comercial de seguros”, Mapfre.
- McKenna, R. (1991).- “Relationship is Everything”, *Harvard Business Review*, July-August, pp. 87-95.
- McKenna, R. (1995).- “Real-Time Marketing”, *Harvard Business Review*, July-August, pp. 87-95.
- Meade, L.M. ;Lille, D.H. ; Sarkis, J. (1997).- “Justifying Strategic Alliances and Partnering : a Prerequisite for Virtual Enterprising”, *Omega*, vol 25, nº1, pp. 29-42.
- Mintzberg, H. (1993).- “La estructuración de las Organizaciones”, Ariel.
- O’Callaghan (1991).- “Los Sistemas Inter-Empresariales y sus Ventajas Competitivas”, *Harvard-Deusto Business Review*, 2º trimestre, pp. 140-148.
- Peteraf, M. (1993).- “The cornerstones of competitive advantage : a resource-based view, *Strategic Management Journal*, vol 14, pp. 179-191.
- Pigneur, Y. (1996).- “A Framework for Designing New Information Systems”, in F. Bodart et al. (eds), “The future of Information Systems : Challenge and Pitfalls, FUNDP, Namur, October 1996, pp. 61-102.
- Porter, M.E. ; Millar, V.E. (1986).- “Cómo obtener ventajas competitivas por medio de la Información”, *Harvard-Deusto Business Review*, 1º trimestre, nº 25, pp. 2-20.

Porter, M.E. (1996).- “What is strategy ?”, *Harvard Business Review*, nov-dec, nº 437, pp. 61-78.

Rayport, J. ; Sviokla, J. (1995).- “Exploiting the Virtual Value Chain”, *Harvard Business Review*, vol 73, nº 16, dec, pp. 75-85.

Robbins, S.P. (1996).- “Comportamiento Organizacional : Teoría y práctica”, Prentice-Hall, México.

Stalk, G. ; Evans P. y Shulman, L.E. (1992).- “Competir en habilidades, Clave de la nueva estrategia empresarial”, *Harvard Business Review*, nº 51, octubre, pp. 44-56.

Thompson, J. D. (1994).- “Organizaciones en Acción”, Mc.Graw Hill.

Vandermerwe, S. (1996).- “The Eleventh Commandment : Transforming to “own” Customers”, John Wiley & Sons.