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"New" and "old" Services: An Overview for Some Italian Industries

session 3

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Abstract: The main aim of this paper is to stress the close relationship existing among the quick development of service activities in Italy and classification and measurement problems, occurring while attempting to capture good data from enterprises.

"New" and "Old" Services: An Overview for Some Italian Industries[1]

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Session 3: *Cross Cutting Issues Involving the Service Sector*

1. The Service Sector in Italy: Recent Dynamics and Impact of Modern Technologies

To better comprehend the present state of the art regarding the production structure and technology of Italian service enterprises, it might be worthwhile to briefly examination the recent sectorial dynamics in a comparative light.

With the exception of agriculture, 1996 was a year of sluggish production activity if measured in terms of added value at market prices (Table 1.1). Industry in the narrow sense declined 0.4%. Saleable services grew 1.5%, but this was less than the previous year's growth of 2.6%. This trend has its source in a diminished foreign demand and the deceleration of internal demand.

We must point out that market services have not shown a consistently rising trend since 1991, with annual average growth of 1.3%. Industry in the narrow sense accounts for only 27.7% of added value. The sector demonstrates a seesaw trend and an annual average growth of 1.2%, thanks primarily to the positive years of 1994 and 1995.

In short, the stamina of Italian services enterprises in the first half of the Nineties can be explained by the considerable adaptive capacities they have shown, even though the system is still marked by highly specific features. On one hand, there is the strong presence of small, highly specialized, flexible and competitive units; on the other, there are doubts on the durability of this model in a perspective of more intensive international integration.

In this highly dynamic frame of reference, and in the current perspective of a rapid globalization of national economies, the capacity to modernize the production and management systems of the service enterprises is vital. And we must bear in mind that service enterprises account for 63.3% of national added value. In this regard, Table 1.2 provides a somewhat rough idea of the degree of penetration of several indicators of modern technologies in Italian enterprises, for now limited to the presence of the personal computer and the modem. The interest focuses only on enterprises with up to 19 employees, with regard to which several estimates based on the preliminary results of the annual survey of their economic balance sheets for the year 1995 are available. For the enterprises with at least 20 employees we have reason to believe that basic technological penetration is generally widespread. On the other hand, the small and medium-size firms are precisely the ones a statistical survey has most difficulty reaching, and they are the firms facing greater relative response costs.

First, we must point out that, overall, of service enterprises with less than 20 employees some 56 out of 100 possess at least one personal computer, and approximately 17 out of 100 at least one modem. These shares are higher than the corresponding ones for the industry and construction sector, in which, however, the role of the latter contributes to drastically reducing the rate of penetration of the modern.

Table 1.1

Value added at market prices (prices 1990) for some italian service sectors

ECONOMIC SECTORS	1991	1992	1993	1994	1995	1996	Avg 91-96	Share% 1996
Agricolture	8,1	2,5	-1,5	0,5	0,4	2,4	2,1	3,4
Industry (without buildings)	-0,4	0,5	-2,2	5,1	4,7	-0,4	1,2	27,7
Buildings	1,3	-0,4	-5,6	-4,5	0,8	1,8	-1,1	5,5
Services	1,4	1,3	0,7	1,3	1,9	1,1	1,3	63,3
Market services	1,4	1,5	0,9	1,7	2,6	1,5	1,7	49,5
Trade and HORECA	*1,2*	*0,6*	*-1,5*	*2,2*	*2,7*	*0,7*	*1,0*	*18,5*
Transports and telecommunications	*3,1*	*3,6*	*4,0*	*4,3*	*5,3*	*4,0*	*4,5*	*6,2*
Credit and insurance	*0,4*	*5,4*	*15,1*	*-2,1*	*-5,7*	*1,7*	*2,4*	*5,3*
Other market services	*1,4*	*0,7*	*-1,4*	*1,6*	*4,0*	*1,3*	*1,3*	*19,5*
Non market services	1,1	0,8	0,0	-0,1	-0,4	-0,2	0,2	13,9
TOTAL ECONOMY	1,1	1,0	-0,5	2,0	2,6	0,8	1,2	100,0

Source: elaborations on ISTAT data (1997.4).

Table 1.2

Informatic appliances in tha italian firms with less than 20 employees - Year 1995

ATECO	SECTOR	Share of value added 1995	The firm has: Personal computer	Modem
1-2	**Agricolture and forestry**	**3,4**	**36,7**	**9,7**
10-45	**Industry and buildings**	**33,2**	**51,0**	**11,7**
10-14	Mining industries	2,6	51,2	8,1
15-37	Manufacturing industries	20,2	53,0	12,4
40-41	Energetic products	5,3	60,6	20,1
45	Buildings	5,1	33,9	5,4
50-93	**Services**	**63,4**	**56,1**	**17,2**
50-52	***Trade***	***13,8***	***57,2***	***17,9***
50	*Retail trade of cars and fuel*	*2,0*	*52,2*	*18,5*
51	*Wholesale trade*	*4,6*	*72,7*	*22,5*
52	*Retail trade and reparations*	*7,2*	*36,4*	*11,3*
55	***Hotels and restaurants***	***3,1***	***34,2***	***6,7***
60-63	***Transports***	***4,6***	***53,4***	***19,9***
60	*Land transports*	*2,9*	*41,8*	*11,0*
61	*Sea transports*	*0,2*	*43,8*	*15,9*
62	*Air transports*	*0,4*	*70,6*	*40,0*
63	*Other transports activities - travel agencies*	*1,1*	*62,5*	*26,5*
64	***Posts and telecommunications***	***2,0***	***50,9***	***14,0***
67	***Financial services***	***5,4***	***86,6***	***47,3***
70	***Real estate services***	***7,1***	***25,4***	***4,7***
71-74	***Business services***	***5,9***	***74,1***	***23,2***
71	*Rent of machines and appliances*	*1,0*	*49,2*	*12,6*
72	*Information technology*	*4,6*	*95,1*	*38,1*
73	*Research and development*	*0,4*	*80,8*	*25,8*
74	*Other professional activities*	*6,3*	*68,4*	*18,4*
80-93	***Other public and private personal services***	***13,5***	***47,2***	***10,0***
80	*Education*	*0,6*	*45,7*	*10,2*
85	*Health and other social services*	*6,2*	*50,3*	*7,0*
90	*Draining services*	*0,4*	*60,1*	*13,6*
92	*Cultural and sport activities*	*3,0*	*49,4*	*13,3*
93	*Other services activities*	*3,3*	*31,3*	*6,7*
1-93	**TOTAL**	**100,0**	**53,5**	**14,5**
	WEIGHTED TOTAL (*)		**53,8**	**15,1**

(*) With the shares of value added.

Source: elaborations on ISTAT data.

Specifically, the massive presence of information technology is a feature of financial enterprises on the whole. More than 85% possess at least a personal computer, and almost half a modem. The elevated level of integration between industry and services has also promoted a potent development of basic technology in services to enterprises: some three out of four possess at least a personal computer and more than one out of five a modem.

Among the services prevalently oriented towards households, "hotels and restaurants" are those most characterized by a lower rate of technological penetration, with 34.2% of enterprises possessing at least a personal computer and 6.7% a modem. On the other hand, the non-negligible shares relative to trade (56.1% and 17.2%, respectively) should not deceive us. Since they derive from the aggregation of sectors that are highly diverse in terms of technological development (such as wholesale and retail), they do not reveal the persistent scarcity of modern technologies in retail enterprises, with levels not much higher than those of hotels and restaurants. And commercial enterprises represent approximately one-fifth of the total of Italian enterprises. Since the service sector with the lowest growth rate of added value in the period 1991-1996 was, based on Table 1.1, "Retail, hotels and commercial businesses" (1.0% for the whole period, 0.7% in 1996), one might presume a connection between the lack of computerization and sluggish economic growth, although from this standpoint the technological component does not necessarily represent a constraint on the level of development. In fact, the level of computerization for transport enterprises is not dissimilar to that of trade, although it is the consequence of highly heterogeneous situations. On one hand, land and sea transport are tied to traditional schemes, while air transport and auxiliary transport activities are far more modernized. Despite this divergence, this service sector shows the highest average growth of added value, 4.5%, in the period observed.

In light of this evidence, our paper has sought to highlight the most relevant aspects, especially in terms of their statistical implications, typifying some of the principal service activities in Italy. We have three main objectives:

1. to underscore the growing inadequacy of the classifications of economic activities currently in use, not only because of the birth of new activities not yet contemplated by the classifications, but primarily because of the absence of a cross cutting approach to interpreting the same. For example, neither an economic interpretation nor a significant statistical measurement of numerous transport activities is conceivable without introducing their relations with trade, tourism, information technology, telecommunications, etc. (cfr. section 2.2). Analogous examples could be given for other types of services.
2. To highlight the shadowy boundaries between "enterprise" and "household". The interaction and, in certain cases, the complete substitutability between these entities is relevant enough to imply glaring problems in statistical measurement. These aspects affect the "new" activities, such as telework, the marketing of products and/or services via Internet, and the diffusion of increasingly sophisticated means of communication, all discussed in sections 3 and 4.
3. To promote awareness of the need to abandon an outdated view, that the national economy is simply the sum of the output of essentially single-product enterprises. One of the most telling examples regards the group of enterprises which, in their broadest conception, allows the enterprises belonging to it to achieve performances, *coeteris paribus*, which could never be achieved if they were operating individually. We need only cite the various forms of sectorial associations in trade, which are among the few strategic tools available to small retailers to counteract the preponderance of organized big distribution. In place of this traditional conviction we propose a cross cutting and more synergetic interpretation in which the study of "networks" prevails, wherever possible, over the study of the individual entities which, in any case, can no longer be analyzed outside the framework of a highly intermodal and diversified supply. In short, a statistical-economic analysis in which the

universe to be observed is conceived as a true "integrated production process" is an indispensable approach.

Although the different sections have been written by experts in the individual service sectors considered in this paper, the need for a model to give the user a uniform interpretive key has resulted in the prevalence of analyses and descriptions situated "upstream" of a theoretical process of production and diffusion of statistical information, probably to the detriment of a more profound economic analysis of the various phenomena. In so doing, we have sought to respect the formal approach closest to that of comprehensive quality. On the basis of this approach, the quality of statistical data must be evaluated, as with every other product, in terms of their *utility* to the final consumers. Thus, the quality of statistical data must be directly associated with the intrinsic characteristics of the phenomena observed, more than with the data capture and processing techniques.

2. Cross Cutting and Classification Problems for Certain "Traditional" Services

2.1 Retail Trade

Production organizations undergo a transformation when at least one of the following conditions exists:

- the system into which they are inserted changes;
- the technology they utilize changes;
- in any case, as they gradually accumulate experience and information on the forms of organization most appropriate to achieve certain objectives.

The sector of retail trade is emblematic of this evolutionary process and epitomizes, with different nuances, the three above conditions. Its situation is aggravated by the disarray of the Italian distribution system on the eve of the year 2000 in Europe.

The widening spectrum of distribution formulas through which the consumer may define his purchases is the principal expression of the degree of maturity a commercial system has reached. It also expresses the attempt to satisfy the diversified and changing requirements of consumers, in terms not only of the need for goods but also for services at the moment of purchase. In particular, the consumer of commercial services is rapidly evolving. He tends to become a specialist in purchasing (he spends intelligently and saves times by concentrating his purchases) and in cross cutting the different formulas (where the commercial supply is sufficiently diversified, the consumer utilizes simultaneously a mix of distribution formulas to define his overall purchases).

The signs of modernization are increasingly numerous. From the revitalization of department stores to the growing inroads made by the large specialized sales areas. From the diffusion of polycentric commercial centers to the proliferation of small sales points aimed at specific segments of the market. This last phenomenon, in fact, best highlights the obsolescence of the traditional guidelines of creating assortments based on generic product specialization (cfr. Ottimo, 1996, p. 4).

In this context, verification of the coherence of a classification system of retail trade activities with the actual situation of the various product assortment policies can be made considering that these policies may generate four main types of specialization:

1. *product specialization*: understood in the traditional sense, it coincides with the dictums of the product tables issued with the sales license. Understood in the modern sense, it translates into either single-product or single-line theme shops. The single-product shops propose assortments based on all the product families able to evoke the chosen theme (for example, travel, gifts). The single-line shops restrict the assortment to a single typology of product or line (for example, history books,

bonsai plants, videogames) that is developed into the greatest possible number of references, in order to provide an exhaustive supply in this regard.

2. *Specialization by consumption function*: the basic criterion is the complete satisfaction of the purchase requirements linked to a specific consumption function. The large specialized sales areas are the main suppliers of these assortments: for example, do-it-yourself, home furnishings and articles, gardening, sporting goods, toys, and consumer electronics. Their strength lies in providing the possibility to see on a single occasion a wide array of the supply relative to the given consumption function.
3. *Enhancement of purchase occasions*: the assortments are created as a function of the occasion on which the consumer finds himself making the purchases. One example might be the convenience stores located at gas stations. Their assortment has the sole restriction of being a function of the possible requirements of consumers travelling. So spare parts for automobiles are sold together with food products, banking services and telecommunications.
4. *Concentration of purchases*: satisfaction of this requirement leads to the aggregation of assortments and sales points within a stimulating environment (travelling markets, factory stores). The diffusion of large specialized sales areas and polycentric commercial centers are the most unmistakable results of the efforts distributors have made in this direction.

With regard to the new technologies, a wide variety of telecommunications sales is progressively replacing the traditional paper catalogues with more modern electronic shopping systems based on hypertexts and virtual shops and displays. On Internet the number of WWW sites with commercial ends is proliferating. It thus becomes possible to access a potentially infinite array of goods and services favored by an elevated interactivity between supply and demand (cfr. in this regard Tables 3.1.5 to 3.1.8). From this perspective, traditional commercial distribution may become redundant because of the disappearance of the physical site in which the transactions take place and the wider variety of supply. New operators in the distribution chain are created: the "virtual" commercial centers; the manufacturers of products for which the new technologies can simplify distribution; information producers (software for computers, books, films); retail vendors of electronic material specialized by sector, which today are based on traditional correspondence sales techniques; specialized enterprises which operate on the market through organizers of electronic markets, which will be useful for the new operators who utilize distribution systems able to deliver goods directly from producer to consumer. The additional ensuing difficulties primarily regard the problem of identifying the operators, since the boundaries of the place in which the transactions take place are becoming hazier. This problem is significant because the physical existence of the sales point represents the variable that most distinguishes the current classification rules governing commercial activities.

From a purely statistical standpoint, all these factors compel frequent critical revisions of the current classification schemes of retail sales activities. Not only is the quasi totality of the new information activities not defined by corresponding items in the "official" classifications, but the sales of information technology products are not even accounted for under their own heading. The guideline with which the commercial enterprises code the products sold is almost wholly dependent on the guideline that created the statistical classifications[6]. Consequently, any survey model organized by groups of products that is not trite (for example, the simple distinction between food and non-food products) forces the enterprise to take serious pains to recodify and leads to systematic and, therefore, not random, measurement errors. The statistical classifications described above have been conceived more as a function of the general typology of the group of products than on the basis of the physical and intrinsic characteristics of the goods sold (for example, the distinction between "hard" and "soft" products).

A second aspect has to do with the problem of identifying and choosing the correct capture unit. In the prevailing terminology between utilizers and economists retail trade is described and analyzed as a function of the different typologies of sales points. But, since the predominant survey approach is based

on the "enterprise" as capture unit, to meet both national and recent international requirements[7], the capture of data compatible with information needs is complicated by the necessity of gathering often quite detailed information on output for each typology of sales point. Among other things, the sales points are diversified in multiple typologies which are not always exclusive, and their taxonomy is enriched at a pace that is hard to control from the statistical standpoint.

In any case, the main official classifications (NACE Rev. 1 and the Italian ATECO 91) fail to consider certain peculiar aspects of sales activity, such as the type of service (traditional, self-service, etc.), and the forms of association among enterprises, which often represent the only valid form of challenge the small retailers can mount against big distribution.

Furthermore, it is hard to evaluate the impact on the distribution system of marketing activities performed on a non- prevalent basis by enterprises operating in a very wide variety of fields of activity. In this regard, Table 2.1.1 contains, with reference to the last year available (1994), the subdivision of gross turnover of service enterprises, classified at the division level (two digits).

The first relevant observation concerns the impact of the turnover explained by the item "sale of goods proper", equal to 71.3% and, excluding trade, to 18.9%. The share from "rendering of services" is equal to 78.0%, while the residual portion, equal to 3.1%, comes from the "collection of commissions and fees". A marketing activity characterizes in a non-negligible way all the service activities not classified primarily as commercial. If we exclude non-saleable services, we go from the minimum shares of "transport and communications" (comprehensively 5.4%) to the higher shares of "real estate activity" (44.4%), to "hotels and restaurants" (45.7%), and "research and development" (50.3%). The "information technology and related activities" division shows a limited share (17.2%) which probably refers to the sale of software proper. In this regard, we must point out that the possibility of verifying in greater detail the vertical integration of the information technology sector, as well as that of other service activities, would require knowledge of the analogous shares for the manufacturing enterprises, which are still not available in the form of official statistics.

In light of the foregoing considerations, and limiting our attention to retail trade of new goods in a fixed location, we can advance several operative proposals we considered in reorganizing the monthly survey on retail sales[8]. We will confine ourselves to a rapid review of the principal classification alternatives of certain activities precoded in another form, and to several proposals on the insertion into the commercial activities classifications of supply formulas that are too significant to be ignored any longer, making use of the logical references reported in figure 2.1.1.

- First, since there are enterprises characterized by multiple typologies of sales points, a classification based exclusively on the entity "enterprise" is somewhat dubious.
- The concept of possession of sales points operating in accordance with formulas typical of big distribution (hypermarkets, supermarkets, department stores, discount stores and other large specialized sales areas, see subsequent points) or characterized by small surface areas (not "big distribution") is preferable to the concept of belonging or not to specialized forms of distribution or, vice versa, to non-specialized forms. The two guidelines can be superposed but they are certainly not equivalent. Users primarily require an analysis centering on the combination of big distribution and "traditional" enterprises, which at least partially skirts the problem of the exact "product" location of the sales point.

- The non-food component of hypermarkets must be separated from the food component because of the relevance of the former compared to the latter and despite the fact that the official classifications attribute this form of distribution entirely to non-food distribution.
- The "non-specialized enterprises with a prevalence of food products", minimarkets, "other food enterprises" and frozen foods shops are forms that do not belong, strictly speaking, to big distribution, so they must be reclassified as belonging to "small and medium distribution".

Table 2.1.1

% composition of gross turnover in the italian service enterprises - Year 1994

	SECTORS	Gross turnover %	Sale of goods in own name	Commissions	Services
G	**Trade**	**71,3**	**92,4**	**2,1**	**5,5**
50	Retail trade of cars and fuel	10,3	91,1	1,5	7,4
51	Wholesale trade	35,0	89,0	3,3	7,7
52	Retail trade and reparations	26,0	97,3	0,9	1,8
H	**Hotels and restaurants**	**4,4**	**45,7**	**0,6**	**53,7**
55	Hotels and restaurants	4,4	45,7	0,6	53,7
I	**Transports and telecommunications**	**11,4**	**5,4**	**1,8**	**92,8**
60	Land transports	3,6	7,8	0,6	91,6
61	Sea transports	0,4	0,7	2,2	97,1
62	Air transports	1,2	1,0	4,8	94,2
63	Other transports activities - travel agencies	3,1	7,7	3,8	88,5
64	Posts and telecommunications	3,1	2,7	0,0	97,3
J	**Financial services**	**0,7**	**20,0**	**50,3**	**29,7**
67	Financial services	0,7	20,0	50,3	29,7
K	**Business services and other services**	**9,3**	**19,4**	**2,6**	**78,0**
70	Real estate services	0,9	44,4	10,3	45,3
71	Rent of machines and appliances	0,5	18,1	1,2	80,7
72	Information technology	1,7	17,2	0,6	82,2
73	Research and development	0,0	50,3	1,0	48,7
74	Other professional activities	6,2	16,1	2,1	81,8
M	**Education**	**0,1**	**26,1**	**1,6**	**72,3**
80	Education	0,1	26,1	1,6	72,3
N	**Health and other social services**	**1,3**	**21,2**	**1,0**	**77,8**
85	Health and other social services	1,3	21,2	1,0	77,8
O	**Other public and private personal services**	**1,4**	**37,7**	**1,9**	**60,4**
90	Draining services	0,1	43,0	1,5	55,5
92	Cultural and sport activities	0,6	34,0	3,8	62,2
93	Other services activities	0,7	40,3	0,3	59,4
	TOTAL	**100,0**	**71,3**	**2,4**	**26,3**
	TOTAL WITHOUT TRADE		**18,9**	**3,1**	**78,0**

Source: Estimates on ISTAT data (1997.1-1997.2).

Figure 2.1.1 - Alternative schemes for classifying retail trade enterprises (sales of new goods on a fixed seat only)

A) Actual classification of retail trade enterprises

I - ENTERPRISES (OUTLETS?)				
CODE	SECTORS	CLASSIFICATION OF FIRMS BY CLASS OF EMPLOYEES		
NSA	NOT SPECIALISED WITH A FOOD PREVALENCE	SMALL 1-9	MEDIUM 10-19	BIG >19
1	*HYPERMARKETS (52.11.1)*	*0,00*	*0,00*	*0,06*
2	SUPERMARKETS (52.11.2)	0,28	0,45	0,44
3	*MINIMARKETS (52.11.3)*	*1,22*	*0,64*	*0,14*
4	*OTHER FOOD SHOPS (52.11.4)*	*8,82*	*1,67*	*0,16*
5	*FROZEN FOOD (52.11.5)*	*0,33*	*0,05*	*0,01*
NSNA	NOT SPECIALISED WITH A NON FOOD PREVALENCE			
6	DEPARTMENT STORES (52.12.1)	0,02	0,01	0,03
7	*OTHERS NOT SPECIALISED (52.12.2)*	*0,29*	*0,04*	*0,01*
NSA+NSNA	NOT SPECIALISED	**10,96**	**2,86**	**0,85**
S	SPECIALISED	**83,99**	**1,07**	**0,27**
8	52.2 - Food and beverages	19,12	0,13	0,04
9	52.3 - Perfumery and pharmacy	5,75	0,08	0,02
10	52.4 - Other products	59,11	0,87	0,22
	TOTAL	**94,94**	**3,94**	**1,12**

Reported figures refer to the shares on the enterprises universe.

B) Possible new classification scheme

I - ENTERPRISES				
CODE	SECTORS	CLASSIFICATION OF FIRMS BY CLASS OF EMPLOYEES		
GDA	LARGE DISTRIBUTION WITH A FOOD PREVALENCE	SMALL 1-2	MEDIUM 3-5	BIG >5
1	*HYPERMARKETS (52.11.1-food)*	*0,00*	*0,00*	*0,03*
2	SUPERMARKETS (52.11.2)	0,19	0,37	0,27
	HARD DISCOUNTS	*0,09*	*0,09*	*0,17*
GDNA	LARGE DISTRIBUTION WITH A NOT FOOD PREVALENCE			
1	*HYPERMARKETS (52.11.1-not food)*	*0,00*	*0,00*	*0,03*
6	DEPARTMENT STORES (52.12.1)	0,02	0,01	0,03
7?	*OTHERS SPECIALISED (52.12.2?)*	*0,29*	*0,04*	*0,01*
GDA+GDNA	TOTAL LARGE DISTRIBUTION	**0,59**	**0,51**	**0,54**
PMD	TOTAL SMALL AND MEDIUM DISTRIBUTION	**73,70**	**21,09**	**3,57**
8	52.2 - Food and beverages	15,22	3,63	0,44
4	*OTHER FOOD SHOPS (52.11.4)*	*8,82*	*1,67*	*0,16*
3	*MINIMARKETS (52.11.3)*	*1,22*	*0,64*	*0,14*
5	*FROZEN FOOD (52.11.5)*	*0,33*	*0,05*	*0,01*
9	52.3 - Perfumery and pharmacy	3,01	2,47	0,37
10	52.4 - Other products	45,10	12,64	2,46
	TOTAL	**74,29**	**21,60**	**4,11**

?

II - GROUPS OF ENTERPRISES		
CODE	TYPE	THEY MAINLY INCLUDE ENTERPRISES OF THE TYPE:
CC	TRADING CENTERS	PMD-GDA-GDNA
F	FRANCHISING	PMD
GDA	BUYING GROUPS	PMD
UV	VOLUNTARY CHAINS	PMD

?

III - NEW OPERATORS		
CODE	TYPE	THEY MAINLY INCLUDE ENTERPRISES OF THE TYPE:
CCV	VIRTUAL" TRADING CENTERS	?
ME	ELECTRONIC MARKETS	?
VVI	INTERNET SALERS	?
VI	INFORMATION SALERS	?

- With regard to the "specialized enterprises with a prevalence of non-food products", it is difficult to identify the "other non-specialized enterprises" that are not hypermarkets, supermarkets, department stores, minimarkets, other food shops and frozen food shops. It would seem best to redefine this typology in the more frequent category of "other specialized enterprises" which is almost certainly attributable to "big non-food distribution".
- There is a lack of relatively new formulas such as discount stores, attributable to "big distribution with a prevalence of food products" (for simplicity's sake we will overlook other typologies such as, for example, the convenience stores).
- The subdivision of enterprises by classes of employees entails a substantial modification of the concept of "small" and "medium" enterprises. Use of the traditional definition would mean the inclusion of almost 95% of all enterprises in the "small enterprises" category (up to nine employees), leaving only 1.12% to the "large enterprises" category (at least 20 employees). This would signify that eventual heterogeneity in behavior ascertainable in the different size groupings would seem insignificant, since many enterprises operating with the forms typical of big distribution would be included among the small enterprises. The operative proposal to redefine as "small" the enterprises with up to two employees and as "medium" those with from three to five employees would drastically reduce this risk, limiting the comprehensive weight of the small enterprises to less than 75% of the total. This would restore the balance to the dimensional segmentation which, otherwise, might lose all significance.
- All the leading forms of association would be included in the official classification, even in the form of satellite structures of the individual enterprises which characterize them. The main groups of enterprises are the commercial centers, the franchising chains, the purchase groups and the voluntary unions. The new sales survey includes a question relative to membership in these groups.
- The new commercial telecommunications operators have a shadowy "physical" profile. At the present time they are not monitored by official statistics except in experimental form. The most important of these operators were mentioned previously and are, in any case, summarized in section III (new operators) of figure 2.1.1.

2.2 Intermodal Cargo Transport

As with other economic activities in the service sector, cargo transport has been enjoying a phase of significant evolution in recent years. In addition to the technical-logistical innovations wrought by the introduction of new technologies, the enterprises have begun to formulate a new way of conceiving cargo transport services in the context of the production cycle.

In particular, the cost of the transport service has begun to be understood as an internal cost of the enterprise rather than an external one. And the level of the cost is a factor in planning as part of overall business strategy. In other words, the role of transport in the entire production chain is being rewritten. It is no longer seen as a simple link between the demand and supply of goods. Instead, it has become a natural "extension" of the production process, which terminates the moment the cargo enters the distribution chain and no longer, as in the past, the moment it leaves the manufacturing plants. The physical movement of cargo is now also conceived as a single series of operations (logistical chain) which assists the cargo along its entire itinerary, from the moment it passes through the factory gates (origin) to the moment it reaches its destination. From a specifically technical point of view, this new orientation is determining a change in traditional transport techniques towards a type of service (intermodal transport) which, exploiting the *interaction* between the different modes of transport, organizes the movement of the cargo in all its phases.

Intermodality bases its efficiency on the combination and integration of certain specific modalities of transport and enhances its operations by reorganizing the entire logistical chain of the cargo, availing

itself of the support of *ad hoc* infrastructures. In this sense, the transport service is no longer considered as the sum of separate and autonomous activities performed by individual carriers, but as a single service realized through the coordinated intervention of several operators and means. In other words, it constitutes an actual system.

Unlike traditional transport, intermodality furnishes a *complex* service of which the physical transport of cargo is but one component. The very fact that transport is conceived as a single action implies that the enterprises offering the service are in a position to guarantee complete assistance to the customer, from the moment the cargo is accepted for delivery until the moment it reaches its destination. In other words, the enterprises must provide (directly, or indirectly as intermediaries) a series of essential collateral services tied, for example, to assistance at the points in which the cargo changes mode of transportation, or to completing customs and administrative procedures, etc. Known as *mto*s (multimodal transport operators), these enterprises have only been in the market for several years. They organize the transport in every aspect, from the intermodal center (port, interport, railway terminal, etc.) to the receiver/loader, and they stand halfway between the classic figure of the forwarder, the trucker and the logistical services enterprise in the strict sense. But these innovations also apply to the big shipping firms or the maritime agencies which have long been in the market. Now they, too, have better organized their activity and called on the help of truckers, forwarding agents and other figures active in cargo transport in order to improve the level of service offered to the customer through the agency of a single interlocutor.

The "players" of intermodal transport are prevalently *polyfunctional enterprises* acting cross-sectionally among the different modes of transport and the different types of operators. Their level of specialization is constantly rising and oriented towards multifunctionality. And this is perfectly compatible with current trends in a host of other service activities.

The knowledge required for this new system of proposing transport service is enormous. From the standpoint of a student wishing to analyze the evolution of the entire service sector, this represents a prime example of the capacity of enterprises in this sector to adapt to the demands and stimuli generated by the production and consumption sectors, exploiting to the utmost the technological innovations that are progressively introduced.

Nevertheless, from a strictly statistical standpoint, intermodality appears to be a particularly anomalous phenomenon compared to those currently surveyed, which are tied to an *exclusively* traditional type of service. Until today, the various modes of transport have been the object of distinct surveys in which the difference between flow data and structural data on sectorial enterprises was clear. This has permitted us to capture quantitative data for each mode of transport at the economic cycle level while on the structural level the captures were based on the differentiation of activities according to the ATECO 91 classification. On the basis of the prevalent activity performed by the enterprise, this classification distinguishes between "Land transport and transport via goods trains" (ATECO 60), "Transport via sea and waterways" (61), "Air transport" (62), "Transport support and auxiliary activities; travel agency activities" (63).

In the context of intermodality these distinctions grow fuzzy for a series of reasons we cannot ignore. Previously we stressed that the evolution of the transport sector towards forms of integrated transport operating in the framework of an actual system is determining, simultaneously, the transformation of enterprises which already offer the service and the entry into the market of enterprises that are absolutely innovative compared to traditional ones. A new element introduces certain problems vis-à-vis the standard classification schemes. The diversification of activities performed by these enterprises makes it hard to clearly distinguish the prevalent activity on the basis of which the classification is made. Consequently, with respect to the logical principle with which the register of enterprises currently managed by ISTAT has been constructed, we are hampered in unequivocally matching the enterprise activity with the ATECO classification. There are two main reasons:

1. There are evident gaps in the classification of economic activities with regard to the definitions of the individual activities. In the case of transport the situation is quite clear: the imprecisions and incompleteness of the definitions loom as an obstacle to the correct identification of the reference universes and, in certain cases, require recourse to alternative, rather than traditional, survey techniques to define the lists.
2. These difficulties are accompanied by problems of updating the registers. For the moment, we cannot register expeditiously the necessary modifications, nor can we fully exploit the potential offered by ISTAT's Statistical Register of Active Enterprises (acronym: ASIA). Furthermore, we must stress that the responsibility for certain classification errors is due to the fact that some transport operators are simultaneously enrolled in the lists of a number of sectorial associations or a number of control bodies, for example, the List of Forwarding Agents and the Register of Truckers. Since ASIA is the product of the fusion of several administrative archives, incongruencies and errors at the source are transferred without the possibility of being identified *a priori*.

Among the ATECO categories relative to transport, the sixty-third is the one with the greatest concentration of problems. They regard the area relative to transport auxiliary and support activities, in particular class 63.2, "Other activities connected to transport", and class 63.4, "Activities of other transport agencies". A comparison of the activities performed by operators active in intermodal transport and the activities included in classes 63.2 and 63.4 often fails to bring to light any sort of correspondence. These intermodal operators perform activities included in a variety of diverse classes. Sometimes this is the result of an objective difficulty in identifying the enterprise's operative situation (as occurs for the *mto*s). Other times the classification does not exhaustively define the activities listed. This generates ambiguities and actually impedes an unequivocal identification.

A manifest example of this, aside from the *mto*s, is provided by the *logistics enterprises*, which seem unable to find one classification only, although some have been included in ATECO 63.40.2, "Transport brokers". Many of these enterprises are of a size which would not permit them to be overlooked in an eventual monitoring of the sector. Among these is the firm Cemat, for example, which markets the services offered by the Italian State Railways to transport containers and other particular material as a complete train. Cemat plans all the transport-related operations from origin to destination, as well as offering brokerage and logistical services. This firm is responsible for approximately 70% of the combined traffic in Italy and is a leader in Europe. For this reason it cannot be ignored for purposes of a flow capture or for purposes of a structural analysis of the sector.

A particularly emblematic case which further accentuates the difficulties in adequately classifying the enterprises active in intermodal transport according to the current classification of economic activities involves the large trucking enterprises. In intermodal language they are called *haulers* since they perform the initial or final road hauls, from the place the goods are produced to the intermodal center, or from the intermodal center to the final destination. They are clearly distinguishable from traditional trucking firms because of their dimensions and because of the type of service offered. In Italy, the structure of trucking firms is prevalently composed of individual enterprises which often receive work in the form of subcontracts from the leading operators relative to certain legs of the cargo itinerary.

Table 2.2.1
Main features of the actual classification of transport activities (ATECO 91)

ATECO 91	Definition	What is included	What should be included, modified or better specified
63.21	Other activities linked to land transports	• activities linked to passengers and goods land transport • railway stations, goods	• it must be cleared which are exactly the activities linked to land transports of goods

		movement centres • garages, campers, etc.	(for instance: preparation of loads, splitting up of goods by destination, etc.)
63.40.1	Shipping agents and customs agencies	• shipping of goods • activity of mediator and customs shipping	• There aren't logistic enterprises at all • There aren't multimodal operators (*m.t..o.*) • It's not clear if shipping agencies should be included in the *"traditional"* shipping agents
63.40.2	Transport intermediaries	• organization of transports in name of shipping agents or consignees • preparation of accompanying documents • splitting up of loads at random	• It's not clear if this class includes couriers (that generally deal with small loads only) • the packing activities aren't included: they are considered (in a doubt way) in the class 74.82 (Other professional activities)

We can certainly not affirm that these small truckers are active in intermodal transport in the narrow sense because, even if some of them perform as subcontracted work the initial or final hauls of "intermodal" loads, as a rule they are not even aware of the logistical chain of the cargo they transport. Their organization is extremely simplified and limited to the hauling of cargo from one point of the territory to another, with no further involvement of an organizational nature.

The big trucking firms have at their disposal a large and equipped fleet of vehicles, and they also deal with logistics. These enterprises perform a regular and highly organized activity, and they are undoubtedly part of the "intermodal" chain. They are physically present in the support structures (such as interports and intermodal centers) with a branch office, and they offer a service that can be integrated perfectly with that made available by the other modes of transport based on the same structures. Unfortunately, ATECO 91 classifies them with the small enterprises in class 60.25 "Road cargo transport" and, as such, they are lumped together in a group of approximately 500,000 firms with no possibility of distinction.

These considerations make clear the need for a thorough revision of the classification of economic activities which, particularly in regard to the world of services, is at least partially obsolete. In the transport sector more than in any other, and intermodality offers the prime example, the services offered are rapidly diversifying, and the enterprises that seem able to handle the competition and remain on the market are those that become multifunctional.

Table 2.2.2 - Innovative characters of intermodal transport

Innovation	Consequence
⇒ It's changing the role played by transport of goods into the productive processes.	• Transport is not only a link between supply and demand, but the final phase of productive process. • Technically it means a development from traditional modes of transport into forms - as the intermodal - that reorganize the whole logistic chain of goods.
⇒ The cost of transports becomes an internal cost for	• The service includes a complex set of operations from origin to destination with all the implications of logistic and organizative nature. • Enterprises offering this service tend to be

the enterprise (and not more an external cost).	multifunctional, that is they act with a cross-cutting strategy involving the various forms of transport. • As a consequence of the previous points, the service offered becomes a complex one, in which the transport of goods is only one component.
⇒ From a statistical point of view, the evolution of transports and of the multifunctionality of enterprises offering the service caused big problems in identifying the universe of reference.	• The actual classification of economic activities is incomplete and not sufficient to take into account all the various forms with which transport activities are carried out effectively. • Many new activities are not present in the classification or are present but belonging to more than one class of activity. • Many objective difficulties in updating archives exist, given the prevalence of very small enterprises. • In many cases is troublesome identifying the exact main activity of multimodal transport enterprises

3. "Innovative" Services: General Aspects and Measurement Problems

3.1 The New Technologies in the Services Sector

Within the services sector the role of new service activities that go by the name of *information and communications technologies* (ICT) is growing steadily in importance. These new activities sum up the convergences that have been developing for years between telecommunications, information technology and the media. Telecommunications offer the infrastructures, the media offer the contents, through the files and current production of its subsegments (television, film, video, publishing, etc.), and information technology offers hardware and software for management. This convergence of the three sectors is so powerful that an ICT (in Italian, TIC) market is already being spoken of.

The economic weight (percentage of the turnover of the three sectors compared to total gross internal product) is divided as follows (the values are estimated in part): telecommunications 1.8%, information technology 1.4% and only 0.9% media (audiovisuals excluding publishing).

Although the media sector carries the least economic weight, it represents the content of the entire ICT market and has its own distribution channels which have been consolidated over time. In a context that assigns a prominent role to content rather than to technology, the strategic role of the media is evident.

The added value of the ICT market seems to be shifting progressively from the physical infrastructures (hardware, networks, telecommunications) to the non-physical infrastructures (services, software, applications, content). ICT possesses a new dynamic that assigns to demand a guiding role that once belonged to supply, thus reversing the rule that has always characterized the high technology product market. Towards this end, the new multimedial and interactive products and services will have to be characterized by high-quality, diversified production lines.

Table 3.1.1 - Some economic indicators of telecommunication enterprises - 1990-1994

	Value added per employee	Ratio value added/ turnover (%)	Investments per employee	Km of optic fibres installed

1990	113,4	54,3	109,5	436
1991	131,4	56,2	120,4	700
1992	142,9	57,5	108,0	900
1993	163,5	56,0	130,5	1.251
1994 (1)	178,6	59,7	84,0	1.586

Source: Istat - Survey on the information enterprises with at least 20 employees, Stet Telecom Italia.
(1) Provisional data. - Figures are in millions lire.

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Table 3.1.2 - Some economic indicators of information enterprises - 1993-1995

	Value added per employee	Ratio value added/ turnover (%)	Investments per employee	Ratio investments/ turnover (%)
1993	99,2	55,4	7,7	4,3
1994	95,3	53,7	13,7	7,7
1995	111,2	52,5	13,7	6,5

Source: Istat - Survey on the information enterprises with at least 20 employees.
Figures are in millions lire.

Table 3.1.3 - Some economic indicators of audio-visual enterprises - 1994-1995

	Value added per employee	Ratio value added/ turnover (%)	Investments per employee	Ratio investments/ turnover (%)
1994	250	53,5	18,1	2,3
1995	302	57,1	14,1	2,7

Source: Istat - Survey on the information enterprises with at least 20 employees.
Figures are in millions lire.

The new technologies have led and, more significantly, will lead to the development of new services for households and enterprises. In fact, we now speak of the digital revolution as a successor to the industrial revolution.

Digital televisions, cellular telephones, personal computers, telebanking services to perform bank transactions, and teleshopping services, a multimedia technique which allows purchases to be made and paid for via credit card, are only some of the new services that can be consumed while remaining in the comfort of one's home.

Today enterprises and households can rely on sophisticated communications systems to hold long-distance meetings (teleconferences), exchange data, images and sounds thanks to fiber optics, satellites and modems, and utilize on-line services to gain information from enterprises, institutions and public administrations.

In several European countries experiments are underway on supermarket shopping utilizing an interactive CD (compact disk) visible on the home screen. Consumers choose the products through the CD-I (Compact Interactive Disk) catalogue and make their purchases which are then delivered to their doorstep.

It will also be possible to choose a program on the computer and transfer it to the television in real time. Then, utilizing the remote control one can even choose the ending of a film (video on demand).

Finally, in a short time Italy will be able to receive hundreds of television channels via satellite or fiber optics connections. Films, music videos, educational and sports programs, news and teleshopping will be available in the comfort of one's home. The screen will offer an infinite array of possibilities to access information and to communicate. Television will assume a range of completely new functions. The format of television images is also changing to the film format (16/9, wide screen) instead of the traditional 4/3. (A wide screen television permits a film to be viewed in a larger format that is more adapted to the human eye's mode of vision).

Last but not least, the emergence of a host of new information and communications technologies has profoundly influenced the scope and nature of the accumulation of knowledge. In fact, to achieve an efficient use of these new technologies a considerable investment in research and training in all its segments (scholastic, university and professional) is necessary. The ICTs also permit a greater codification of knowledge, transforming it into information that can be easily transmitted and acquired at a lower cost. And this codification allows "know-how" to assume the property of a product to a greater degree.

The success of Internet and Intranet is another example of the pervasiveness of these new technologies. Internet is a worldwide network which makes it possible to utilize a vast array of services as electronic mail, electronic bulletin board (to receive and send various types of articles), data exchange, interrogation of data banks distributed throughout the world. Everyone who owns a computer (some 12% of Italian households and 23% of Italian enterprises on the basis of estimates for the year 1994) and a modem can access Internet by subscribing to a service provider.

The definition of the Internet communications technique (INTERconnected NETworks) is based on the concept of network. A network is an aggregation of computers, connection cables and software which permit two or more personal computers to communicate with one another exchanging data and information. The main objective of a network is, therefore, to interconnect systems, minimizing costs and maximizing the velocity of data transfer. The term "information highway" attributed to Internet derives from the fact that Internet can be considered an infrastructure able to provide services and applications, also developing business relations and reducing the cost and time required to reach a generic market. Internet has also been termed the "network of networks" because any structure (a university, an enterprise, etc.) may connect its small network with Internet's vaster network[9].

The impetus to increase subscriptions to Internet and its relative sites is favored by a number of factors, foremost among them the evolution and continual renewal of operating systems, of electronics and of telecommunications networks. The Service Providers champion this boom by introducing new infrastructures to make their companies competitive. These networks are flanked by university research networks, by networks of associations of various types, and by networks of non-profit associations.

As an instrument of pervasive mass communication, Internet is reaching, if not exceeding, the levels of the telephone and television. Adopting a national plan based on the structure described above, even the telephone operator can benefit, thanks to the utilization of telephone lines.

The network can be accessed from home, from the place of business, from a university or from any institute; all that is needed is a modem, which functions with telephone wires and is connected to the personal computer. Through this electronic device users who access Internet communicate with an Internet Service Provider (ISP), a producer of Internet services with whom contacts can be established and commercial transactions performed.

If access to Internet is made through a business network, or through any other body or institute, the personal computer will become part of what is termed a Local Area Network (LAN) and will not need a modem to access Internet.

In any case, even for those who access from home, the new technologies can reach Internet faster than a modem can. One possibility is to utilize ISDN (Integrated Services Digital Network), which uses the existing telephone link but substitutes the modem with special digital adaptors.

ISDN is offered by Telecom Italia and is accepted by a growing number of ISPs. It is efficient and not too costly, although it does cost more than normal telephone service. Although ISDN is still far from being omnipresent, it has been available in Italy since the 1980s and is the most widespread of the digital connection technologies for private users.

With regard to long-distance connections, Internet's principal arteries are the "dorsals", managed by "wholesale" Internet providers termed National Service Providers (NSPs). Users connect to local ISPs via modem, ISDN adaptors or other devices, while the local ISPs connect, in turn, with the NSP networks, such as Telecom's Interbusiness. The ISPs connect with the NSPs through lines rented by Telecom. These firms, like similar ones throughout Europe, own telephone cables, fiber optic cables and satellite hook-ups.

As we know, Italy is somewhat behind, as are several other European countries, in the use of the new technologies. But the number of subscribers (hosts) seems to be rising throughout Europe, and this could cause the entire network to collapse. For this reason, provisions must be enacted to keep the network from reaching saturation.

On one hand, the new satellite and fiber optics networks, which offer a far wider band than the networks currently available, have been introduced. On the other, new network architectures called Intranet, which will utilize Internet without taxing its infrastructure, are being created. We will discuss these new developments below.

Access to Internet via cable is, instead, an extremely new tool that is expected to have a rosy future in the United States. In Europe it is only available on an experimental basis. In Italy the diffusion of Internet via fiber optic technology is expected to face obstacles because it is tied to the diffusion of cable television networks, for which buildings are being projected, but very slowly. Theoretically, the same cable that carries the television signal will be utilized for Internet. The service will be provided by cable television stations, which will become ISPs. The data on the Internet-related market are reported below (Tables 3.1.4 to 3.1.9).

Intranet, on the other hand, represents the use of Internet technology in the internal network of a company or a number of companies. This method changes business processes, altering the perspective of almost all types of business activities. In marketing, statistical and market research, for example, the possibilities of segmenting the market are enormously enhanced, since the common means available for the interviews (the telephone and the questionnaire) are replaced by personalized interactive information.

The affirmation of electronic trade should also generate an increased volume of sales. But the sector that will certainly benefit the most from Intranet will be simple and advanced services (credit institutes with telebanking), precisely because of its nature as a brokerage sector with special ties to communications. With regard to the third sector, the frenetic development of technologies has favored the constitution of particular "service firms", the *pre-press*, which include companies specialized in the photocomposition of texts and others specialized only in graphics. This micro-area upstream of publishing will have to conquer its own niche of the market to develop.

With regard to trade, the electronic dimension will go hand in hand with the traditional channels, helping to bring about a notable change in the relationship between the enterprise and its distribution network (cfr. section 2.1).

Finally, developments in the field of sciences and research in general, in medicine, engineering, physics, mathematics and statistics are immeasurable. This potential technological development is linked to the production processes of pharmaceutical industries, research institutes and hospitals, in which improvements will contribute to the economic and social advancement of Italy.

Another aspect of the ICTs concerns telework. This is a mode of work an employee performs prevalently in the home while in constant contact with his firm, colleagues and customers via fax, computer, modem or video conferences.

As of 1995 there were five Italian firms which had initiated, in accordance with the trade unions, types of telework in the strict sense (in other words, involving employees): Italtel, Saritel, Seat, Dun & Bradstreet and Telecom. Remote work should guarantee employment and allow the firm to save significantly on fixed costs.

Even though the employee avoids queues and traffic and the employer saves on fixed costs, the drastic decline in occasions for socialization and individual growth as a result of telework is an element that must not be underestimated. With only rare exceptions, firms have until today been very reluctant to diffuse the idea of remote work. Telework implies a reorganization of production processes for company structures, with a consequent loss of authority for certain figures and the emergence of new professional roles.

The economic return on the development of the ICTs will take place in the medium- and long-term, with a consequent creation of jobs, even though a decline in jobs may be necessary in the short-term. The ensuing labor model will be increasingly autonomous, characterized by mobility and part-time jobs, not to mention temporary work, the rapid obsolescence of specializations, and telework, all distinctive signs of the Information Society.

The new ICTs represent a driving force behind the globalization of industry and services and for the related restructuring of the economies of the industrialized countries. The ICTs are paving the way for the future markets of goods and services and creating opportunities for electronic exchange that will influence all commercial activities. These new opportunities are often grouped together in the multimedia category and look beyond the traditional vision of manufacturing and services. The development, design and availability of services based on ICTs will in large measure determine the conduct of economic and social life in the future.

Table 3.1.4 - Users of Internet in Italy - 1996 (October)

	Fixed networks	Residential users	Occasional users	Not commercial users (3)
Number of firms (1)	4.000	100.000	150.000	100.000

Source: estimates Associazione Italiana Internet Provider.
(1) Users estimated by access suppliers.
(2) Consumers and professionals.
(3) University, public bodies, etc..

Table 3.1.5 - Shares of italian firms linked to Internet by sector of economic activity - 1996 (1)

	Industry	Services without trade	Trade	Total
Shares by sector (%)	35,8	45,0	25,6	35,2
Relative shares (%)	61,0	23,0	16,0	100,0

Source: osservatorio Alchera.
(1) Estimates based on a sample of 125.000 enterprises with 10 employees at least.

Table 3.1.6 - Shares of italian firms linked to a WEB site by sector of economic activity - 1996 (1)

	Industry	Services without trade	Trade	Total
Shares by sector (%)	38,7	56,7	8,0	35,2
Relative shares (%)	66,0	29,0	5,0	100,0

Source: osservatorio Alchera.
(1) Estimates based on a sample of 125.000 enterprises with 10 employees at least.

Table 3.1.7 - Type of Internet services used by italian households - 1996

Type of service	% share of households
Database	89%
Communication	44%
Commercial information	50%
On-line books news	50%
Entertainment	39%
Access to Public administration services	17%
Shopping	3%

Source: estimates Sda-Bocconi marketing.

Table 3.1.8 - Type of services used by the italian enterprises with an Internet site - 1996

Type of service	% share of enterprises
Commercial information	73%
Electronic mail	62%
Advertising	29%
Work opportunities	24%

Source: estimates Sda-Bocconi marketing.

Table 3.1.9 - Degree of presence of technology among households - 1996

% of households with telephone (1994)	96,8
% of owners of a cellular telephone	9,2
% of households with a television	99
% of households with a video-tape	48
% of households subscribing a Pay-tv contract	4
% of households with a parabolic aerial	3
Number of personal computers per 100 inhabitants	7,2
Number of host Internet (1995)	73.000
Number of Internet subscribers (1995)	405.000

Number of Internet subscribers per 1000 inhabitants (1995)	7

Source: 30° Rapporto Censis.

3.2 New Questions and New Analytical Tools

The current economic-social system necessitates revision of the basic concepts of enterprise and household. The distinction between household and enterprise in the post-services economy is vanishing. At the same time, the "green" area of the non-profit voluntary sector is flourishing, while the dichotomy between public and private is becoming more flexible.

The ownership of enterprises is being converted into a service (for example, dummy societies) and the classification of the activities of the multinationals enjoins new classification schemes.

The conventional conceptual scheme is losing substance. The enterprise is considered a network of relationships (suppliers, financiers, subsuppliers, customers, etc.) rather than a physical legal and administrative structure.

It will also be necessary to explore the new industrial synergies, the greater possibilities of diversifying products, the new forms of competition and of alliances among producers of goods for the ICT market, on one side, and for service providers, on the other.

The analysis of investments, of profit margins and of the labor market for these sectors also necessitates new analytical schemes.

By creating new communications networks at the national, regional and global level (Internet, for example), the new technologies create opportunities for greater exchanges of old and new professional, technical and financial services, thereby promoting the globalization of economies.

Because these technologies permit applications in all sectors and, therefore, influence gains in productivity and product diversification, and because they permit a more rapid and effective response to changes in demand and to comparative advantages in balances of payments, they demand a different vision of the entire social and economic system. The Information Society as a new era is upon us.

The pre-existing difficulties in defining and classifying the service sector which, as Frey (1975) asserts, resembles "*an aggregation of extremely heterogeneous activities from the viewpoint of demand, of technology and of product, and from the viewpoint of the typology of its operators, its degree of competitivity on the market, and its relations with the labor market*", go hand in hand with other difficulties stemming from the birth of the new services.

The concepts described above for the ICT market should stimulate us to design new tools for the capture, registration, processing, organization and transmission of statistical information.

The advent of the new technologies, particularly in the field of telecommunications, should spur us to revise the concepts of analytical unit utilized until now and implies a drastic overhaul of currently used nomenclatures in order to be able to capture the salient features of the phenomena underway in our society.

The use of nomenclatures according to economic activity implies considering each individual industry as a set of similar economic activities and, therefore, with similar production processes and production units. This notion also underlies many of the basic concepts of national accounting.

But the exposition set forth in our paper suggests we should concentrate our attention on groups of enterprises whose production has similar ends and functions without considering the individual production, distribution or supply process of the service. For this reason we must rely on new analytical concepts, such as integrated production processes, or consider the economic activities (or products) which constitute a defined market of demand and supply.

The new telecommunications technologies cross-cut all sectors through the use of the telephone, Internet and other communications technologies, and the current nomenclatures cannot grasp this phenomenon. Similarly, in the media sector the entire supply chain should be considered: from the

production of devices to utilize audiovisual products, to the production of the audiovisuals themselves, and their distribution and projection.

4. Information Technology

4.1 Italian Information Service Enterprises in the Face of a Changing Society

The technological innovation that contributes to modifying processes and products at a pace we are barely able to keep up with makes it imperative to gain a better and more thorough knowledge of the enterprises most interested in these transformations as providers of information services.

In fact, information service providers are both the active subjects of the changes, as market operators, and the subjects who indirectly feel their effects, as users or consumers.

The importance of this sector is now clear. It has been constantly growing since 1990 in terms of added value (for the large enterprises alone the volume of turnover in 1995 was approximately Lire 15,000 billion) and in terms of strategic value, mainly because its cross-cutting nature allows its applications to be extended to a multitude of other fields.

Eurostat has also recently turned its attention to the information technologies (IT). It foresees a growth in its potential within the European Union parallel to the growth of the multimedia and telecommunications sectors, which are equally strategic to enterprises and to society as a whole.

The markets in which these activities will compete are not only national ones, but also the larger European and international markets. The enterprises will be facing a kind of competition which will oblige them to make strong alliances.

For this reason, the IT enterprises must not have a competitive strategy as their sole objective. Primarily they will have to bear in mind the role of integration and the complementary nature their activity will assume compared to other sectors of application (trade, education, health, etc.).

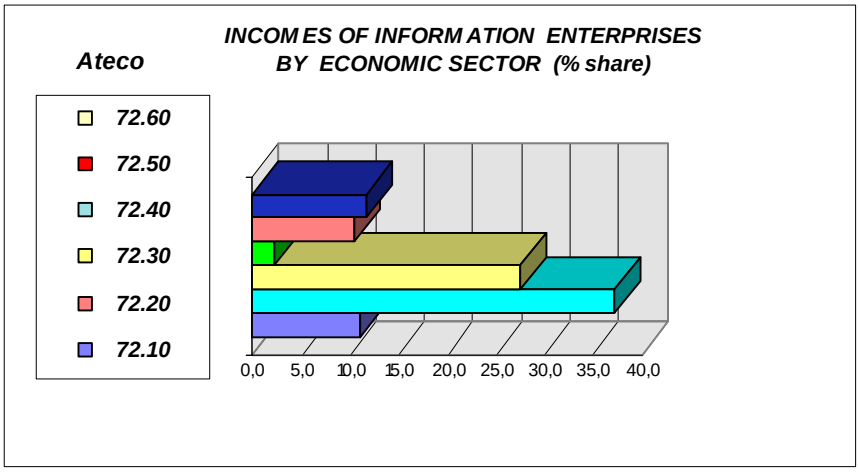
Thus, the survey on information service enterprises conducted in 1996 with reference to 1995 is particularly important because it focuses on a very positive year for the software sector and, in particular, for the information services.

The survey revealed a positive trend which from 1990 to 1995 continued to grow in line with the trend of other European countries.

The sector of *electronic data processing* with customer software or software of the IT enterprise, or *data-entry* activity, and the management of the IT equipment of other enterprises accounts for approximately one-fourth of the turnover of the entire sector.

If we observe the IT services more closely, we note that the supply of software, IT consulting, and training in the use of software applications packages represents approximately one-third of total receipts (Graph 4.1.1[10]).

Graph 4.1.1



LEGENDA

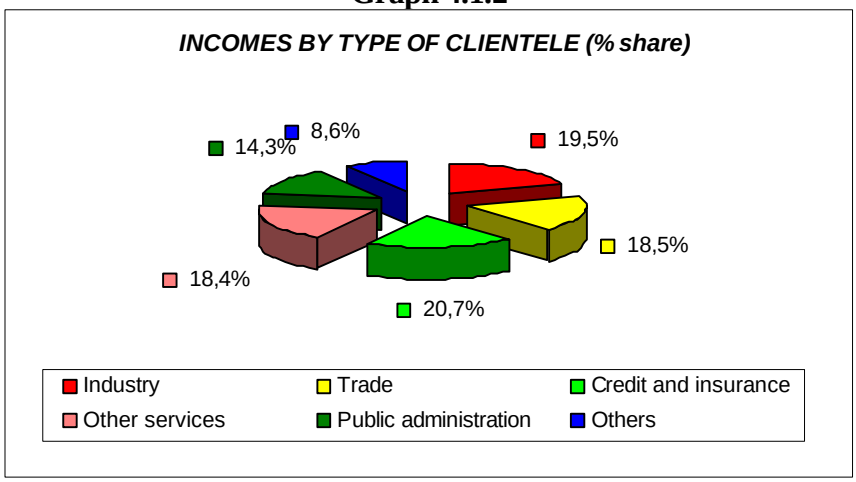
72.10 Consulting for mainframes installations
72.20 Software and information consulting
72.30 Data elaboration
72.40 Database project and management
72.50 Maintenance and reparation of office machines
72.60 Other activities

This can be explained through an analysis of the *demand for services*, over 20% of which is made by *credit institutes and insurance companies* (Graph 4.1.2), followed by industrial enterprises (19.5%), commercial enterprises (18.5%) and those pertaining to the category of other services (18.4%). The public administration accounts for only a modest demand (some 15%), but this appears compatible with the slowly but steadily rising level of computerized automation, under the thrust of new laws and new technical procedures.

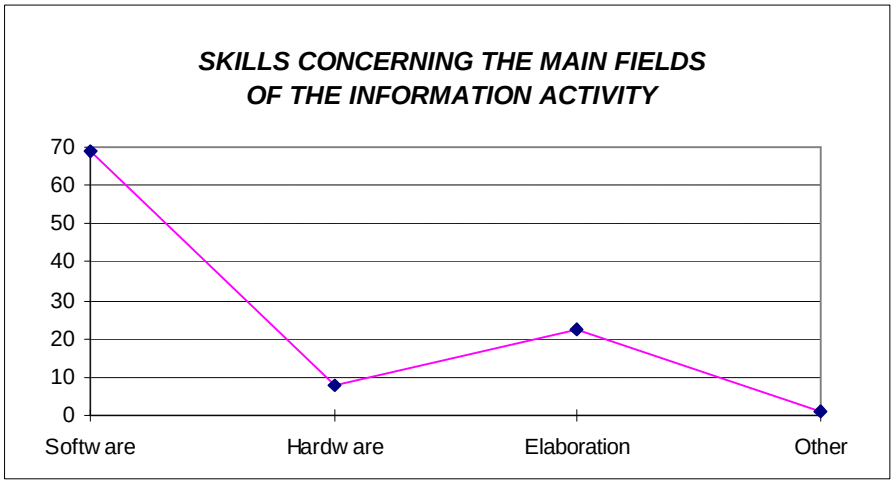
An examination of *professional skills* reveals a situation favorable to the software area, with 68% of the total. The most requested professional is the *programmer*, prevalently between 26 and 35 years of age (Graph 4.1.3).

The educational level also discloses a trend towards more advanced diplomas. The high school diploma is the most prevalent (63%), followed by the university degree (22%). Employment in the sector is prevalently masculine (61% of the total), with work experience in the enterprise of at least five or six years (Graph 4.1.4).

Graph 4.1.2



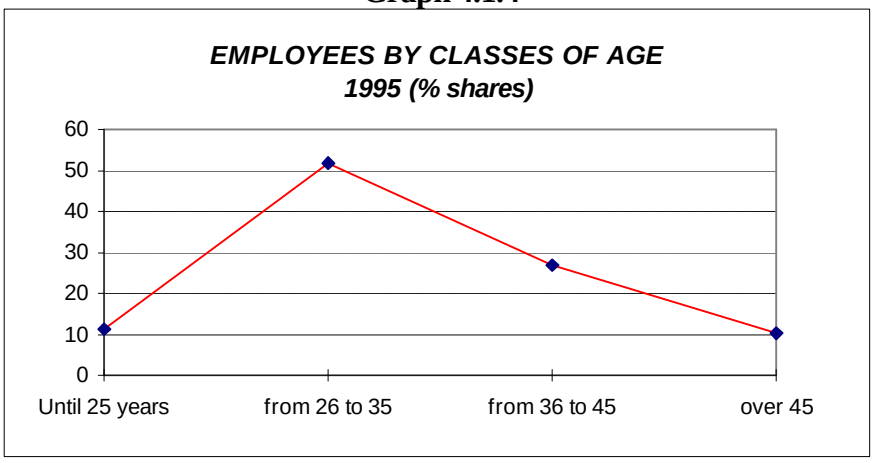
Graph 4.1.3



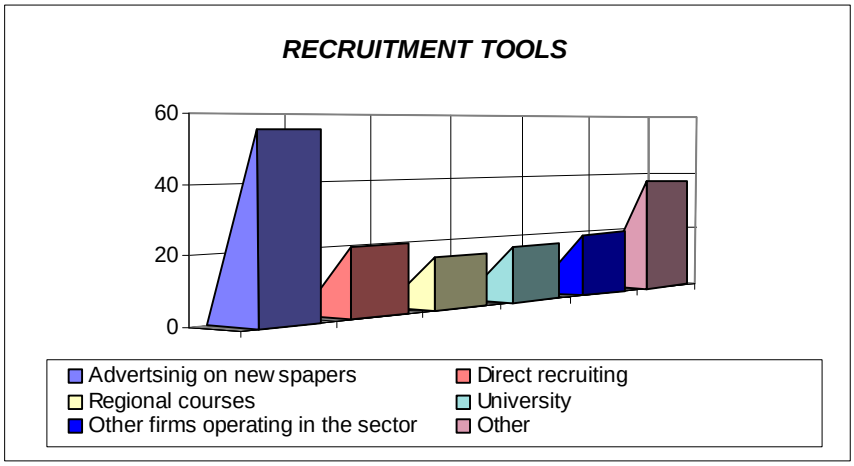
Growing attention to young people below the age of 25 is manifested through *professional training courses* organized by enterprises which, in the majority of cases (55%) still *recruit* their personnel through traditional procedures (*advertisements in newspapers and specialized periodicals*). Finally, 20% of personnel is recruited through transfers from one sector to another, prevalently among companies belonging to the same group (Graph 4.1.5).

To publicize their activities enterprises prevalently use four tools: *brochures*, which present their products correctly and thoroughly; *trade shows*, which are the only means to "visualize" the products, providing customers with a tangible illustration of their principal features; the *yellow pages*, which offer a mode of access to households and enterprises alike; and *sponsorships*, which are also a means to transcend national borders (Graph 4.1.6).

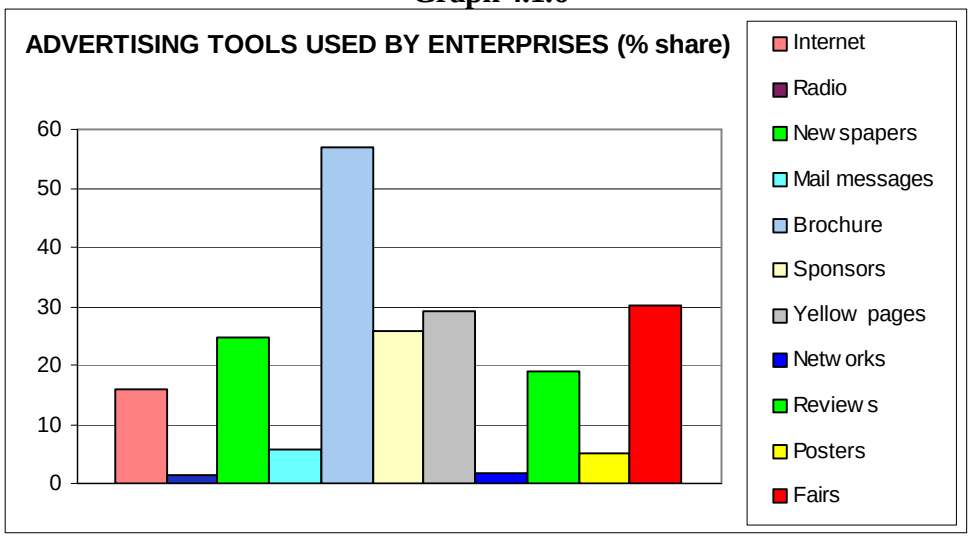
Graph 4.1.4



Graph 4.1.5



Graph 4.1.6



4.2 The Significance of Technological Innovation for IT Enterprises

The transformation we are experiencing with the shift from a computerized automation society to an information society is visible more and more every day.

It is visible on routine occasions if, as users, we need a public service such as health or education or if, as customers, we turn to an enterprise for a product it offers (for example, a bank).

The subjects interested in these changes are swiftly adjusting their responses to the new requirements.

The IT enterprises have understood the innumerable functions software performs, including management control to evaluate the comparative profitability of business activities according to parameters set by the user and, in certain cases and under certain conditions, even generating the consolidated balance.

Today, these enterprises must sell their know-how, not just their products. They must organize software laboratories able to insure the development of programs by fixed deadlines, at pre-set costs, and of guaranteed quality. They must also train the customer's personnel and reutilize pre-existing software to curb costs.

Acquiring a new customer costs more than keeping an old one. Following this axiom, many enterprises are also taking into consideration the fact that sales promotions within big distribution may disappear in the future.

In the United States the enormous IT commercial centers are facing extinction because the customer encounters difficulties in finding the products he needs. Vice versa, sales via specialized catalogues or television programs are on the rise.

This problem of *faithfulness* has led to the creation of *customer care* centers which replace the post-sales support with computerized response centers able to solve any problem the customer might have and to measure his degree of satisfaction.

Following the lead of other companies such as Hewlett Packard, Telecom, born of a merger of five companies in 1994, has instituted this kind of service in Italy. This service today gives customers commercial information, but in the future it will be managed by a vendor who will register the information given and process statistics in real time. An innovation introduced in 1997 by HP is the "HP Card", a credit card that can be utilized to purchase on installment and enabled for purchases of micro-IT products from authorized HP dealers.

In the health sector experiments are underway on the use of video cameras for teleconsultations. The same equipment is used in televideoconferences and this form of videotelecommunications should speed up the exchange of information and the transfer of the same as necessary.

These experiments may make it possible to repeat this process in geographic hardship zones, where such an approach might be the only feasible solution.

The new culture of organization that is being diffused also underlies telework (cfr. section 3.1). In Europe this process is characterized by growing demands for flexibility by the enterprise to be able to react better to market requests, and by the teleworker to be more autonomous on the job and have more time for himself.

It is evident that the more labor is flexible, the greater is the need of certainty. Thus, the availability of the teleworker must correspond to a clear definition of the rules of labor.

MIRTI (Models of Industrial Relations in Telework Innovation) is dealing with this problems within the program called *Telecommunications Applications*. This program is gathering information on telework experiences in several countries of the European Community, including Italy, with the aim of drafting a number of model contracts applicable at the European level.

MIRTI's first analysis of the needs of the consumer reveals that the scenario is influenced not only by the needs of private enterprise, but also by the schools, by local, regional and national institutions involved in labor policy, and by local and regional institutions with interaction between the public and private sectors.

If telework were to be added to their policy strategies, it might have a corrective impact on the development of market trends.

So why have enterprises not yet added telework to their list of objectives? The drawback is the cost a firm must bear to reorganize the processes underlying telework, also in terms of control, verification, organization and telecommunications.

The labor unions could also find the prospects of telework troubling, since they could call into question the validity and adequacy of union rules. Governments should also direct investments towards specific training policies with a view to the internationalization of the labor market.

Meanwhile, the first machine conceived for telework has been constructed, the Apple Creative Studio. It is easy to use and has been designed for advanced functions. With it the user can access Internet, via ISDN, and remain permanently connected through his personal Web server, so that each time he wants to access it he can do so free of charge or on a paying basis.

These innovations promise an enormous potential for enterprises that will succeed in joining, with new initiatives, all the possible fields of application of the new technologies. This potential is especially bright for the enterprises that deal with infrastructures, which today represent the key to access the society of tomorrow.

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NOTES

1 The work was coordinated by R. Gismondi and is the fruit of shared reflections by the authors. The opinions herein expressed are not binding on ISTAT. In particular, R. Gismondi wrote sections 1, and 2.1, P. Anitori section 2.2, F. Riccardini section 3 and G. Trovato section 4.

2 Istat - Researcher in Internal Trade Services.

3 Istat - Head of Unit Tourism, Transport and Internal Trade.

4 Istat - Researcher in Financial Services.

5 Researcher in Information Services.

6 The enterprise often groups products together on the basis of the tax brackets they fall into.

7 We refer to the Structural and Economic Cycle Regulations on Enterprises; the first has already been approved and the second is in the process of being approved.

8 Ceccarelli, Gismondi and Mirto (1997) have written on this subject.

9 In the 1980s Internet was prevalently accessed by government and research bodies and university institutes to permit documents to be transferred and for electronic mail. Subsequently, Internet expanded to the extent that it has become a single worldwide network composed of an immense number of branches and users: students, professors, researchers, industries and public administrations. But Internet has also been discovered by the biggest information technology producers, by private enterprises and organizations, as well as by students and those interested in it as a hobby.

10 The source of all the graphs reported in this paper is the ISTAT survey on information technology enterprises for the year 1995.