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# Innovation in service industries in France: results of a postal survey

Faridah Djellal, Faïz Gallouj

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**UNIVERSITY OF SCIENCE AND TECHNOLOGY OF LILLE**
**Faculty of Economics and Sociology**

# INNOVATION IN SERVICE INDUSTRIES IN FRANCE:

# RESULTS OF A POSTAL SURVEY

**Faridah DJELLAL, Faïz GALLOUJ**

**CLERSE-IFRESI**

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**REPORT FOR THE EUROPEAN COMMISSION DG XII TSER-SI4S PROJECT**

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# INNOVATION IN SERVICE INDUSTRIES IN FRANCE: RESULTS OF A POSTAL SURVEY

**Faridah Djellal and Faïz Gallouj**
With the collaboration of Camal Gallouj

## Introduction

### 1. Object of the survey

The question of innovation in service industries is a recent concern, as much for researchers as public authorities.

The importance of service industries in our economies, whether it is measured by their contribution to employment or to the gross domestic product, has led researchers and authorities alike to reconsider a number of analyses inherited from the industrial and agricultural past[1]; analyses which regard services as a residual sector, peripheral and undynamic; unproductive, with low capital intensity and skill levels; and, the point which interests us here, resistant to innovation.

This idea that services innovate little can actually be broken down into two propositions: 1) they do not innovate at all; 2) they merely adopt technical systems designed and produced by the manufacturing sector, to which they adopt a subordinate attitude. If they are involved in innovation at all, it is more as clients of innovative firms than as innovators.

A number of studies (cf. in particular Gallouj, 1994, 1997; and C. and F. Gallouj, 1996; Gallouj and Weinstein, 1997; Sundbo, 1994, 1997) have highlighted the biased nature of these conclusions. Indeed, they are based on an industrial and technologist conception of innovation which cannot be applied to manufacturing anymore as well . The studies to which we refer, however, try to take account of the specificities generally attributed to services, namely their intangible and relational nature[2]. A service is not only an end result, it is also an act, a process which unfolds over time and in the context of a (coproductive) relationship between a client and a service provider. Consequently, it cannot be stocked, and is difficult to repair. Similarly, it is difficult to separate the "product" from the process.

Conceptions of innovation in services (and also in goods), and, consequently, the evaluation of its importance, can change if the specificities of innovation in services are taken into account. In other words, not only does innovation exist in services, but it is also far from being marginal. It can take different forms and be organised differently, etc.

We do not intend to go over the different results in detail here (cf. Gallouj, 1994; C. and F. Gallouj, 1996). What must be remembered, however, is that they have stemmed, essentially, from qualitative studies based on interviews and monographs. Indeed, this kind of

[1] and particularly from the fathers of political economy (Adam Smith, David Ricardo, etc.)
[2] these characteristics are becoming increasingly true of goods themselves, which enables convergent or integrative analyses in services and goods to be envisaged.

methodology appears to be most effective when the field of research is widely unknown and unexploited, and when the aim is to avoid sticking firmly to established conceptions (definitions, indicators etc.) which have become rigidified by practice, but which are not fully adapted to the economic phenomena being studied. In other words, qualitative studies are useful in that they allow what could be called conceptual and analytical "irreversibilities" to be circumvented to a certain extent.

The object of this study is to go beyond this methodological stage, and to try and provide generalisable quantitative results on innovation in services, based on a wide-ranging postal survey. The design of the questionnaire obviously integrates the results of the qualitative studies referred to above, particularly in terms of the definition and nature of innovation.

In France, surveys on innovation are not a new phenomenon, nor do they exclude service firms, at least not directly or voluntarily. However, influenced by the technologist and industrial hypotheses mentioned above, they are only concerned with technological innovations, and, indeed, they neglect a large part of innovation in service firms which can appear in other forms. Thus, such surveys usually draw the conclusion that very little innovation (and by that they really mean *technological* innovation) takes place in service firms. Only a few service activities particularly closely linked to material technologies, e.g. information technology services, manage to "put up a good show" in this type of analysis.

The above findings also hold true for research and development, which is also considered to have a weak position in services. This assessment, however, could be modified or reconsidered if R and D were to be redefined, taking conception and development (C and D) and research in social sciences more into account (cf. Gadrey et al, 1993).

Surveys devoted exclusively to innovation in services are very rare and very recent. They concern particularly the following countries: Netherlands (Brouwer and Kleinknecht, 1995), Canada and Australia (Gault and Pattinson, 1995), Switzerland (Etter, 1995) and Germany (ZEW). With the exception of the last two cases, these different surveys, which are based purely on services, are fundamentally technologist in their approach. Other studies are also under way within the context of the Community Innovation Survey.

Our survey, the results of which we will present in this study is, to our knowledge, the first of its kind in France.

## 2. The questionnaire and survey

The questionnaire was jointly designed by four European teams (French, Norwegian, Danish and Swedish) with the aim of enabling comparisons between the four countries to be made.

This collective work led to a questionnaire which is particularly ambitious in size. Indeed, it contains 26 open or closed questions, some of which are quantitative, some qualitative. The 26 questions cover the following themes:

- types of innovation
- technological content of innovation
- degree of novelty in innovation
- innovation objectives

- constraints on innovation
- sources of information on innovation
- internal and external actors in innovation
- innovation processes
- research and development
- innovation costs
- duration of innovation projects
- means of protecting innovation
- listing and describing concrete examples of innovation

In terms of innovation type, in order to try and reduce the extent to which service firm managers themselves underestimate their own innovations[3], we replaced the term "innovation" with the term "significant changes". These "significant changes", which must be intentional and not arise by chance, can relate to the following elements:

- "Product/service". This is what is generally called product innovation. We, however, endow it with a wide enough sense to encompass both tangible and intangible "products". Thus a new training method, a new type or field of consultancy will be regarded as product or "product/service" innovations.

- Process. Again, we do not limit this type of innovation to technical systems alone, be they information technology systems or any other type of system; process innovation can consist of introducing a information technology system, but it can also be intangible. Such is the case, for example, with consultants' methods.

- "(Internal) organisation", in the usual sense of the term. Organisation differs from process in the sense that it constitutes the general structure within the activity and of the processes. Introducing a matrix structure or reducing the number of hierarchical levels are examples of organisational changes.

- The type of "external relationship". This type of change or innovation involves setting up a number of particular relationships (in new forms) with clients, suppliers, public authorities, competitors, etc., e.g. strategic alliances, new types of interface, establishing a mediator, etc.

The aim of one of the open questions in our survey is to collect and describe precise examples of product, process, and organisational innovations and innovations through the creation of new forms of external relationships (hereafter external relationship innovations).

The above typology has several advantages:

- replacing the term "innovation" with "change" can encourage service firms to free themselves from a degree of "modesty" linked to traditional patterns interiorised by managers themselves (which lead them to believe that only those who design new technical systems really innovate).

[3] This underestimation is partly due to the fact that the managers of these firms are themselves influenced by an industrialist and technologist economic culture. The pilot of the questionnaire and the qualitative interviews show that these managers tend to regard innovation as a spectacular technological change. Conversely, in other cases, particularly in consultancy services, interviewees have difficulty responding, as they consider each service transaction to be new, tailor-made, and therefore, an innovation.

- in formal terms, it is consistent with traditional innovation typologies in the Schumpeterian tradition. But, as we stressed above, the different categories are richer in content (by taking intangibility and the relational dimension into account). Thus, a product or a process, for example, could be intangible.

It does, however, present some disadvantages which the analysis must take into account:

- replacing the notion of "innovation" with that of "change" runs the risk of allowing minor or unintentional changes to be regarded as innovations. It seems, however, that this problem can, to a certain extent, be corrected by analysing the open question on listing and describing examples of innovation.

- although we made our definitions more flexible, the possibility remained that some managers who replied to our questionnaire would continue to interpret the different types of innovation in a *strict* sense. This being the case, certain types (intangible products, processes and external relationships) would not end up on the questionnaire. To try and minimise this problem, we introduced complementary questions which asked about the nature of innovation in different terms (i.e. outside the rigid boundaries of an *a priori* typology);

- there are some classic cases of overlapping: e.g. the problems of the boundaries between product and process, organisation and process, etc. Some new cases also emerge: e.g. fixing the boundaries between changes in external relationships, in (internal) organisation or in process.

In line with the other three European teams involved in the research, we studied the following service industries:
- consultancy (in its different forms)
- financial and insurance services
- contract cleaning
- transport
- hotels
- catering
- retailing

A postal questionnaire was sent to 3500 service firms between June 1997 and October 1997. Several follow-ups were made by post and telephone. In total, after incomplete questionnaires and duplications were eliminated, 324 usable questionnaires remained. The response rate of some 10% may appear low given the importance of the question being dealt with and statistical norms. However, it seems quite satisfactory when compared to the usual response rate to this type of survey in France.

Given its size, our sample cannot, therefore, claim to be representative. However, the fact that this type of study, as we highlighted above, is the first of its kind in France, means that statistical rules may be bent a little. The statistical materials collected, although they cannot claim to be generalised, and although they must be analysed with caution, do serve to do the groundwork in this field where little research has been done.

## 3. Report outline

The report is organised into three chapters.

Chapter one will give an account of the nature of innovation from different perspectives: firstly, using the predefined typology (product, process, organisation, external relationship); secondly, we will attempt to comprehend the nature of innovation through its technological content, degree of novelty, objectives, modalities of product innovation and innovation variety.

Chapter two is given over to the different facets of innovation organisation: its actors, processes, cost, duration, research and development component, collaborations forged through innovation projects, different sources of information and expertise mobilised, and means of protection implemented.

Finally, the shorter third chapter is devoted to an account of the main constraints on innovation.

# CHAPTER 1:

# THE NATURE OF INNOVATION

The aim of this chapter will be to clarify the nature of innovation in service industries. This question is approached in different ways, firstly, by using a typology inspired by Schumpeter (product, process, organisation, external relationship), and then, by changing the analytical perspective, particularly in such a way as to reveal other possible types and modalities of innovation (ad hoc innovations, recombination innovations, etc.). Innovation is also approached from the point of view of its relationship with technology (or its technological content), its degree of novelty, its objectives, its degree of variety, etc.

More precisely, Chapter 1 is based on the following questions and topics which correspond, in order, to the different sections within the chapter.

1) frequency of innovations, firstly for all categories, then according to the proposed typology of innovation forms (product innovation, process innovation, organisational and external relationship innovation). These frequencies are based on different periods and years;
2) technological content of innovation;
3) degree of novelty of the innovation;
4) objectives pursued through innovation;
5) the nature of innovation from a perspective different from the Schumpeterian typology previously used;
6) the variety of innovation, i.e. the diversity of the types of innovation introduced by a given firm.

Each of these themes will be examined, firstly, from a global point of view, then by taking such variables as type of service activity and firm size into account.

## 1. Involvement in innovation activity

In this section, we will give an account of firms' involvement in innovation activity. This question applies to different periods (cf. Table 1), firstly in a general manner (introduction of an innovation, whatever its form), then for each innovation category according to the typology used (product, process, organisational and external relationship innovation).

• During the period 1992-1995, 66.35% of the firms in our sample (n=324) innovated, i.e. introduced at least one innovation, of whatever form. More firms introduced product innovations (57.10%) or process innovations (40.74%) than organisational innovations (27.78%) or external relationship innovations (21.60%).

• This general trend (decrease in the proportion of firms introducing each of the above types of innovation, respectively) held true in 1996 and 1997[4], even though, in these two years, the proportion of innovative firms was larger, in all scenarios. However, this increase in innovating firms (which could be called "catching-up"), was due to a relatively larger increase in those types of innovation introduced the *least* frequently over the preceding period, i.e. organisational innovations and external relationship innovations. This "catch-up" or acceleration of certain types of innovation activity must not be interpreted too hastily. It could simply be that heads of the firms replying to our questionnaire have a clearer memory of recent years. Problems of drawing a line between the different types of innovation (different individuals making different interpretations) could also be a factor.

• During the period 1992-1996, the ordinal relationship according to innovation type remained the same. More than 80% of firms introduced innovations. A larger share firms introduced product or process innovations than organisational or external relationship innovations.

• Looking at the period 1992-1997 as a whole, 86% of firms introduced at least one innovation, of the different types proposed. A little under 14% did not carry out any innovation. Over this period, more than three quarters of the firms introduced product innovations; 70.37% introduced process innovations; 59.26% organisational innovations; and 52.47% external relationship innovations.

• The majority of the firms which innovated during the period 1992-1996 continued to innovate in 1997 (88.46%). Three quarters of those which introduced product innovations between 1992 and 1996 also did so in 1997; 60% of those which introduced process innovations continued to carry out this type of innovation in 1997. The proportions regarding organisational innovations and external relationship innovations were, respectively, just under half and just over half.

| | Product | | Process | | Organisation | | Ext. relationship | | All types | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1992-1995 | 185 | 57.10% | 132 | 40.74% | 90 | 27.78% | 70 | 21.60% | 215 | 66,35% |
| 1996 | 197 | 60.80% | 153 | 47.22% | 121 | 37.35% | 104 | 32.10% | 245 | 75,62% |
| 1997 | 192 | 59.26% | 148 | 45.68% | 112 | 34.57% | 108 | 33.33% | 249 | 76,85% |
| 1992-1996 | 228 | 70.37% | 199 | 61.42% | 158 | 48.77% | 135 | 41.67% | 260 | 80,25% |
| 1992-1997 | 247 | 76.23% | 228 | 70.37% | 192 | 59.26% | 170 | 52.47% | 279 | 86,11% |
| 1992-1996 et 1997 | 173 | 75.88% | 119 | 59.80% | 78 | 49.37% | 73 | 54.07% | 230 | 88,46% |

**Table 1**: Involvement in innovation activity for different periods and years (shares of firms in the sample (n=324) which introduced innovations).

To conclude this point, we will recap:

1) over the last five years, more than 86% of the firms in our sample innovated;

2) there is a descending ordinal relationship between the share of firms which introduce product, process, organisational and external relationship innovations;

[4] In reality, since 1997 had not come to a close when we carried out our survey, for this particular year, the innovations may still have been under way.

3) recently, organisational innovations and, particularly, external relationship innovations seem to be "catching up", without, however, altering the existing hierarchy.

However, these conclusions, and particularly the ordinal relationship between the different types of innovation, must be qualified by a number of remarks. There are, indeed, formidable empirical and theoretical problems of marking the boundaries between the different types of innovation in the typology used:

- It is difficult, in service industries, to distinguish product from process. There is therefore room for differences in interpretation. However, to clarify the analysis, it can be said that, even though the product/process distinction is difficult, examination of our questionnaire's open question on the listing and description of concrete examples of innovations suggests that, in the majority of cases, the following analytical distinctions are being used more or less systematically:

• A new service function (new service characteristics, new service specifications) based on existing processes and systems is considered to be a product innovation.

• An existing service function (existing service characteristics, service specifications) drawing on new systems or processes is generally considered to be a process innovation.

• When the service function and corresponding process are both new, the problem of assigning an innovation category is more difficult. However, most of the managers who replied to our questionnaire regarded this as a product innovation. It can therefore be concluded that, in this case, process innovation is being underestimated.

In other words, on the whole, product innovation covers situations both where the process component is unchanged for the new functional specifications (in absolute or relative value), and where the two components (processes and functionalities) are new.

- It is also difficult, in service industries, to distinguish between process and organisation, because the process can, in services, be intangible, and in fact correspond to organisational modalities and arrangements which produce service characteristics.

- There are also particular product innovations (which we have termed *ad hoc innovations*), but also, more generally, tailor-made innovations which do not fit into the Schumpeterian typology used. We will return to this important question (particularly when considering knowledge-intensive business services) in Section 5 of this chapter.

- An external relationship innovation can also be interpreted as a "new service". Indicators of this ambiguity can be found by comparing objectives of product innovation and those of external relationship innovation. Some objectives generally considered to be most characteristic of product innovation (namely, opening up new markets, increasing market share, satisfying client needs) are indeed also cited amongst the main objectives of external relationship innovations (cf. Section 4 of this chapter).

Thus, the order in which the different types of innovation are ranked (in terms of frequency) may be affected by the problem of distinction between product, process, organisation and external relationship. Given these boundary problems, if, for example, external relationship innovations had not been included, the incidence of the other types of innovation, especially

process and organisational innovations but also, to a lesser extent, product innovations, probably would have been higher. The order in which product innovation and process innovation ranked could also have been reversed if different definitions of organisation and external relationship had been used.

All things being equal, one could thus try to envisage - but we will not do so here - the effect that different definitions of innovation would have on the innovation frequency "hierarchy"; i.e. if we were to consider as synonyms firstly, process and organisational innovation, then process, organisational and external relationship innovations, then process and external relationship innovations, and, finally, organisational and external relationship innovations.

### 1.1 Involvement in innovation activity according to service type

Table 2 shows the shares of firms which introduced innovations of different types, according to the service activities in which they are engaged. Only the period 1992-1997 is examined here.

The following results must be interpreted with caution, because of the limited size of certain sub-samples.

• Firstly, if we examine innovation as a whole (all categories taken together), all the industries studied (i.e. financial services, consultancies, operational services, hotel/catering and retailing) contain roughly equal shares of innovative firms (all around the 83% to 90% mark).

However, in the consultancy field, there are differences according to the activity in question. Thus, legal services seem globally to be the least innovative (69%), while management consultancy is among the most innovative (97% of firms).

• There do not seem to be significant differences between the main industries studied (financial services, consultancy, operational services, hotel/catering and retailing) in terms of product innovation. With the exception of hotel/catering/retailing, where the rate is slightly higher (82.14%), the proportion of firms to have introduced product innovations hovers around 75%.

However, within the most heterogeneous of these "large" sectors, certain differences appear according to activity: for example, all the insurance companies introduced product innovations; in consultancy, four sub-groups can be distinguished, the existence of which would have to be confirmed by analysing larger sub-samples:

- a sub-group consisting solely of legal consultancy, characterised by a very low rate of product innovations (the lowest of our sample);

- a sub-group comprising recruitment and training consultancy, which ranks below both the sample average and the consultancy average;

- a sub-group comprising information technology services, market research, advertising and communications consultancy. 80% of the firms in this sub-group introduced product

innovations, placing them above the average in consultancy and, indeed above the average of the sample as a whole;

- finally, a subset consisting of management consultancy, in which 90% of firms introduced product innovations.

How should these differences in consultancy firms be interpreted?

- The low score of legal consultancy (if we accept that it is significant, given the modest size of the corresponding sample) could stem from the difficulty of applying the notion of "product" innovation to an activity which deals with expertise (in this case, legal expertise). In reality, in legal services, there are two types of innovation which we consider to be product innovations, but which do not conform to the conventional definition: *ad hoc innovation* which consists of bringing an original, unprecedented and partially reproducible legal solution to a client's problem; and *anticipatory innovation*, which can be defined as the opening up of a new field of expertise.

The first type is relatively frequent. But, its particular nature, i.e. its ad hoc character, is not conducive to survey participants counting it as a product innovation in the usual sense of the term. Although in the qualitative interviews preceding the survey, managers generally considered this ad hoc activity (which goes beyond their routine activity of solving problems) to be an innovation, they often found it difficult to integrate it into an innovation typology.

The second type (which we have termed "anticipatory innovation", but which could also more simply be called "new field of expertise") is closer to the notion of "product" in the traditional sense, and is far less frequent, as it is subject to the general long-term evolution of the technological, institutional, social and economic environment, etc. To take just one example, the invention of information technologys has given rise to IT law consultancy: a new field of expertise, a new market, a new "product".

- The high score achieved by management consultancy and market research can be explained by their greater familiarity with innovation typologies and surveys. The equally high score of information technology consultancy also doubtlessly stems from its close ties with material technologies and traditional manufacturing typologies (production of "products" in the material sense of the term). The relatively lower score obtained by recruitment and training consultancy can be explained by the nature of the service medium, i.e. the individual (and would certainly be even lower if training services, which can more easily be analysed in terms of product, were excluded).

• The share of firms which introduced process innovations during the period 1992-1997 is larger in operational services (83%), and hotel/catering and retailing than in financial services. The lowest score was in consultancy services (67%).

If the different activities involved in each industry are examined in more detail (but with the caution required for this limited sample), it can be seen that:

- (almost) as many insurance companies introduce process innovations as product innovations; the same goes for hotel/catering and retailing;

- in the category of consultancy, the highest incidence of process innovations is in advertising/communications, market research and recruitment consultancy. But, globally, the differences between the various consultancy activities are smaller for process innovation than for product innovation.

• The largest share of firms to have introduced organisational innovations is in the operational services industry. Financial services come second, followed by hotel/catering and retailing. The lowest score for organisational innovation is in consultancy services. A paradox must be pointed out here, which could be called a "*shoemaker's paradox*", in that the (relative) weakness of consultants (or some of them) in the main activity for which they are called upon by their clients, i.e. organisational change, is reminiscent of the proverbial shoemakers' wives always being the worst shod.

A comparison of the scores for product innovation and process innovation shows that the differences between these two types, according to service activity, are far smaller for product innovation than they are for process innovation.

• Another paradox emerges, concerning "external relationship innovations". In relative value, fewer consultancy firms (all categories taken together) introduce this type of innovation than firms in financial services, operational services and hotel/catering/retailing (45% for consultancy, versus more than 60% for each of the other cases). Thus, it seems that firms providing services considered to be the most "pure", where the (external) service relationship is the most important dimension, are also those who, proportionally, introduce the fewest external relationship innovations.

A horizontal reading of Table 2 confirms that the ordinal relationship (that has already been highlighted several times) between the shares of firms which introduced product, process, organisational and external relationship innovations holds true for financial services (78.85%, 73.08%, 69.23%, 65.38% respectively) and consultancy services (74.88%, 66.98%, 53.95%, 45.53% respectively). It is also partially true of hotel/catering and retailing: it stands for the first three terms of the typology (product, process, organisational), but proportionally more firms in these fields introduced external relationship innovations than organisational innovations.

This order does not, however, hold true for operational services (75.86%, 82.76%, 82.76%, 65.52% respectively for product, process, organisational and external relationship innovations). This result merits highlighting, as it is only in the field of operational services that process and organisational innovations prevail over product innovations.

| | N | Product | | Process | | Organisation | | Ext. Relationship | | All types | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Banking | 21 | 16 | 76.19% | 13 | 61.90% | 14 | 66.67% | 13 | 61.90% | 17 | 47.19% |
| Insurance | 17 | 17 | 100.00% | 16 | 94.12% | 15 | 88.24% | 14 | 82.35% | 17 | 100% |
| Insurance brokers | 12 | 7 | 58.33% | 8 | 66.67% | 7 | 58.33% | 7 | 58.33% | 8 | 66.67% |
| Real estate services | 2 | 1 | 50.00% | 1 | 50.00% | 0 | 0.00% | 0 | 0.00% | 1 | 50% |
| Financial services | 52 | 41 | 78.85% | 38 | 73.08% | 36 | 69.23% | 34 | 65.38% | 43 | 82.69% |
| Legal consultancy | 29 | 10 | 34.48% | 18 | 62.07% | 11 | 37.93% | 9 | 31.03% | 20 | 68.97% |
| IT services | 51 | 43 | 84.31% | 32 | 62.75% | 35 | 68.63% | 30 | 58.82% | 43 | 84.32% |
| Management consultancy | 35 | 32 | 91.43% | 23 | 65.71% | 19 | 54.29% | 15 | 42.86% | 34 | 97.14% |
| Market survey consultancy | 53 | 43 | 81.13% | 38 | 71.70% | 24 | 45.28% | 24 | 45.28% | 47 | 88.68% |
| Advertising-communication consultancy | 12 | 10 | 83.33% | 9 | 75.00% | 9 | 75.00% | 7 | 58.33% | 12 | 100% |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Recruitment and training consultancy | 35 | 23 | 65.71% | 24 | 68.57% | 18 | 51.43% | 13 | 37.14% | 29 | 82.86% |
| Total consultancy | 215 | 161 | 74.88% | 144 | 66.98% | 116 | 53.95% | 98 | 45.58% | 185 | 86.05% |
| Contract cleaning | 12 | 7 | 58.33% | 8 | 66.67% | 10 | 83.33% | 7 | 58.33% | 10 | 83.33% |
| Temp agencies | 1 | 1 | 100.00% | 1 | 100.00% | 1 | 100.00% | 1 | 100.00% | 1 | 100% |
| Other operational services | 7 | 7 | 100.00% | 7 | 100.00% | 6 | 85.71% | 6 | 85.71% | 7 | 100% |
| Transport | 9 | 7 | 77.78% | 8 | 88.89% | 7 | 77.78% | 5 | 55.56% | 8 | 88.89% |
| Operational services | 29 | 22 | 75.86% | 24 | 82.76% | 24 | 82.76% | 19 | 65.52% | 26 | 89.66% |
| Hotels-catering-retailing | 28 | 23 | 82.14% | 22 | 78.57% | 16 | 57.14% | 19 | 67.86% | 25 | 89.29% |
| Total | 324 | 247 | 76.23% | 228 | 70.37% | 192 | 59.26% | 170 | 52.47% | 279 | 86.11% |

**Table 2**: Innovation according to service activity (shares of firms in the different industries to have innovated during the period 1992-1997).

### 1.2 Involvement in innovation activity according to firm size

The size of the firm as an important factor in innovation is confirmed by this study. Table 3 shows that proportionally fewer small firms innovate than large firms. This general result also stands for each of the innovation types in the typology used. Thus, in all cases (product, process, organisational and external relationship), proportionally fewer small firms (with fewer than 50 employees) innovate than those with more than 50 employees. The difference *between* the two groups is great, but less *within* each of them.

Moreover, the ordinal ranking (product, process, organisation, external relationship) globally does not change with the size factor.

| Type of innovation<br>Size of the firm | N | Product | | Process | | Organisation | | Ext. Relationship | | All types | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 150 | 100 | 66.67% | 79 | 52.67% | 51 | 34.00% | 46 | 30.67% | 112 | 74.67% |
| 20 - 49 | 65 | 37 | 56.92% | 35 | 53.85% | 30 | 46.15% | 26 | 40.00% | 47 | 72.31% |
| 50 - 199 | 53 | 44 | 83.02% | 45 | 84.91% | 37 | 69.81% | 29 | 54.72% | 51 | 96.23% |
| 200 and more | 52 | 45 | 86.54% | 38 | 73.08% | 39 | 75.00% | 32 | 61.54% | 47 | 90.38% |

**Table 3**: Innovation according to firm size (shares of different-sized firms which introduced innovations).

### 1.3 The number of innovations and its evolution

Enumerating innovations is a very difficult exercise, posing serious conceptual and practical problems. It is therefore unsurprising that the no response rate to corresponding questions was quite high.

The main conceptual problem is one of defining and delimiting innovation. It is now often accepted that innovation is not a definitive result, with stable and recognised contours, but a process which forms and reforms as it progresses, and which maintains systemic or sequential links with the trajectories of other processes. Enumerating can only be envisaged if the hypothesis of the discrete nature of innovation is borne in mind. This problem, which arises in the field of goods and technological innovation, is multiplied in the case of services, where output, itself imperceptible and hard to define, is an act; a process.

The practical difficulties stem, in part, from these theoretical difficulties: either any counting exercise must be rejected, or (arbitrary) innovation boundaries have to be constructed. To these difficulties must be added the usual "memory" problem, linked to organisations' turnover and size.

In other words, given these theoretical and practical difficulties, the following results must be considered with caution (Table 4). If the frequencies are calculated excluding the "no responses", it transpires that, in 1996, nearly 30% of the firms in our sample did not introduce any product innovations at all. More than 40% introduced one or two; 30% more than three (18% three or four; 12% more than five). For more than 90% of firms (who answered this question), the number of product innovations is higher than or equal to what it was five years ago (Table 5).

Just over 40% of firms did not introduce any process innovations; nearly half introduced one or two; apparently very few introduced three or more. Again, nearly 90% of firms maintained or increased the number of innovations in relation to 5 years ago.

More than half of the firms declared not to have introduced any organisational innovations, 42% said they had introduced one or two; only 6% introduced more than three. Few firms had introduced fewer organisational innovations than 5 years ago. The great majority (more than 90%) had introduced as many or more.

Finally, 57% of the firms in our sample did not introduce any external relationship innovations; 35% one or two, 8% more than three. The difference in relation to 5 years ago is the same as for the other forms of innovation.

These results are globally consistent with those established in Section 1 (Table 1, Innovation in 1996).

| Number of innovations<br>Types of innovation | N | 0 | | 1 | | 2 | | 3 and more | |
|---|---|---|---|---|---|---|---|---|---|
| Product | 175 | 52 | 29.71% | 42 | 24.00% | 30 | 17.14% | 51 | 29.14% |
| Process | 177 | 77 | 43.50% | 57 | 32.20% | 30 | 16.95% | 13 | 7.34% |
| Organisation | 168 | 88 | 52.38% | 54 | 32.14% | 16 | 9.52% | 10 | 5.95% |
| External relationship | 172 | 98 | 56.98% | 48 | 27.91% | 12 | 6.98% | 14 | 8.14% |

**Table 4**: Number of the different types of innovations introduced in 1996

| Number of innovations<br>Types of innovation | N | More | | Less | | Same number | |
|---|---|---|---|---|---|---|---|
| Product | 225 | 126 | 56.00% | 12 | 5.33% | 87 | 38.67% |
| Process | 226 | 101 | 44.69% | 26 | 11.50% | 99 | 43.81% |
| Organisation | 215 | 91 | 42.33% | 18 | 8.37% | 106 | 49.30% |
| External relationship | 213 | 92 | 43.19% | 12 | 5.63% | 109 | 51.17% |

**Table 5**: Evolution in the number of innovations introduced in 1996 in relation to 5 years ago.

To conclude this point, we will summarise the main findings:

1) firms were rarely involved in more than two process, organisational, external relationship innovations;

2) for these three types of innovation, the most frequent value (mode) for innovative firms is one innovation. However, there is a large difference (in favour of process innovations) between the share of firms which introduced two organisational or external relationship innovations and the share of firms which introduced two process innovations. This means that firms rarely embarked upon more than one organisational or external relationship innovation in 1996;

3) for product innovations, the most frequent value cited by innovating firms (mode) is "three innovations or more". A more detailed breakdown, which does not appear in Table 4, shows that 18% of firms introduced three or four innovations, 12% more than five. In other words, it would seem that the highest yearly average occurs in the area of "product" innovations;

4) the following hierarchy: product, process, organisational, external relationship (established according to the share of firms which introduced innovations of each of these types) is confirmed here;

5) whatever the type of innovation in question, there is never a trend towards a decrease in the number of innovations introduced in 1996 as compared to five years ago. In the majority of cases, the number has remained steady or increased.

## 2. Technological content of innovation.

We will discuss here a central point of our study. The importance of technology (in the sense of material systems) in innovation in service firms will be assessed.

If only the firms which were innovative over the period 1992-1997 are considered, (regardless of the type of innovation considered) we find that (Table 6):

- 66.31% of firms (n=279) introduced "innovations in which technology plays no part whatsoever", which will hereafter be called "*non-technological innovations in the strict sense"*;

- 70.61% introduced "non-technological innovations, but which could not be realised without recourse to technologies", hereafter "*non-technological innovations in the wide sense*";

- 65.23% introduced "material hardware, innovative technologies" ("*technological innovations*").

Classed in this order, these three types of innovation thus display increasing "*technological intensity*".

The first conclusion that can be drawn from these results is that "non-technological innovation in the strict sense" has an important place in service industries. Innovation in

services can therefore not be reduced to the simple adoption or production of technological innovations, i.e. technical systems.

If “non technological innovations in the strict sense” and “non-technological innovations in the wide sense” are grouped together, it becomes clear that non-technological innovation is by far the major form of innovation in service industries. Indeed, 92.83% of firms introduced non-technological innovations (thus defined).

However, the technological element varies according to the type of innovation introduced.

• The share of firms which introduced “innovations in which technology plays no part” (non-technological innovations in the strict sense) is the largest in product/service innovations, organisational innovations and external relationship innovations (36.62%, 39.43%, and 30.11% respectively). However, only 11.83% of firms introduced process innovations “in which technology plays no part”.

These basic results prompt several remarks:

- Product/service and, to a certain extent, external relationship innovations are the most interesting cases, as there is nothing new or surprising about the fact that organisational innovations are “intangible”.

- The fact that fewer firms introduced process innovations “in which technology plays no part” should not be regarded as a tautology. Admittedly, process innovation is often confused with the introduction of technical systems. However, the information collected here is important (and new) in two respects: process innovation is not necessarily technological, it can be intangible (e.g. consultants’ methods) and the share of firms introducing this type of innovation is far from negligible (around 12%).

• Non-technological innovation in the wide sense scored highly, particularly in terms of product innovation and process innovation. Indeed, 43.37% of innovating firms introduced product innovations, and 30.11% process innovations, regarded as “non-technological changes which cannot be realised without recourse to technology”.

• If no distinction is made between the two variants of non-technological innovation, nearly 70% of firms introduced non-technological product innovations; 62% non-technological organisational innovations; 48% non-technological external relationship innovations and 41% non-technological process innovations.

• All these remarks, however, must not lead to technological innovation being underestimated. Indeed, more than 20% of innovative firms introduced product innovations corresponding to technical systems in the usual sense of the term. However, and this is no surprise, the technological dimension is most established in process innovations. Indeed, more than half of the innovative firms introduced process innovations which were material technologies, hardware.

The result for organisational innovations in terms of technological content (low, but positive, nevertheless), to our mind reflects the analytical problems of the boundary between process innovation and organisational innovation.

A vertical reading of Table 6 shows that:

- the share of innovating firms which introduced non technology-intensive product innovations is far larger than the proportion which introduced technology-intensive product innovations;

- the share of firms which introduced non technology-intensive process innovations is smaller than the share which introduced technology-intensive process innovations.

- in the case of organisational innovations and external relationship innovations, the non-technological dimension prevails over the technological dimension.

| | Product | | Process | | Organisation | | External relationship | | All types | |
|---|---|---|---|---|---|---|---|---|---|---|
| Non technological innovation in the strict sense | 91 | 32.62% | 33 | 11.83% | 110 | 39.43% | 84 | 30.11% | 185 | 66.31% |
| Non technological innovation in the wide sense | 121 | 43.37% | 84 | 30.11% | 73 | 26.16% | 55 | 19.71% | 197 | 70.61% |
| *Non technological innovation in both senses* | *194* | *69.51%* | *114* | *40.86%* | *173* | *62%* | *133* | *47.67%* | *259* | *92.83%* |
| Technological innovation | 60 | 21.51% | 140 | 50.18% | 21 | 7.53% | 30 | 10.75% | 182 | 65.23% |

**Table 6**: Technological intensity of innovations (shares of firms which introduced innovations of different technological intensity in relation to all the innovating firms over the period 1992-1997 (n=279)).

## 2.1 Technological content of innovation according to service activity

• In the case of innovation as a whole (without distinction of type), Table 7 suggests the following results:

- regarding non-technological innovation in the strict sense, there do not seem to be any significant differences between the different service industries. The percentages of firms which introduced innovations of this type hovers around 65% for each of the service activities.

- examining non-technological innovation in the wide sense reveals differences between the various service industries. Indeed, proportionally fewer consultancy firms introduced this type of innovation;

- if no distinction is made between the above categories, the proportion of firms to have introduced non-technological innovations is always higher than 90%, with the exception of firms in hotel/catering/retailing (88%);

- differences appear, according to the industry in question, in terms of technological innovations. Indeed, proportionally fewer consultancy firms and financial services seem to introduce this type of innovation;

- the greatest difference between the share of firms which introduced non-technological innovations and those which introduced technological innovations is in consultancy (and financial services);

• In terms of product innovation, proportionally more financial services firms, hotel/catering and retailing firms than consultancy and operational services firms introduced non-technological product innovations (both in the strict and wide sense). Proportionally more operational service firms and consultancy firms introduced technological product innovations than the other types of firm. There is an important paradox here, namely the relatively high degree of technological intensity found in consultancy activities. The high technological intensity can be explained by information technology consultancy. Indeed, if information technology consultancy were to be excluded, the share of consultancy firms to have introduced technological innovations (i.e. 23.78%) would decrease to 9%.

• The highest share of firms to have introduced non-technological process innovations is in consultancy. This particularly concerns different types of methods developed by consultants. However, technological process innovation also scores highly, particularly in operational services and hotel/catering and retailing, but also in financial services. The share of operational services firms which introduced non-technological process innovations (in the wide sense) is larger than that of firms from the other industries. The lowest score is that of consultancy.

• Nearly 60% of financial services firms introduced organisational innovations in which technology plays no part, whilst only a little over or a little under a third in the other industries did so.

• Finally, regardless of the field of activity concerned, around 30% of the innovative firms introduced external relationship innovations with zero technological intensity. The same proportion (except for consultancy: 15%) introduced external relationship innovations of intermediate technological intensity. However, in terms of technological innovation (high technological intensity), financial services, hotel/catering and retailing prevailed over the other service industries.

Reading Table 7 vertically reveals a number of differences for the two main industries in our sample in terms of the technological intensity of innovation :

• In financial services, the non-technological dimension (in both the strict sense and wide sense) predominates in product innovations and organisational innovations; the technological dimension predominates in process innovations. In external relationship innovations, the three dimensions intervene in relatively equal proportions.

• In consultancy, the presence of information technology consultancy leads to increased technological intensity in product innovation, but the non-technological dimension continues to predominate, as it does in the case of organisational and external relationship innovations. On the other hand, although non-technological process innovation scores most highly in this industry, the technological dimension in process innovation nevertheless predominates.

| | | Financial services | Consultancy | Operational services | Hotels-catering retailing | Total |
|---|---|---|---|---|---|---|
| Product innovation | Non technological in the strict sense | 39.53% | 31.35% | 23.08% | 40,00% | 32.62% |
| | Non technological in the wide sense | 65.12% | 38.38% | 34.62% | 52,00% | 43.37% |
| | Technological | 0.00% | 23.78% | 42.31% | 20,00% | 21.51% |
| Process innovation | Non technological in the strict sense | 6.98% | 15.14% | 0.00% | 8,00% | 11.83% |
| | Non technological in the wide sense | 34.88% | 26.49% | 42.31% | 36,00% | 30.11% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Technological | 62.79% | 41.08% | 73.08% | 72,00% | 50.18% |
| Organisational innovation | Non technological in the strict sense | 58.14% | 36.22% | 34.62% | 36,00% | 39.43% |
| | Non technological in the wide sense | 13.95% | 22.70% | 61.54% | 36% | 26.16% |
| | Technological | 9.30% | 6.49% | 15.38% | 4,00% | 7.53% |
| Ext. relationship innovation | Non technological in the strict sense | 27.91% | 30.81% | 30.77% | 28,00% | 30.11% |
| | Non technological in the wide sense | 30.23% | 14.59% | 26.92% | 32,00% | 19.71% |
| | Technological | 25.58% | 5.95% | 11.54% | 20,00% | 10.75% |
| All types | Non technological in the strict sense | 67.44% | 66.49% | 61.54% | 68% | 66.31% |
| | Non technological in the wide sense | 81.40% | 65.95% | 76.92% | 80% | 70.61% |
| | *Non technological in both senses* | *97.67%* | *91.90%* | *96.15%* | *88%* | *92.83%* |
| | Technological | 69.77% | 60.54% | 80.76% | 76% | 65.23% |
| | | 43 | 185 | 26 | 25 | 279 |

**Table 7**: Technological content according to service activity (shares of firms in the different industries which introduced innovations of different technological content).

## 2.2 Technological content of innovation according to firm size

The share of innovating firms (over the period 1992-1997) which introduced innovations in which technology plays no part (non-technological innovation in the strict sense) increases with the size of the firm. But this is also true, to a certain extent, of firms which introduced technological innovations and non-technological innovations in the *wide* sense. In other words, whatever the technological content, large firms innovate more than small firms. This consolidates the general result that frequency of involvement in innovation increases with the size of the firm.

Regardless of their size, proportionally more firms generally tend to introduce non-technological innovations in the strict or wide sense than technological innovations.

| Technological content<br>Size of the firm | N | Non technological innovation in the strict sense | | Non technological innovation in the wide sense | | Technological innovation | |
|---|---|---|---|---|---|---|---|
| 1-19 | 123 | 76 | 61.79% | 82 | 66.67% | 71 | 57.72% |
| 20 - 49 | 52 | 34 | 65.38% | 34 | 65.38% | 32 | 61.54% |
| 50 - 199 | 52 | 35 | 67.31% | 43 | 82.69% | 40 | 76.92% |
| 200 and more | 48 | 41 | 85.42% | 37 | 77.08% | 36 | 75.00% |

**Table 8**: Technological content of innovation according to firm size.

Some slight differences must, however, be pointed out. The proportion of the largest firms in our sample (firms with more than 200 employees) which introduced innovations in which technology plays no part is larger than the proportion of those which introduced non-technological innovations in the wide sense. The result is reversed for the smallest firms (fewer than 20 employees) in our sample, although the difference is relatively slight.

## 3. Degree of novelty of the innovation

The prevailing idea in literature, and one which we will examine here, is that service firms imitate a lot, and are much imitated. The reign of this "law of imitation" (in the words of Gabriel de Tardes, 1890) is due to the fact that service functions and functional specifications (service characteristics) are constantly changing and impossible to appropriate.

Consequently, this would suggest that radical innovation would be rare, and that minor or incremental innovation would predominate.

Over the period of reference (1992-1997), and if no distinction is made between the different types of innovation, the survey shows that (Table 9):

- 67% of firms introduced innovations by imitating competitors from the same industry (intra-sectoral imitation);

- 46.6% of firms introduced innovations through a process of extra-sectoral imitation, i.e. imitating competitors from other industries;

- If the two possible sources of imitation are not differentiated, 79.57% of firms introduced innovations through imitation;

- 43.37% of firms introduced innovations which consisted of adopting or acquiring innovations produced by others;

- finally, 54.45% of firms conceived and introduced innovations themselves, in a genuinely creative effort.

Thus, it appears that, in the majority of cases, firms content themselves with imitating the innovations of others, whether it be intra-sectoral or extra-sectoral imitation. However, personal creation is not rare, and moreover, our qualitative studies have shown that imitation does not always amount to a simple transfer, but always contains a degree of adaptation to the specificity of the firm and its internal and external environments. This means that the "copy" often differs from the original.

In terms of the degree of novelty of the innovation, there are large variations according to the type of innovation (as was the case with technological content).

Imitation from within the same industry concerns each of the different innovation types in roughly equal proportions. A little over or a little under 30% of innovative firms (n=279) introduced product, process, organisational or external relationship innovations resulting from intra-sectoral imitation.

Imitation of firms from other industries concerns organisational innovations (18.64%) and process innovations (24.73%) more than product innovations (13.26%). On the face of it, this is not surprising, given that processes and organisation are probably less specific to a given field than products.

Imitation, whether intra- or extra-sectoral, is the principal source of innovation, and concerns each type of innovation roughly equally, with a slight drop in the case of external relationship innovation.

Innovation as adoption or acquisition of innovation produced by others, concerns process innovation more than the other forms, which is also not surprising.

"More personal and original conception" concerns product innovation far more than the other types. 41.22% of the innovative firms conceived product innovations themselves, whereas

the figure was only 16.49% for process innovations, 12.54% for organisational innovations, and 11.47% for external relationship innovations.

Reading table 9 vertically allows us to draw the following conclusions:

- the proportion of innovative firms which introduced completely original product innovations (i.e. that they were the first to conceive) is larger than the proportion of firms which introduced product innovation simply through intra- or extra-sectoral imitation or adoption. If the two sources of imitation are taken together, conception and imitation (intra- or extra-sectoral) achieve comparable results;

- the share of innovative firms which introduced process innovations which they imitated (from firms in the same industry) or adopted is larger than the share which conceived this type of innovation or imitated other industries;

- Finally, firms behave similarly in relation to organisational and external relationship innovations. The proportion of firms which introduced these types of innovation through imitation is larger than the proportion which adopted them or conceived them themselves.

| | Product | | Process | | Organisation | | External relationship | | All types | |
|---|---|---|---|---|---|---|---|---|---|---|
| Imitation of the same sector | 94 | 33.69% | 81 | 29.03% | 88 | 31.54% | 74 | 26.52% | 187 | 67.02% |
| Imitation of other sectors | 37 | 13.26% | 52 | 18.64% | 69 | 24.73% | 46 | 16.49% | 130 | 46.60% |
| *Imitation all sectors* | *118* | *42.30%* | *122* | *43.73%* | *126* | *45.16%* | *107* | *38.35%* | *222* | *79.57%* |
| Adoption | 39 | 13.98% | 76 | 27.24% | 28 | 10.04% | 22 | 7.89% | 121 | 43.37% |
| Conception | 115 | 41.22% | 46 | 16.49% | 35 | 12.54% | 32 | 11.47% | 152 | 54.45% |

**Table 9**: Degree of innovation novelty (n=279; shares of innovative firms to have introduced innovations of different degrees of novelty).

### 3.1 Degree of innovation novelty according to service activity

Firstly, if the degree of novelty is examined, without distinction of innovation types, we find that:

- financial services contain the largest share of firms which imitated innovation by firms within the same industry or by firms from all other industries taken together; hotel/catering/retailing has the largest share of firms to have imitated from other industries;

- consultancy has the smallest share of firms to have introduced adopted innovations;

- operational services have the largest share of firms to have conceived their own innovation.

• For each of the separate industries, imitation is the main source of innovation. Intra-sectoral imitation, with the exception of hotel/catering and retailing, is always more common than extra-sectoral imitation.

• The second source of innovation is “conception” in all cases except hotel/catering and retailing, where adoption takes second place.

In the case of product innovation, firms most likely to introduce a product innovation arising from imitation are in the financial services industry (51.16%). The scores for the other industries are lower: slightly over 30% of firms. The highest frequencies of radical innovations (conception) are in consultancy (43.78%). In this domain (radical product innovation), operational services achieve the lowest score.

In the case of process innovation, consultancy and operational services contain the largest shares of firms to have introduced radical novelty.

| | | Financial services | Consultancy | Operational services | Hotels-catering retailing | Total |
|---|---|---|---|---|---|---|
| Product innovation | Imitation of the same sector | 51.16% | 30.27% | 34.62% | 33,69% | 33.69% |
| | Imitation of other sectors | 6.98% | 10.27% | 26.92% | 13,26% | 13.26% |
| | Adoption | 9.30% | 16.22% | 7.69% | 13,98% | 13.98% |
| | Conception | 34.88% | 43.78% | 26.92% | 41,22% | 41.22% |
| Process innovation | Imitation of the same sector | 23.26% | 32.97% | 19.23% | 29,03% | 29.03% |
| | Imitation of other sectors | 18.60% | 16.76% | 26.92% | 18,64% | 18.64% |
| | Adoption | 39.53% | 21.62% | 38.46% | 27,24% | 27.24% |
| | Conception | 20.93% | 14.05% | 26.92% | 16,49% | 16.49% |
| Organisational innovation | Imitation of the same sector | 32.56% | 33.51% | 30.77% | 31,54% | 31.54% |
| | Imitation of other sectors | 41.86% | 17.30% | 42.31% | 24,73% | 24.73% |
| | Adoption | 6.98% | 10.81% | 11.54% | 10,04% | 10.04% |
| | Conception | 11.63% | 10.27% | 26.92% | 12,54% | 12.54% |
| External relationship innovation | Imitation of the same sector | 41.86% | 25.95% | 15.38% | 26,52% | 26.52% |
| | Imitation of other sectors | 13.95% | 13.51% | 23.08% | 16,49% | 16.49% |
| | Adoption | 6.98% | 7.57% | 7.69% | 7.89% | 7.89% |
| | Conception | 18.60% | 8.65% | 19.23% | 11.47% | 11.47% |
| All types of innovation | Imitation of the same sector | 76.64% | 67.03% | 65.38% | 52% | 67.02% |
| | Imitation of other sectors | 58.14% | 38.38% | 61.54% | 72% | 46.60% |
| | Imitation all sectors | 88.37% | 77.30% | 84.62% | 76% | 79.57% |
| | *Adoption* | *51.16%* | *38.92%* | *50%* | *56%* | *43.37%* |
| | Conception | 53.49% | 54.05% | 61.54% | 52% | 54.45% |
| | N | 43 | 185 | 26 | 25 | 279 |

**Table 10**: Degree of innovation novelty according to service activity

### 3.2 Degree of novelty according to firm size

The propensity for imitation (i.e. the share of firms to have introduced innovations which they imitated) increases globally with the size of the firm. In other words, large firms imitate more than small firms. Proportionally fewer of the smallest firms "adopt" innovations than the others. In terms of "conception", as many of the smallest firms declare to have introduced "originally-conceived" innovations as the largest firms.

Reading table 11 horizontally reveals that:

- the largest firms in our sample tend to imitate (either intra-sectorally or extra-sectorally) more than adopt or conceive radically original innovations;

- in the smallest firms, the two dominant modalities are intra-sectoral imitation and conception; extra-sectoral imitation being far less frequent.

| Degree of novelty<br>Size of the firms | N | Imitation of the same sector | | Imitation of other sectors | | Adoption | | Conception | |
|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 123 | 77 | 62.60% | 48 | 39.02% | 45 | 36.59% | 69 | 56.10% |
| 20 - 49 | 52 | 35 | 67.31% | 21 | 40.38% | 26 | 50.00% | 25 | 48.08% |
| 50 and more | 100 | 75 | 75% | 60 | 60% | 48 | 48% | 57 | 57% |

**Table 11**: Degree of innovation novelty according to firm size

## 4. General objectives of the innovation

In terms of product innovation, the main objectives pursued by the firms are as follows: extending the range of services (for 64.52% of the firms), satisfying client needs (for 60.57% of firms), opening up new markets (54.48%) and increasing market share (45.52%).

The main objectives of process innovations are adapting to standards and technological evolution (43.01%), seeking flexibility in the production process (36.20%), and reducing costs (labour costs: 34.05%, or other costs: 26.16%). The objective of satisfying client needs also scored highly here (35.13% of the firms), as it did for all the forms of innovation.

Satisfying client needs also came top for organisational innovation and external relationship innovation, followed, in the first case, by the search for flexibility in the production process and reducing labour costs; and, in the second case, by opening up new markets and increasing existing market share.

| | Produit innovation | | Process innovation | | Organisational innovation | | Ext. relationship innovation | |
|---|---|---|---|---|---|---|---|---|
| Replacing services being phased out | 56 | 20.07% | 55 | 19.71% | 21 | 7.53% | 13 | 4.66% |
| Satisfying client needs | 169 | 60.57% | 98 | 35.13% | 83 | 29.75% | 74 | 26.52% |
| Extending the range of services | 180 | 64.52% | 39 | 13.98% | 22 | 7.89% | 42 | 15.05% |
| Making the service less « blurred », more tangible | 49 | 17.56% | 53 | 19.00% | 49 | 17.56% | 32 | 11.47% |
| Opening up new markets | 152 | 54.48% | 37 | 13.26% | 31 | 11.11% | 68 | 24.37% |
| Increasing market share | 127 | 45.52% | 52 | 18.64% | 44 | 15.77% | 65 | 23.30% |
| Adapting to technological standards and evolutions | 52 | 18.64% | 120 | 43.01% | 37 | 13.26% | 19 | 6.81% |
| Making the production process more flexible | 21 | 7.53% | 101 | 36.20% | 69 | 24.73% | 15 | 5.38% |
| Reducing labour costs | 23 | 8.24% | 95 | 34.05% | 59 | 21.15% | 12 | 4.30% |
| Reducing other costs than labour costs | 22 | 7.89% | 73 | 26.16% | 50 | 17.92% | 22 | 7.89% |
| Improving working conditions for employees | 14 | 5.02% | 59 | 21.15% | 52 | 18.64% | 8 | 2.87% |
| Fulfilling or circumventing regulations | 19 | 6.81% | 7 | 2.51% | 5 | 1.79% | 5 | 1.79% |
| Opposing a competitor who has just introduced such an innovation | 24 | 8.60% | 9 | 3.23% | 4 | 1.43% | 10 | 3.58% |

**Table 12:** Innovation objectives (shares of innovating firms (n=279) which regard each of the objectives as important/very important).

The above table prompts other general remarks:

- In the case of product innovation, certain objectives seem to be almost universal (satisfying client needs and extending the range of services are cited by more than 60% of the firms). In all other cases, the different main objectives are rarely cited by more than a quarter of the firms (for organisational innovation and external relationship innovation), and by more than a third of the firms for process innovation.

- Satisfying client needs is one of the most frequently-cited objectives for each type of innovation. This indicates that the firms are, to some extent, marketing-oriented.

- The fact that product innovation and external relationship innovation have largely the same main objectives (namely satisfying client needs, opening up new markets, increasing market share) perhaps reflects the confusion or difficulty (which we have already mentioned) in distinguishing between certain product innovations and certain external relationship innovations.

- Similarly, the high score of "replacing obsolete services" as an objective of process innovation (19.71%) perhaps reflects the confusion or difficulty of distinction between product innovation and process innovation.

## 5. Looking at the nature of innovation from another perspective

Some forms of innovation are not accommodated by the typology used thus far, a typology whose advantages and disadvantages we have already pointed out. To try and circumvent some of these disadvantages, particularly the difficulty in accounting for some particular forms or modalities of product innovation, we have tried to approach the question of innovation in services in a different way. This does not mean that the typology used above will be rejected (i.e. product, process, organisational and external relationship innovations); rather, it will be complemented. This new way of looking at innovation gives precedence to the product, but that is not to say that it neglects the process. Indeed, it considers them to be two inseparable facets of the same economic phenomenon.

We have tried to establish a hierarchy according to a five-point Likert scale: the following propositions are likely to characterise new or improved products/services introduced by firms over the period 1992-1997:

1) New products/services are tailor made (to meet clients' particular needs) and are not standardised.
2) New products/services arise from the combination of elements of existing products/services.
3) New products/services arise from the dissociation of existing products/services.
4) New products/services are created by the firm in close cooperation with the client, which limits the extent to which they can be reproduced.
5) The new product/service is the result of adding a supplementary or peripheral service to an existing service.
6) The originality of the product/service rests more on the way in which it was provided to the client, rather than on its basic function or content.

These different propositions are, in reality, derived from different types of innovation, which we have highlighted in other studies (Gallouj, Djellal, Gallouj, 1997; Gallouj and Weinstein, 1997) and which are, respectively:

1) tailor-made innovation,
2) associative innovation,
3) dissociative innovation,
4) ad hoc innovation,
5) incremental innovation,
6) formalisation innovation (at least, in some of its forms)

This new way of approaching innovation thus enables the degree of novelty of the innovation to be accounted for: it is unlikely (but not impossible) that associative or dissociative innovations, which can be grouped together under the term recombination innovations, will produce radical novelty. But it also enables the existence and extent of certain innovation forms and modalities (which generally lie outside economics theory) to be tested (ad hoc innovation, recombination innovation, incremental innovation, etc.)

• To qualify the new or improved products/services introduced during the period 1992-1997, the innovation modalities most often considered to be important or very important are: tailor-made innovations, combination of existing products/services, addition of supplementary or peripheral services to an existing service (cf. table 13).

• The other innovation modalities expressed by the following propositions: "new products/services are created in close cooperation with the client, which limits the extent to which they can be reproduced"; "new products/services arise from the dissociation of existing products"; "the novelty of the product/service rests more on the way in which it is provided to the client than its basic function or content" are relatively less frequently regarded as important or very important. They do, however, exist as non-negligible innovation modalities.

| Modalities of product/service innovation | Corresponding type of innovation | unimportant/not very important | Important/very important |
|---|---|---|---|
| Tailor-made | tailor-made innovation | 24.12% | 57.89% |
| Association | Associative innovation | 25.88% | 51.75% |
| Dissociation | Dissociative innovation | 70.18% | 11.84% |
| High coproduction and reduced reproducibility | Ad hoc innovation | 44.74% | 27.63% |
| Adjonction | Incremental innovation | 25.44% | 51.75% |
| Delivery mode changed | Formalisation innovation | 53.07% | 25.00% |

**Table 13**: Different modalities of product/service innovation (n = 228; shares of firms to have introduced product/service innovation which regard each of the modalities as unimportant/not very important or important/very important).

To summarise, we will say that product/service innovation is relatively heterogeneous in the field of services. Indeed, it takes particular forms corresponding to the different propositions or modalities given above, to which we gave the following names: tailor-made innovation, associative innovation, dissociative innovation, ad hoc innovation, incremental innovation, formalisation innovation.

The existence of dissociative, ad hoc and formalisation innovations is borne out by the survey, but these forms of innovation seem to have a less important place than the qualitative studies we have carried out up to now would have led us to expect. So how should these results be interpreted?

+ We would like to stress that these results tend to confirm the existence of this type of innovation, which is, in itself, an interesting enough result. It can thus be considered to be, to a certain extent, empirical confirmation of the existence of types of innovation rejected by traditional economic theory.

+ Moreover, these types of innovation are probably more common than these figures would suggest. Indeed, ad hoc innovation, precisely because of its ad hoc nature, cannot easily be assigned to one category or another, as a postal survey requires. The margin of interpretation of a concept which has not gained acceptance through practice is great. Therefore, some respondents probably confronted the definition of this type of innovation from the point of view of their implicit (and rigidified) conception of product/service innovation and thus rejected the corresponding proposition of ad hoc innovation. Furthermore, it is possible that some ad hoc innovations were counted as tailor-made innovations, which they resemble (and which are better known), and which, moreover, we must remember scored most highly: 58% of firms regarded them as an important or very important product/service innovation modality.

+ Formalisation innovation has only been approached from a narrow angle, i.e. that of modes of delivering the service.

### 5.1 Nature of product innovation according to service activity

• The characteristic "tailor-made and non-standardised" is most often cited as an important or very important product/service innovation modality in consultancy and operational services. This similarity between two types of service which, on the face of it, seem to be completely different, represents a paradox which merits consideration. We are not, in fact, dealing with the same type of tailor-made innovation in each case. Indeed, in the case of operational services, the tailor-made nature of innovation stems from the combination of standardised modules, while in consultancy, the type of tailor-made innovation is less clearly defined. If we use the distinction established by Girin (1984), we can say that, in the first case, it is a simple activity (which is easy to describe), and whose mandate is clear (the result is easy to assess), whilst, in the second case (consultancy), the activities are more complex (difficult to describe), and their mandates are more confused and difficult to define.

However, there are variations within the consultancy field. Proportionally speaking, more management, advertising and legal consultancies attach importance to this innovation modality than the others, i.e. information technology consultancies, market research and recruitment consultancies.

• The field which has the largest share of firms to cite associative innovation as an important or very important modality is financial services. However, it must be noted that this modality is also relatively important in all the other fields, with the exception of retailing.

• Innovation by addition of supplementary service functions (or incremental innovation), which is a particular form of associative innovation, has a particularly important place in financial services, hotel/catering and retailing.

• Dissociation is a modality regarded as unimportant or not very important by all the industries.

• The "coproduced and not highly reproducible" characteristic of product/service innovation is, as we have already said, regarded as important or very important by a relatively small share of firms in our sample, regardless of service activity. However, this modality is relatively more important in consultancy and financial services. It also provides indicators of the existence of what we have called ad hoc innovation.

• The idea that "the novelty of the product/service rests more on the way in which it is provided to the client than in its basic function or content" varies more according to the type of service. It is regarded as an unimportant or not very important modality by 60% of the consultancy firms and 52% of the hotel/catering/retailing firms; as an important or very important modality by 50% of the operational services firms (cleaning, transport etc.). In financial services, it is regarded as unimportant/not very important or important/very important by equal shares of firms.

In the financial services industry, the following modalities: "tailor-made" (39.47%); "association" (65.79%); "addition" (65.79%); "change in mode of delivery" (36.84%) are more often considered to be important or very important than "dissociation" and "ad hoc dimension" (low reproducibility and high level of coproduction).

In consultancy, the main modalities (regarded as important or very important) are "tailor-made" and "association". These modalities, along with "change in the mode of delivery", also predominate in operational services. Finally, in hotel/catering/retailing, the main modalities are "addition", followed by "tailor-made". But, we must remember that, once again, the results must be assessed in the light of the limits imposed by the size of our samples.

| Services sectors<br>Modalities of innovation | | Financial Services | Consultancy | Operational services | Hotels-catering retailing | Total |
|---|---|---|---|---|---|---|
| Tailor-made | Unimp./not very imp. | 31.58% | 21.62% | 14.29% | 38,10% | 24.12% |
| | Imp./very imp. | 39.47% | 62.16% | 66.67% | 52% | 57.89% |
| Association | Unimp./not very imp. | 13.16% | 27.03% | 28.57% | 38,10% | 25.88% |
| | Imp./very imp. | 65.79% | 51.35% | 47.62% | 33,33% | 51.75% |
| Dissociation | Unimp./not very imp. | 73,68% | 70.95% | 57.14% | 71,43% | 70.18% |
| | Imp./very imp. | 18.42% | 10.14% | 14.29% | 9,52% | 11.84% |
| High coproduction and reduced reproducibility | Unimp./not very imp. | 55.26% | 40.54% | 38.10% | 61,90% | 44.74% |
| | Imp./very imp. | 23.68% | 33.11% | 19.05% | 4,76% | 27.63% |
| Adjonction | Unimp./not very imp. | 18.42% | 26.35% | 33.33% | 23,80% | 25.44% |
| | Imp./very imp. | 65.79% | 47.97% | 42.86% | 61,90% | 51.75% |
| Delivery mode changed | Unimp./not very imp. | 42,11% | 60.14% | 23.81% | 52,38% | 53.07% |
| | Imp./very imp. | 36.84% | 18.24% | 47.62% | 28,57% | 25.00% |
| | N | 38 | 148 | 21 | 21 | 228 |

**Table 14**: Product innovation modalities according to type of service activity.

## 5.2 Nature of product innovation according to firm size

"Tailor-made" innovation, which is a frequent innovation modality regardless of the size of the firm, becomes *less* frequent the larger the firm is. Association and addition increase with the size of the firm. The larger the firms are, the more likely they are to regard association and addition as important or very important modalities of product innovation. Similarly, as the size of the firms increases, so does the share which considers the "mode of delivery" to be an important or very important innovation modality.

In the case of ad hoc innovation, the relationship is reversed. Proportionally more of the smallest firms accord importance to this modality than the large firms.

Equal shares of large and small firms (nearly 70% in each case) accord little importance to dissociative innovation.

| Modality important or very important Size of firrms | N | Tailor-made | | Association | | Dissociation | | Ad hoc | | Adjonction | | Changed mode of delivery | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 100 | 64 | 64.00% | 47 | 47.00% | 10 | 10.00% | 36 | 36.00% | 48 | 48.00% | 20 | 20.00% |
| 20 - 199 | 81 | 49 | 60.49% | 44 | 54.32% | 9 | 11.11% | 21 | 25.93% | 43 | 53.09% | 18 | 22.22% |
| 200 and more | 45 | 18 | 40.00% | 27 | 60.00% | 8 | 17.78% | 6 | 13.33% | 27 | 60.00% | 19 | 42.22% |

**Table 15**: Modalities of product innovation regarded as important or very important according to firm size.

| Modality unimportant or not very important Size of firrms | N | Tailor-made | | Association | | Dissociation | | Ad hoc | | Adjonction | | Changed mode of delivery | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 100 | 20 | 20.00% | 29 | 29.00% | 69 | 69.00% | 41 | 41.00% | 28 | 28.00% | 59 | 59.00% |
| 20 - 200 | 81 | 19 | 23.46% | 20 | 24.69% | 59 | 72.84% | 36 | 44.44% | 21 | 25.93% | 44 | 54.32% |
| 200 ET PLUS | 45 | 16 | 35.56% | 10 | 22.22% | 31 | 68.89% | 25 | 55.56% | 8 | 17.78% | 17 | 37.78% |

**Table 16**: Modalities of product innovation regarded as unimportant or not very important according to firm size.

## 6. Innovation "variety" (1992-1996)

For the sake of simplicity, we will call the diversity of the types of innovation introduced by firms innovation "variety". Thus, "variety" will be regarded as important (and assigned a score of 4/4) when, over a given period, firms introduced all four types of innovation in the typology used, i.e. product, process, organisational and external relationship innovations.

The following table summarises the degree of innovation variety for the firms in our sample over the period 1992-1996.

| Degree of variety | N | Frequences |
|---|---|---|
| 0/4 | 62 | 19.25% |

| | | |
|---|---|---|
| 1/4 | 38 | 11.80% |
| 2/4 | 71 | 22.05% |
| 3/4 | 64 | 19.88% |
| 4/4 | 87 | 27.02% |
| TOTAL | 322 | 100% |

**Table 17**: Innovation variety in the firms in our sample.

Nearly 20% of the firms did not introduce any innovations over the period 1992-1996. A little over a quarter introduced product, process, organisational and external relationship innovations (4/4 variety). Nearly half of the firms introduced three or more of the four types of innovation (3/4 or 4/4 variety).

### 6.1 Innovation variety according to service activity

The maximum degree of variety (4/4) was achieved most often in hotel/catering and retailing, followed by financial services. It was obtained least often in consultancy.

More than half of the firms in the following industries introduced at least three of the four types of innovation:
- financial services
- hotel/catering and retailing.

In consultancy, one third of the firms did not introduce any innovations, or just one of the four types; one third introduced at least three of the four.

| Degree of variety<br>Types of activities | N | 0 / 4 | | 1 / 4 | | 2 / 4 | | 3 / 4 | | 4 / 4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Financial services | 52 | 11 | 21.15% | 2 | 3.85% | 6 | 11.54% | 13 | 25.00% | 20 | 38.46% |
| Consultancy | 215 | 43 | 20.00% | 32 | 14.88% | 55 | 25.58% | 33 | 15.35% | 38 | 17.67% |
| Operational services | 28 | 5 | 17.86% | 0 | 0 | 7 | 25.00% | 3 | 10.71% | 9 | 32.14% |
| Hotels-catering-retailing | 27 | 3 | 11.11% | 4 | 14.81% | 3 | 11.11% | 6 | 22.22% | 11 | 40.74% |
| Total | 322 | 62 | 19.25% | 38 | 11.80% | 71 | 22.05% | 64 | 19.88% | 87 | 27.02% |

**Table 18**: Degree of innovation variety according to service activity

### 6.2 Innovation variety according to firm size

The following table highlights the relationship between the firm's degree of innovation variety and the firm's size (in terms of employees). The smallest firms are the most likely to have introduced no innovations whatsoever (0/4 degree of variety). A quarter of the smallest firms, but fewer than 10% of the largest firms, did not innovate at all. The probability of all four innovation types being introduced is highest in the largest firms. Indeed, the degree of innovation variety increases with the size of the firm. Half of the firms with more than 100 employees introduced all four types of innovation, while only 15% of firms with fewer than 10 employees did so.

| Degree of variety | N | 0 / 4 | 1 / 4 | 2 / 4 | 3 / 4 | 4 / 4 |
|---|---|---|---|---|---|---|

| Size of firms | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-9 | 98 | 25 | 25.5% | 16 | 16.3% | 29 | 29.6% | 13 | 13.3% | 15 | 15.3% |
| 10-19 | 50 | 11 | 22.0% | 5 | 10.0% | 11 | 22.0% | 16 | 32.0% | 7 | 14.0% |
| 20 - 99 | 86 | 18 | 20.9% | 13 | 15.1% | 16 | 18.6% | 17 | 19.8% | 22 | 25.6% |
| 100 and more | 84 | 7 | 8.3% | 3 | 3.6% | 14 | 16.7% | 18 | 21.4% | 42 | 50.0% |

**Table 19**: Degree of innovation variety according to firm size

# CHAPTER 2:

# ORGANISATION OF INNOVATION

This chapter is given over to the different facets of the organisation of innovation within the service firms in our sample. It follows the innovation processes, proceeding from upstream components (i.e. sources of innovation information and ideas) to those downstream of the innovation (means of protecting the innovation).

Firstly, the main points will be examined through an overall presentation of the statistics, then, bringing in a number of variables. The principal points are:

1) sources of information,
2) (internal) actors in innovation,
3) collaboration in innovation,
4) innovation costs and existence of R and D activity,
5) duration of innovation processes,
6) carrying out tests,
7) means of protecting the innovation.

## 1. Sources of information

To collect information on this theme, we used a 5-point cumulative Likert scale. The table below indicates the shares of firms which consider the different sources of information to be unimportant/not very important or important/very important.

The main sources of information, knowledge and competencies on products, processes, organisation and external relationship are, in descending order: clients (for 75.99% of the innovating firms in our sample), the sales force and contact personnel (66.67%), competitors (31.18%), informal networks of executives and professionals (31.18%).

“Other staff in the firm”, “suppliers of information technology equipments and systems”, “fairs, exhibitions, conferences, meetings, newspapers and journals” also play a role, but to a lesser extent (respectively, 26.16%; 24.73% and 23.30% of the innovative firms in our sample).

The sources of information which are least often cited as important or very important are “other suppliers” (16.13%), “information technology consultants” (12.90%), “other consultants” (16.49%), “universities” (18.96%) and “public organisations” (6.45%).

The fact that clients and sales forces play an important role as sources of information in relational activities is not surprising. Nor is the fact that competitors and informal networks,

and to a lesser extent fairs, conferences, journals etc. play an important role in activities where protection is difficult and imitation a quasi-natural law (cf. Chapter 1, section 3).

Other results, some of which seem paradoxical, also warrant particular attention:

- the relatively minor involvement of suppliers of materials as sources of information, which argues in favour of non-technologist approaches to innovation in services;

- the minor involvement of different types of consultants as a source of information, whilst one of their main missions is precisely to supply information. This finding contradicts the idea of a model of coproduced innovation (i.e. coproduced by consultants);

- the negligible role of public organisations (ANVAR [French state technology transfer agency], ARIST [French regional scientific and technical information agency], CCI [Chambers of Commerce], etc.) and universities as sources of information; a paradoxical result, which has nevertheless been confirmed several times by surveys in manufacturing.

The last two findings, as we shall see, will be modified when the variable of firm size is taken into account.

| Sources of information, knowledge and competences for innovation | Unimportant/not very important | | Important/very important. | |
|---|---|---|---|---|
| Sales force and contact personnels | 29 | 10.39% | 186 | 66.67% |
| Other staffs in the firm | 93 | 33.33% | 73 | 26.16% |
| Parent company | 89 | 31.90% | 49 | 17.56% |
| Subsidiaries | 98 | 35.13% | 30 | 10.75% |
| Competitors | 73 | 26.16% | 87 | 31.18% |
| Clients | 15 | 5.38% | 212 | 75.99% |
| IT equipments and systems suppliers | 116 | 41.58% | 69 | 24.73% |
| Other suppliers | 146 | 52.33% | 45 | 16.13% |
| IT consultants | 163 | 58.42% | 36 | 12.90% |
| Other consultants | 139 | 49.82% | 46 | 16.49% |
| Universities and other education and resarch institutions | 199 | 71.33% | 25 | 8.96% |
| Public organisations (ANVAR, ARIST, CCI, etc.) | 192 | 68.82% | 18 | 6.45% |
| Fairs, exhibitions, conferences, meetings, newspapers, journals | 118 | 42.29% | 65 | 23.30% |
| Informal networks of executives and professionals | 98 | 35.13% | 87 | 31.18% |

**Table 1**: The main sources of information considered to be important/very important or unimportant/not very important (shares of innovative firms over the period 1992-1997 regarding the different sources as unimportant/not very important or important/very important).

### 1.1 Sources of information according to service activity

Because of the limited size of our sample, we will limit ourselves to the following comments concerning, on the one hand, the three main sources of information on the level of the sample as a whole (i.e. the clients, “sales forces and contact personnel”, competitors), and, on the other hand, the consultancy industry.

There do not seem to be significant differences between the various industries in terms of the client being a source of information. Indeed, whether it be financial services, consultancy,

operational services or hotel/catering/retailing, the share of firms from each field which considers the client to be an important source of information hovers between 72% and 76%.

Sales forces and contact personnel are regarded as important or very important sources of information by financial services and operational services more often than by consultancy services, hotel/catering and retailing. The largest share of firms to consider the sales force to be an important or very important source of information is in financial services (which is not surprising given the importance of retailing networks in many banking and insurance companies).

Competitors seem to be a more important source of information in financial services than elsewhere.

In the case of consultancy, an industry for which our sample is relatively satisfactory, the main sources of information are, in descending order: clients, sales forces, informal networks, competitors, information technology suppliers and fairs, conferences, journals etc. Subsidiaries, parent companies, other suppliers, information technology consultants and other consultants are not considered important. Consequently, another form of what we called the "shoemaker's paradox" emerges in consultancy. Consultancies seem to use information from consultancy itself less than from other sources. But, that said, these different service providers could have been included in the "competitors" category.

| Sources of information | Degree of importance | Financial services | Consultancy | Operational services | Hotels-catering-retailing | Total |
|---|---|---|---|---|---|---|
| Sales force and contact personnels | Unimp./not very imp. | 4.65% | 14.59% | 0.00% | 0.00% | 10.39% |
| | Imp./very imp. | 86.05% | 60.54% | 76.92% | 68,00% | 66.67% |
| Other staffs | Unimp./not very imp. | 25.58% | 38.92% | 26.92% | 12,00% | 33.33% |
| | Imp./very imp. | 32.56% | 22.70% | 23.08% | 44,00% | 26.16% |
| Parent company | Unimp./not very imp. | 41.86% | 30.81% | 30.77% | 24,00% | 31.90% |
| | Imp./very imp. | 25.58% | 13.51% | 30.77% | 20,00% | 17.56% |
| Subsidiaries | Unimp./not very imp. | 51.16% | 33.51% | 23.08% | 32,00% | 35.13% |
| | Imp./very imp. | 13.95% | 7.57% | 23.08% | 16,00% | 10.75% |
| Competitors | Unimp./not very imp. | 11.63% | 29.19% | 26.92% | 28,00% | 26.16% |
| | Imp./very imp. | 41.86% | 31.35% | 23.08% | 20,00% | 31.18% |
| Clients | Unimp./not very imp. | 2.33% | 5.41% | 11.54% | 4,00% | 5.38% |
| | Imp./very imp. | 76.74% | 76.76% | 73.08% | 72,00% | 75.99% |
| IT suppliers | Unimp./not very imp. | 46.51% | 41.62% | 42.31% | 32,00% | 41.58% |
| | Imp./very imp. | 18.60% | 25.41% | 34.62% | 20,00% | 24.73% |
| Other suppliers | Unimp./not very imp. | 53.49% | 57.84% | 26.92% | 36,00% | 52.33% |
| | Imp./very imp. | 18.60% | 11.89% | 42.31% | 16,00% | 16.13% |
| IT consultants. | Unimp./not very imp. | 55.81% | 58.38% | 57.69% | 64,00% | 58.42% |
| | Imp./very imp. | 13.95% | 13.51% | 7.69% | 12,00% | 12.90% |
| Other consultants | Unimp./not very imp. | 46.51% | 51.89% | 38.46% | 52,00% | 49.82% |
| | Imp./very imp. | 16.28% | 16.22% | 11.54% | 24,00% | 16.49% |
| Universities... | Unimp./not very imp. | 88.37% | 66.49% | 69.23% | 80,00% | 71.33% |
| | Imp./very imp. | 6.98% | 11.35% | 3.85% | 0.00% | 8.96% |
| Public organisations | Unimp./not very imp. | 88.37% | 64.32% | 57.69% | 80,00% | 68,82% |
| | Imp./very imp. | 2.33% | 8.65% | 0.00% | 4,00% | 6,45% |
| Fairs, exhibitions, ... | Unimp./not very imp. | 67.44% | 42.16% | 26.92% | 16,00% | 42,29% |
| | Imp./very imp. | 6.98% | 25.41% | 19.23% | 40,00% | 23.30% |
| Informal networks | Unimp./not very imp. | 53.49% | 32.43% | 30.77% | 28,00% | 35.13% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Imp./very imp. | 25.58% | 35.14% | 15.38% | 28,00% | 31.18% |
| | N | 43 | 185 | 26 | 25 | 279 |

**Table 2:** Sources of information regarded as important/very important or unimportant/not very important according to service activity**.**

### 1.2 Sources of information according to firm size.

To the extent that there is a relationship between the variables of "geographical origin" and "size of firms" (firms operating at a regional level often being SME, international-scale firms being large firms), bringing in this variable gives rise to findings similar to those above.

Thus, with a few exceptions, the share of firms to regard different sources of information as important or very important increases globally with the *size* of the firm. The largest firms take more advantage of different sources of information than the small firms.

Parent companies and subsidiaries also play a role as sources of information in the largest firms. The same goes for "other consultants", but not for "information technology consultants", who are regarded as unimportant/not very important sources of information by the firms as a whole, regardless of size.

| Sources of information | Degree of importance | 1-19 | 20 - 49 | 50 - 199 | 200 and more |
|---|---|---|---|---|---|
| Sales force and contact personnels | Imp./Very imp. | 56.91% | 65.38% | 78.85% | 83.33% |
| | Unimp./Not very imp. | 13.82% | 9.62% | 9.62% | 4.17% |
| Other staffs | Imp./Very imp. | 22.76% | 28.85% | 25.00% | 33.33% |
| | Unimp./Not very imp. | 39.84% | 28.85% | 34.62% | 22.92% |
| Parent company | Imp./Very imp. | 11.38% | 15.38% | 25.00% | 29.17% |
| | Unimp./Not very imp. | 31.71% | 30.77% | 34.62% | 33.33% |
| Subsidiaries | Imp./Very imp. | 4.07% | 13.46% | 15.38% | 20.83% |
| | Unimp./Not very imp. | 35.77% | 30.77% | 42.31% | 33.33% |
| Competitors | Imp./Very imp. | 27.64% | 28.85% | 34.62% | 39.58% |
| | Unimp./Not very imp. | 32.52% | 23.08% | 26.92% | 14.58% |
| Clients | Imp./Very imp. | 75.61% | 69.23% | 78.85% | 85.42% |
| | Unimp./Not very imp. | 5.69% | 5.77% | 3.85% | 6.25% |
| IT suppliers | Imp./Very imp. | 21.95% | 26.92% | 28.85% | 27.08% |
| | Unimp./Not very imp. | 43.90% | 42.31% | 40.38% | 37.50% |
| Other suppliers | Imp./Very imp. | 10.57% | 23.08% | 17.31% | 22.92% |
| | Unimp./Not very imp. | 56.91% | 51.92% | 51.92% | 45.83% |
| IT consultants. | Imp./Very imp. | 10.57% | 17.31% | 13.46% | 12.50% |
| | Unimp./Not very imp. | 60.16% | 55.77% | 61.54% | 58.33% |
| Other consultants | Imp./Very imp. | 13.82% | 17.31% | 11.54% | 29.17% |
| | Unimp./Not very imp. | 55.28% | 53.85% | 46.15% | 37.50% |
| Universities... | Imp./Very imp. | 13.82% | 3.85% | 5.77% | 6.25% |
| | Unimp./Not very imp. | 66.67% | 69.23% | 84.62% | 75.00% |
| Public organisations | Imp./Very imp. | 9.76% | 7.69% | 1.92% | 2.08% |
| | Unimp./Not very imp. | 68.29% | 61.54% | 76.92% | 72.92% |
| Fairs, exhibitions, ... | Imp./Very imp. | 26.02% | 23.08% | 26.92% | 14.58% |
| | Unimp./Not very imp. | 44.72% | 40.38% | 40.38% | 43.75% |
| Informal networks | Imp./Very imp. | 34.96% | 23.08% | 40.38% | 22.92% |

| | | | | | |
|---|---|---|---|---|---|
| | Unimp./Not very imp. | 32.52% | 38.46% | 32.69% | 41.67% |
| | | 123 | 52 | 52 | 48 |

**Table 3**: Sources of information considered important/very important or unimportant/not very important according to firm size

## 2. Innovation actors

The qualitative empirical studies which we have carried out on a number of service industries (Gallouj, 1994; Gallouj and Gallouj 1996) have enabled us to highlight different modes of organisation of the innovation activity. These different modes are not antinomic: some of them can coexist within the same firm.

They can be informal processes: where individual effort plays the main role (1), or involving a significant amount of teamwork (2).

This activity can be carried out by an R and D department in the traditional sense of the term (3), or by another type of innovation department (specialising in designing new services without being an R and D department) (4).

The marketing department (5), IT department (6) or other departments, examples of which we will give at the end of this section (7) can also play a key role.

Finally, it can be the work of organised project groups, involving members from several departments (8).

The aim here is to try and quantify the relative importance of each of these different modes of innovation organisation.

These eight modalities are not, of course, exclusive. They are classed according to a five-point cumulative Likert scale, and Table 6 shows the share of innovative firms which regard each of the modes of organisation as unimportant or not very important (scale 1 or 2) or important or very important (scale 4 or 5).

From this table, we can see that flexible modes of organisation (i.e. impermanent formal or informal "structures") are far more frequently cited as being important or very important than the others. These can consist of informal individual activity (44.8%), informal team activity (56.63%) and (formal) project groups involving members of different departments (41.58%).

The survey unambiguously confirms that innovation is more rarely organised along the lines of specialised departments, whether they be R and D departments, or (less traditional) innovation departments. Indeed, more than 80% of the innovative firms consider the R and D department to be an unimportant or not very important modality of innovation organisation. Nearly 72% of them apply the same judgement to innovation departments.

IT and marketing departments are evaluated in similar terms. This is not surprising, if we bear in mind the importance of the balance between market and science (the "science push" and "demand pull" determinants) in innovation. However, this evaluation is (paradoxically) ambiguous. Indeed, in both cases, the share of firms to consider that these two departments

play no role or an unimportant role is larger than the share which considers them to play an important or very important role. But, at the same time, the proportion of firms which considers them to play an important or very important role is far from negligible (a third of firms).

In the case of the IT department, this result (like those in Chapter 1 on forms of innovation) should go some way towards reconsidering the place of IT in innovation in service.

Nevertheless, in both cases, this ambiguity could stem from the over-representation of small firms in our sample (which do not have an IT department or a marketing department).

Other departments can intervene in innovation, particularly the following departments and instances (the first two being the most frequently cited): sales department, top management, « telecommunication », "technical", "operational", "administrative", "creativity", "human resources", "design", "scanning", "logistics", "development", "quality", "research" and "products and advice" departments (the latter cited by a hotel firm). But the share of firms which accord them importance is relatively small (17.20%).

| The modalities of innovation organisation | N | Unimportant or not very important | | Important or very important | |
|---|---|---|---|---|---|
| Informal individual process | 279 | 87 | 31.18% | 125 | 44.80% |
| Informal team work | 279 | 54 | 19.35% | 158 | 56.63% |
| R-D department | 279 | 227 | 81.36% | 19 | 6.81% |
| Innovation department | 279 | 200 | 71.68% | 35 | 12.54% |
| Marketing department | 279 | 131 | 46.95% | 92 | 32.97% |
| IT department | 279 | 136 | 48.75% | 90 | 32.26% |
| Other departments | 279 | 141 | 50.54% | 48 | 17.20% |
| Project groups across departments | 279 | 119 | 42.65% | 116 | 41.58% |

**Table 4**: Different modes of innovation organisation in service firms

## 2.1 From innovation actors towards models of innovation organisation

The combination of the different instances of innovation envisaged above, allows the existence of general innovation models to be statistically verified, taking account not only of the main innovation actors and processes, but also of types of general innovation strategies implemented by service firms.

Barcet, Bonamy, Mayère (1987), whose analyses we use here, identify three models of innovation in services (the professionals in partnership model, the managerial model and the industrial model), the definitions of which we will rapidly recap. We ourselves have proposed complementing these models with three others: the neo-industrial model (which arises from dividing the industrial model in two), the entrepreneurial model and the craft model (see Gallouj, Djellal, Gallouj, 1997; Sundbo, Gallouj, 1998).

**The professionals in partnership model** characterizes services with a large component of "grey matter", which do not precisely sell products/services, but competencies, and capacities for solving problems in the given fields of expertise (e.g. consultancy, research and

engineering firms). In this model, there are no formalised innovation structures. "Research" is, above all, individual, informal and pragmatic. This could be described as a "bottom-bottom" or "top-top" innovation model. In this respect, the professionals in partnership model has a number of advantages: it is flexible, capable of rapid response to market indications, and of synergistically combining the individual thoughts of its members. But, depending on its individual make-up, it also has a number of disadvantages, including the risk of the innovation process remaining unfinished, the absence of a "company project", and the risk of a "brain drain" linked to the turnover of "professionals in partnership".

**The managerial model of innovation organisation** is encountered in large audit and consultancy international networks. This model corresponds to the real existence of an R and D innovation policy, strategy or function within the firm, but the absence of an R and D department. In this model, there is no permanent innovation/R and D department. Research and, more precisely, the research of ideas is "everybody's business", but development, which is a longer process, is the business of ad hoc project teams. The perspective favoured here is that of conceiving a "product" which is as reproducible as possible. It cannot, however, be described as industrialisation of services.

**The industrial model of innovation organisation** is according to Barcet, Bonamy, Mayère (1987) the less frequent in services. This model is, however, encountered in large firms, specialising in standardised production of operational services, dealing with materials as well as information. Examples of this are large firms specialising in mass information processing, large contract cleaning or telesurveillance firms. This is a replica of the traditional industrial R and D model, which clearly separates the R and D department from production. In this type of firm, the production and delivery of services are separated. It is therefore possible to envisage a research and innovation department responsible for improving the "products" to be delivered or developing new "products".

The industrial model, as it is defined, seems to us to be ambiguous (Gallouj, 1997). Indeed, it refers to the old industrial model, despite the fact that it has changed a great deal. The new industrial model, which has replaced the old logic of standardisation with a logic of flexibility, is far nearer to the functioning of service activities (which often are, by definition, interactive).

We propose splitting it in two: a traditional or Fordist industrial model, and a neo-industrial model.

**The traditional industrial model (in the strict sense) or Fordist model** is defined as above. It is rare in services and it is becoming increasingly rare in manufacturing itself. It concerns large operational services firms. Specialised innovation departments exist or may exist, and maintain linear relationships (but no true feedback) with the other departments (linear model of innovation). There are often technical production departments and IT departments.

Firms run according to the traditional industrial model tend to move towards a **neo-industrial model.** This new model corresponds to certain evolutions underway in mass informational services, which traditionally functioned according to the Fordist model, but which are today subject to great competition (banks, insurance companies, post office). In this model, innovation is produced by multiple sources (actors) who interact (these are unavoidable "technical" interactions, whatever their effectiveness or quality may be). In the case of an insurance company, this would be, for example, the IT department, the different technical

product departments, and possibly a "think tank" resembling a genuine R and D department, etc. Project groups involving members of different departments are favoured and multiplied with varying degrees of success.

**The entrepreneurial model** corresponds to the creation of service firms on the basis of a radical innovation. This involves small firms which have no R and D department, and whose main activity is selling the initial radical innovation. The appearance of IT services, repair services etc., can be interpreted in these terms. Many service firms founded by university researchers also often belong to this entrepreneurial model.

**The craft model** describes the innovation model corresponding to small firms involved in operational services (contract cleaning, caretaking/security, hotel/catering, etc.). These firms have no innovation strategy, nor do they have an R and D or IT department, etc. However, innovation does occur through the model of improvement and learning processes.

It is possible to statistically test the existence of the first four models defined above, on the basis of the statistical data in Tables 5 and 6. To this end, we propose simplified definitions of each of the models:

**1) The professionals in partnership model (in the strict sense)** describes firms which consider only the informal individual process to be an important/very important innovation modality;

**2) The professionals in partnership model (in the wide sense)** describes firms for which
- the individual informal process is important/very important
- or the individual informal process and the informal team process are important/very important;
(all the other instances being unimportant or not very important);

**3) The managerial model** is that in which
- the project group is important/very important
- or the project group and informal team process are important/very important
- or the project group and the informal individual process are important/very important
- or the project group and the informal individual and the informal team processes are important/very important;
(all the others being unimportant or not very important);

**4) The traditional industrial model (in the strict sense)** describes firms for which all the instances are unimportant or not very important, with the exception of the R and D or innovation department, which are important or very important.

**5) The traditional industrial model (in the wide sense)** corresponds to firms for which all the instances are unimportant or not very important, with the exception of the R and D or innovation departments, or the IT department;

**6) The neo-industrial model** describes the mode of innovation organisation corresponding to firms for which, regardless of the degree of importance of the other instances, at least three formal structures (one of which being a "project group involving members of several departments") are important or very important.

To summarise the definitions we have just proposed, the central elements for establishing a quantified evaluation of the innovation models are the following:

- the "individual" element for the professional partnership model;

- the existence of formal project groups for the managerial model;

- the existence of specialised innovation departments for the industrial model;

- the existence of organised interaction for the neo-industrial model. Project groups involving members of several departments can be regarded, in this case, as indicators of this interaction, provided that importance is accorded to other formal structures.

The two tables below summarise the principal statistical results established on the basis of the above definitions.

| Model | N | Frequences |
|---|---|---|
| Professionals in partnership (in the strict sense) | 26 | 9.3% |
| Professionals in partnership (in the wide sense) | 58 | 20.8% |
| Managerial | 36 | 12.9% |
| Industrial traditional (in the strict sense) | 0 | 0% |
| Industriel traditional (in the wide sense) | 6 | 2.15% |
| Neoindustrial | 60 | 21.5% |

**Table 5**: The models of innovation organisation (numbers and shares of the innovative firms in our sample functioning according to the different models, n=279).

| Types of services<br>Model of innovation | Financial services | | Consultancy | | Operational services | | Hotels-catering-retailing | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Professionals in partnership (in the strict sense) | 2 | 7.7% | 24 | 92.3% | 0 | 0% | 0 | 0% | 26 | 100% |
| Professionals in partnership (in the wide sense) | 3 | 5.2% | 53 | 91.4% | 1 | 17% | 1 | 1.7% | 58 | 100% |
| Managerial | 4 | 11.1% | 27 | 75% | 3 | 8.3% | 2 | 5.5% | 36 | 100% |
| Industrial traditional (in the strict sense) | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | |
| Industriel traditional (in the wide sense) | 1 | 16.7% | 4 | 66.6% | 0 | 0% | 1 | 16.7% | 6 | 100% |
| Neoindustrial | 23 | 38.3% | 20 | 33.3% | 9 | 15% | 8 | 13.3% | 60 | 100% |

**Table 6**: The models of innovation organisation according to service industry (share of firms from the different industries in the different innovation models).

Our analysis suggests that just under one tenth of the innovative firms in our sample (n=279) belong to the professionals in partnership model in the strict sense; and that a little over a fifth belong to the professionals in partnership model in the wide sense (table 5). In both cases, more than 90% of the firms described by these models are consultancy firms (table 6).

The few financial services belonging to this model are brokers who, as an intermediary service, can be regarded as a particular category of consultancy.

The managerial model also mainly describes consultancy firms. 13% of the innovative firms in our sample conform to this model's definition, and 75% of them are consultancy firms.

No firms in our sample seem to conform to the traditional industrial model. If the definition is relaxed by introducing IT departments, 2.15% of the firms in our sample (one bank, two information technology service firms, one recruitment consultant, a market research office, and one firm from the retailing field) seem to conform to a traditional industrial model in the wide sense.

Finally, a little over a fifth of the firms in our sample conform to our definition of the neo-industrial model. The largest share of firms belonging to this model were financial services firms. But significant shares of the other industries also conformed to this model, including consultancy firms, particularly in the following fields: information technology consultancy, market research (10 firms and 6 firms, respectively) which, together, represented 27% of the firms functioning according to the neo-industrial model.

## 2.2 Innovation actors according to service activity

The organisation of innovation in the form of an informal individual process is regarded as an important or very important mode by a larger proportion of firms in consultancy than elsewhere. But, differences emerge within this heterogeneous industry. Indeed, the share of recruitment consultancy and information technology consultancy firms which attach importance to this informal individual activity is smaller than that of the other consultancy activities.

Innovation organisation in the form of an informal team process is considered an important or very important modality in all the industries, but more so in consultancy than in financial services and operational services.

The organisation of innovation in the context of an R and D department is rare, but is regarded as important or very important by a larger share of operational services and financial services than consultancy.

The involvement of an innovation department is also relatively rare. But a larger share of operational services firms and financial services firms deem it important than consultancy services.

Responsibility for innovation processes being taken by marketing and IT departments is considered an important or very important modality of innovation organisation by a larger proportion of financial services, operational services, hotel/catering and retailing firms than consultancy firms.

Finally, responsibility being taken by "another department" is rare, but occurs more in operational services and financial services than in consultancy.

If we now examine each industry in turn, we find that, in financial services, the modalities of innovation organisation (or the actors) the most frequently regarded as important are: marketing and IT departments, (58.14% for each), project groups involving several departments (55.81%) and informal team processes (53.49%). The modalities and actors least often considered important are: R and D department (11.63%) and a specialised innovation department (16.28%).

In the consultancy industry, the informal team process (58.92%) and informal individual process (52.97%) prevail as important modalities of innovation organisation, whilst R and D and innovation departments, once again, rank least highly.

In operational services, the modalities most frequently regarded as important or very important are informal team process (46.15%), project groups (46.25%) and marketing department (42.31%).

Finally, in hotel/catering/retailing, the dominant modalities seem to be informal team (56%), marketing department (52%), IT department (52%) and project groups (48%).

In these last two groups (operational services and hotel/catering retailing), the modalities least frequently considered to be important are the R and D and innovation departments.

| Type of service activity<br>Modalities of innovation organisation | | Financial services | Consultancy | Operational services | Hotels-catering-retailing | Total |
|---|---|---|---|---|---|---|
| Informal individual process | Unimp/Not very imp. | 48.84% | 23.78% | 38.46% | 48,00% | 31.18% |
| | Imp./Very imp. | 27.91% | 52.97% | 34.62% | 24,00% | 44.80% |
| Informal team work | Unimp/Not very imp. | 25.58% | 18.38% | 11.54% | 24,00% | 19.35% |
| | Imp./Very imp. | 53.49% | 58.92% | 46.15% | 56,00% | 56.63% |
| R-D department | Unimp/Not very imp. | 83.72% | 82.16% | 65.38% | 88% | 81.36% |
| | Imp./Very imp. | 11.63% | 4.86% | 19.23% | 0.00% | 6.81% |
| Innovation department | Unimp/Not very imp. | 67.44% | 77.30% | 42.31% | 68,00% | 71.68% |
| | Imp./Very imp. | 16.28% | 9.19% | 23.08% | 20,00% | 12.54% |
| Marketing department | Unimp/Not very imp. | 23.26% | 56.76% | 30.77% | 32,00% | 46.95% |
| | Imp./Very imp. | 58.14% | 23.24% | 42.31% | 52,00% | 32.97% |
| IT departments | Unimp/Not very imp. | 18.60% | 59.46% | 26.92% | 44,00% | 48.75% |
| | Imp./Very imp. | 58.14% | 22.70% | 38.46% | 52,00% | 32.26% |
| Other departments | Unimp/Not very imp. | 37.21% | 59.46% | 23.08% | 36,00% | 50.54% |
| | Imp./Very imp. | 25.58% | 10.81% | 34.62% | 32,00% | 17.20% |
| Project groups | Unimp/Not very imp. | 27.91% | 48.65% | 30.77% | 36,00% | 42.65% |
| | Imp./Very imp. | 55.81% | 36.76% | 46.15% | 48,00% | 41.58% |
| | N | 43 | 185 | 26 | 25 | 279 |

**Table 7**: The modalities of innovation organisation according to service industry

### 2.3 Innovation actors according to firm size

The frequency of firms which attach importance to informal individual work as a modality of innovation organisation decreases as the size of the firm increases. As regards organisation along the lines of informal team work, no clear link with firm size emerges from our sample.

In contrast, the share of firms which attach importance to marketing and IT departments and to project groups increases with the size of the firms, and the share of those which attach little importance to the R- D and innovation departments decreases with the size of the firms.

| Modality imp./very imp. Size of firms | N | Informal individual | | Informal team work | | R-D department | | Innovation department | | Marketing department | | IT department | | Other departments | | Project groups | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 123 | 70 | 56.91% | 75 | 60.98% | 5 | 4.07% | 12 | 9.76% | 25 | 20.33% | 34 | 27.64% | 13 | 10.57% | 33 | 26.83% |
| 20 - 49 | 52 | 22 | 42.31% | 23 | 44.23% | 3 | 5.77% | 3 | 5.77% | 20 | 38.46% | 14 | 26.92% | 5 | 9.62% | 21 | 40.38% |
| 50 - 199 | 52 | 18 | 34.62% | 34 | 65.38% | 3 | 5.77% | 6 | 11.54% | 21 | 40.38% | 18 | 34.62% | 15 | 28.85% | 28 | 53.85% |
| 200 and more | 48 | 14 | 29.17% | 26 | 54.17% | 8 | 16.67% | 13 | 27.08% | 25 | 52.08% | 23 | 47.92% | 14 | 29.17% | 33 | 68.75% |

**Table 8**: Modalities of innovation organisation regarded as important or very important according to firm size

| Modality unimp. /not very imp. Size of firms | N | Informal individual | | Informal team work | | R-D department | | Innovation department | | Marketing department | | IT department | | Other departments | | Project groups | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 123 | 30 | 24.39% | 20 | 16.26% | 104 | 84.55% | 97 | 78.86% | 74 | 60.16% | 72 | 58.54% | 80 | 65.04% | 73 | 59.35% |
| 20 - 49 | 52 | 16 | 30.77% | 15 | 28.85% | 45 | 86.54% | 40 | 76.92% | 23 | 44.23% | 27 | 51.92% | 35 | 67.31% | 21 | 40.38% |
| 50 - 199 | 52 | 22 | 42.31% | 9 | 17.31% | 43 | 82.69% | 35 | 67.31% | 19 | 36.54% | 21 | 40.38% | 12 | 23.08% | 17 | 32.69% |
| 200 and more | 48 | 18 | 37.50% | 9 | 18.75% | 33 | 68.75% | 27 | 56.25% | 14 | 29.17% | 15 | 31.25% | 13 | 27.08% | 8 | 16.67% |

**Table 9**: Modalities of innovation organisation regarded as unimportant or not very important according to firm size.

## 2.4 Size of innovation project groups

When project groups are mobilised to conceive and introduce an innovation, they can be of different sizes. Their average size is 4 people; their median and mode are three.

In 67% of the innovative firms in our sample (who answered this question), the size of innovation project groups is smaller than 4 people (for 44% of the firms it is 3-4 people). It is larger than 5 people for nearly a third of firms.

| Size of project groups | N | 0 - 2 | | 3 - 4 | | 5 and more | |
|---|---|---|---|---|---|---|---|
| Total | 194 | 45 | 23.20% | 86 | 44.33% | 63 | 32.47% |

**Table 10**: Average size of project groups

### 2.4.1 Size of innovation project groups according to service activity

The average size of innovation project groups, all service types taken together, is, as we have already said, 4 people. It is largest in financial services, hotel/catering and retailing (more than 5 people), and smallest in consultancy (3.5 people).

| Size of project groups Service sector | Average | Median | Mode |
|---|---|---|---|
| Financial services | 5.1 | 5 | 5 |
| Consultancy | 3.5 | 3 | 3 |
| Operational services | 4.5 | 4.5 | 3 |
| Hotels-catering-retailing | 5.2 | 5 | 5 |

| | | | |
|---|---|---|---|
| Total | 4 | 3 | 3 |

**Table 11**: Average size, median and mode (in number of people) of innovation project groups according to service activity.

### 2.4.2 Size of innovation project groups according to firm size

The share of firms which implement small project groups (2 people or fewer, three or four people) decreases with the size of the firm. On the other hand, the share of those which implement relatively large project groups (more than 5 people) increases with the size of the firm.

| Size of project groups<br>Size of firms | N | 0 - 2 | | 3 - 4 | | 5 and more | |
|---|---|---|---|---|---|---|---|
| 1-19 | 76 | 30 | 39.47% | 40 | 52.63% | 6 | 7.89% |
| 20 - 49 | 38 | 10 | 26.32% | 21 | 55.26% | 7 | 18.42% |
| 50 - 199 | 39 | 3 | 7.69% | 18 | 46.15% | 18 | 46.15% |
| 200 and more | 40 | 2 | 5.00% | 6 | 15.00% | 32 | 80.00% |

**Table 12**: Size of innovation project groups according to firm size

Table 13, which shows the average, median and mode of the size of project groups, confirms that the average size of innovation project groups increases with the size of the firm. The average size of project groups in firms with over 200 employees is six people, whilst the most frequently-cited value is five. Project groups in the smallest firms (fewer than 20 people) are half this size: on average, three people.

| Size of project groups<br>Size of firms | Average | Median | Mode |
|---|---|---|---|
| 1-19 | 2.9 | 3 | 3 |
| 20 - 49 | 3.4 | 3 | 3 |
| 50 - 199 | 4.5 | 4 | 5 |
| 200 and more | 6.3 | 6 | 5 |

**Table 13**: Average size, median and mode of innovation project groups according to firm size.

## 3. Collaboration in innovation.

Formal or informal forms of collaboration with different actors (a list of which appears in table 15) are established by three quarters of the innovative firms. A quarter of these firms innovated without collaborating at all, formally or informally, over the period 1992-1997.

| Formal or informal collaboration | N | No | | Yes | |
|---|---|---|---|---|---|
| Total | 273 | 69 | 25,27% | 204 | 74,73% |

**Table 14**: Collaboration in innovation.

The main collaborators (formal or informal) are, in descending order:
- clients (for 65% of firms)
- suppliers (for 53%)

- consultants (for 49%).

In the first case (clients), informal collaboration (36.27%) prevails over formal collaboration, i.e. approved by signing a contract (29.41%). The opposite is true of the other two cases. The main partners in formal collaboration are suppliers (34.31%) and consultants (30.88%); by far the most frequent informal collaborators are clients (36.27%). These are quantitative indicators of what we have called the model of consultant-assisted innovation (Gallouj, 1994).

Competitors, universities, public organisations and "other partners", i.e. unions, foreign partners (especially European), and associations are the least frequent partners in formal or informal collaboration in innovation (6.86% and 10.78%; 9.80% and 9.31%, 11.76% and 5.39%; 5.39% and 3.43%, respectively).

| Type of collaboration<br>Type of partner in collaboration | N | Formal collaboration | | Informal collaboration | | Both types of collaboration | |
|---|---|---|---|---|---|---|---|
| Clients | 204 | 60 | 29.41% | 74 | 36.27% | 134 | 65.68% |
| Competitors | 204 | 14 | 6.86% | 22 | 10.78% | 36 | 17.64% |
| Consultants | 204 | 63 | 30.88% | 38 | 18.63% | 101 | 49.51% |
| Suppliers | 204 | 70 | 34.31% | 39 | 19.12% | 109 | 59.43% |
| Universities | 204 | 20 | 9.80% | 19 | 9.31% | 39 | 19.11% |
| Publics organisations | 204 | 24 | 11.76% | 11 | 5.39% | 35 | 17.15% |
| Others | 204 | 11 | 5.39% | 7 | 3.43% | 18 | 8.82% |

**Table 15**: Partners in collaboration (formal or informal).

### 3.1 Collaboration according to service activity

There do not seem to be any significant differences in terms of collaboration in innovation between the different service types. The proportion of innovating firms in our sample (excluding the no-responses) involved in collaboration is always higher than 70%, regardless of service industry.

| Collaboration | N | No | | Yes | |
|---|---|---|---|---|---|
| Financial services | 43 | 9 | 20.9% | 34 | 79% |
| Consultancy | 182 | 48 | 26.4% | 134 | 74% |
| Operational services | 24 | 7 | 29.2% | 17 | 71% |
| Hotels-catering-retailing | 24 | 5 | 20.8% | 19 | 79% |
| Total | 273 | 69 | 25.3% | 204 | 75% |

**Table 16**: Collaboration in innovation according to service type.

The previous finding can be qualified by taking into account 1) the type of partner (Table 17); and 2) the nature of the collaboration, i.e. formal or informal (Table 18).

When the type of partner is taken into account (Table 17), we find that clients, consultants and suppliers are always the three principal partners, but they can rank in different orders depending on the industry concerned. Indeed, for the industries as a whole, consultancy and operational services, the three types of collaborator rank in the descending order of clients, suppliers, consultants (shares of firms regarding the partner as important or very important). But, in financial services, consultants rank most highly, followed by clients, then suppliers; and in hotel/catering and retailing, suppliers precede the other two categories.

A horizontal reading of Table 17 shows that:
- although clients are regarded as important/very important partners by the large majority of firms in all the industries considered, they are regarded as important or very important partners by an even larger proportion of operational services firms (more than 80%);
- similarly, suppliers are important or very important collaborators in all the industries, but particularly so in operational services, hotel/catering and retailing;
- consultants are more often considered to be important or very important collaborators by financial services, hotel/catering and retailing than the other industries. Although consultants see other consultants as being important collaborators, the actual *proportion* which considers them to be important is smaller in consultancy (43%) than it is in the other industries.

| Service sector<br><br>Type of partner in collaboration | Financial services | Consultancy | Operational services | Hotels-catering-retailing | Total |
|---|---|---|---|---|---|
| Clients | 62% | 65% | 82% | 63% | 65.7% |
| Competitore | 21% | 18% | 6% | 21% | 17.7% |
| Consultants | 68% | 43% | 47% | 63% | 49.5% |
| Suppliers | 59% | 46% | 76% | 73% | 53.4% |
| Universities | 12% | 23% | 6% | 16% | 19.1% |
| Publics organisations | 6% | 18% | 23% | 26% | 17.7% |
| Others | 6% | 7% | 12% | 21% | 8.8% |
| N | 34 | 134 | 17 | 19 | 204 |

**Table 17**: Partner type according to service activity

If the nature of these collaborations is examined in more detail, i.e. whether they are formal or informal (Table 18), we find that certain industries tend to forge more formal relationships than others.

Thus, whilst all the industries consider clients to be important or very important partners, this collaboration is more often *informal* in operational services, particularly in hotel/catering, retailing and financial services. In consultancy, however, formal and informal modes of collaboration are *equally* important (with identical shares of firms considering each to be important/very important).

In the case of collaboration with consultants, formal collaboration (i.e. signing a collaborative contract in the context of innovation projects) is more important than informal collaboration in financial services, hotel/catering and retailing. However, formal and informal collaboration are equally important in consultancy services and operational services.

Finally, in terms of collaboration with suppliers, formal collaboration prevails over informal, in all the industries.

| Type of partner in collaboration | Type of collaboration | Service sectors | | | | |
|---|---|---|---|---|---|---|
| | | Financial services | Consultants | Operational services | Hotels-catering-retailing | Total |
| Clients | Formal | 14.71% | 34.33% | 35.29% | 15,79% | 29.41% |
| | Informal | 47.06% | 30.60% | 47.06% | 47% | 36.27% |
| Competitors | Formal | 5.88% | 7.46% | 0.00% | 10,5% | 6.86% |
| | Informal | 14.71% | 10.45% | 5.88% | 11% | 10.78% |

| | | | | | | |
|---|---|---|---|---|---|---|
| Consultants | Formal | 52.94% | 23.13% | 23.53% | 52,6% | 30.88% |
| | Informal | 14.71% | 20.15% | 23.53% | 10,5% | 18.63% |
| Suppliers | Formal | 38.24% | 29.85% | 47.06% | 47,4% | 34.31% |
| | Informal | 20.59% | 16.42% | 29.41% | 26,3% | 19.12% |
| Universities | Formal | 5.88% | 11.94% | 0.00% | 10,5% | 9.80% |
| | Informal | 5.88% | 11.19% | 5.88% | 5,3% | 9.31% |
| Public organisations | Formal | 5.88% | 11.94% | 17.65% | 15,8% | 11.76% |
| | Informal | 0.00% | 5.97% | 5.88% | 10,5% | 5.39% |
| Others | Formal | 2.94% | 3.73% | 11.76% | 15,8% | 5.39% |
| | Informal | 2.94% | 3.73% | 0.00% | 5.26% | 3.43% |
| | QTE | 34 | 134 | 17 | 19 | 204 |

**Table 18**: Collaborative partners and types of collaboration according to service activity

### 3.2 Collaboration according to firm size

Above a certain threshold, the share of firms which collaborated formally or informally increases with the size of the firm. The firms which collaborate most frequently are the largest firms in our sample.

This relationship is valid both for formal and informal collaboration. In other words, above a certain threshold, both the share of firms to have established formal collaboration, and the share which collaborated informally, increase with the size of the firm.

Regardless of firm size, formal collaboration always predominates over informal collaboration, and firms which were involved in collaboration are always more numerous than those which were not.

| Collaboration<br>Size of firms | N | No | | Yes | | Formal | | Informal | |
|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 123 | 26 | 21.14% | 97 | 78,86% | 68 | 55.28% | 58 | 47.15% |
| 20 - 49 | 52 | 19 | 36.54% | 33 | 63,46% | 21 | 40.38% | 19 | 36.54% |
| 50 - 199 | 52 | 14 | 26.92% | 38 | 73,07% | 30 | 57.69% | 25 | 48.08% |
| 200 ET PLUS | 48 | 9 | 18.75% | 39 | 81,25% | 34 | 70.83% | 25 | 52.08% |

**Table 19**: Collaboration according to firm size

### 3.3 Collaboration according to innovation diversity

Previously, we called the number of different innovations introduced by a given firm (from the typology product, process, organisational and external relationship) “diversity”. Table 20 shows that, the more innovation diversity increases, the larger the share of firms which engage in formal or informal collaboration becomes.

| Collaboration<br>Degree of innovation diversity | N | No | | Formal | | Informal | |
|---|---|---|---|---|---|---|---|
| 0 / 4 | 62 | 4 | 6.45% | 7 | 11.29% | 6 | 9.68% |
| 1 / 4 | 38 | 14 | 36.84% | 16 | 42.11% | 10 | 26.32% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 / 4 | 71 | 22 | 30.99% | 30 | 42.25% | 32 | 45.07% |
| 3 / 4 | 64 | 13 | 20.31% | 44 | 68.75% | 35 | 54.69% |
| 4 / 4 | 87 | 16 | 18.39% | 57 | 65.52% | 45 | 51.72% |

**Table 20**: Collaboration according to innovation diversity

## 4. Innovation costs and existence of an R and D activity

Table 21 summarises for all the innovative firms which replied to the corresponding questions, the estimates (as percentage of turnover) of direct and indirect expenditure (workforce, service and equipment purchases, etc.) devoted by the firm in 1996 to developing and implementing different types of innovation. (the no-response rate was high for this type of question, owing to calculation difficulties and the strategic nature of this type of information; no-responses were excluded).

A third of firms devoted 3-5% of their turnover to innovation; a quarter less than 2%; a quarter between 6 and 10%; and a little under 20% more than 11% of their turnover.

| Total innovation expenses / Turnover (%) | N | 0 - 2 | | 3 - 5 | | 6 - 10 | | 11 and more | |
|---|---|---|---|---|---|---|---|---|---|
| Total | 186 | 44 | 23.66% | 60 | 32.26% | 47 | 25.27% | 35 | 18.82% |

**Table 21**: Share of turnover devoted to innovation.

For more than half of the innovative firms, these innovation activities contain an element of R and D (Table 22), which can be evaluated either as a percentage of turnover (Table 23), or, more often, in terms of workforce, evaluated in yearly full-time equivalent devoted to R and D (Table 24).

| Involvement in an R-D activity | N | No | | Yes | |
|---|---|---|---|---|---|
| Total | 242 | 109 | 45.04% | 133 | 54.96% |

**Table 22**: Involvement in R and D activities

More than 40% of the firms spend less than 2% of their turnover on R and D; 45% devote between 3% and 10% to it, and 12.5% more than 11%.

| Total R-D expenses/ Turnover (%) | N | 0 - 2 | | 3 - 5 | | 6 - 10 | | 11 and more | |
|---|---|---|---|---|---|---|---|---|---|
| Total | 80 | 34 | 42.50% | 19 | 23.75% | 17 | 21.25% | 10 | 12.50% |

**Table 23**: Percentage of turnover devoted to R and D

Table 24 shows the workforce devoted to R and D. It shows that nearly 60% of firms devote to this type of activity a workforce smaller than or equal to one person full-time equivalent per year. About 20% devote between 2 and 4 people, and more than 20% devote more than 5 people.

| Workforce (full-time equivalent) devoted to R-D | N | <1 | | 1 | | 2 - 4 | | 5 and more | |
|---|---|---|---|---|---|---|---|---|---|
| Total | 102 | 31 | 30.39% | 29 | 28.43% | 19 | 18.63% | 23 | 22.55% |

**Table 24**: Workforce (full-time equivalent) devoted to R and D

## 4.1 R and D according to service activity

The largest proportion of firms in our sample which claim to carry out R and D is in consultancy, which is not surprising considering the similarities between these two types of activity (cf. Gallouj and Gallouj, 1994). However, there are significant variations within the industry: the lower limit being legal consultancy, in which only 30% of firms state that they participate in R and D, and the upper limit being information technology consultancy, where nearly 70% of firms state that they carry out R and D. The smallest proportion of firms to carry out R and D is in hotel/catering and retailing.

| Involvement in an R-D activity<br>Service sector | N | No | | Yes | |
|---|---|---|---|---|---|
| Financial services | 39 | 19 | 48.72% | 20 | 51.28% |
| Consultancy | 159 | 62 | 38.99% | 97 | 61.01% |
| Operational services | 21 | 12 | 57.14% | 9 | 42.86% |
| Hotels-catering-retailing | 23 | 16 | 69.57% | 7 | 30.43% |
| Total | 242 | 109 | 45.04% | 133 | 54.96% |

**Table 25**: R and D activity according to the different service industries

### 4.2 R and D according to firm size

More large firms carry out R and D than small firms only above a certain threshold; the threshold being firms with more than 200 employees. In reality, however, this threshold is misleading in that the average number of employees in these firms is nearly 8,000, two thirds of them have more than 1,000 employees, one third more than 5,000 and one tenth more than 10,000.

If we exclude consultancy firms from our sample (even the smallest of which we know can be led to declare that they carry out R and D because of the degree of similarity between consultancy and research), the share of firms with under 49 employees which carried out R and D decreases considerably, to 36%. In this case, the share of firms with more than 200 employees carrying out R and D also decreases, but not as much (to 56%).

| Involvement in an R-D activity<br>Size of firms | N | Yes | | No | |
|---|---|---|---|---|---|
| 1-19 | 103 | 60 | 58.25% | 43 | 41.75% |
| 20 - 49 | 43 | 22 | 51.16% | 21 | 48.84% |
| 50 - 199 | 48 | 22 | 45.83% | 26 | 54.17% |
| 200 and more | 46 | 29 | 63.04% | 17 | 36.96% |

**Table 26**: R and D activity according to firm size

### 4.3 R and D according to innovation diversity

There is a relationship between innovation diversity and the probability of involvement in R and D activity. In other words, the more that firms are involved in different types of innovation, the more likely they are to carry out R and D (Table 27).

| Involvement in an R-D activity<br>Degree of innovation diversity | N | Yes | | No | |
|---|---|---|---|---|---|
| 0 / 4 | 62 | 7 | 11.29% | 5 | 8.06% |
| 1 / 4 | 38 | 14 | 36.84% | 16 | 42.11% |
| 2 / 4 | 71 | 27 | 38.03% | 32 | 45.07% |
| 3 / 4 | 64 | 36 | 56.25% | 22 | 34.38% |
| 4 / 4 | 87 | 49 | 56.32% | 33 | 37.93% |

**Table 27**: R and D according to innovation diversity

## 5. Innovation duration

A common idea will be tested here, namely that the process of innovation in services is very rapid. This idea arises mainly from the fact that, in this type of activity, innovation has an incremental nature, and often results from intra- or extra-sectoral imitation (cf. Chapter 1).

The average length of innovation projects, regardless of innovation type, is 8.9 months. But the most frequent duration (the mode) is 12 months. This confirms the idea of the rapidity of innovation processes. However, there are differences according to the type of innovation in question. Process innovation projects lasted, on average, the longest (9.9 months), whilst

product innovation projects took the least time (8.3 months). However, in both cases, the most frequently-cited duration (the mode) was 6 months.

| Type of innovation<br>Duration (months) | Product-service | Process | Organisation | External relationship | All types |
|---|---|---|---|---|---|
| Average | 8.3 | 9.9 | 8.4 | 9.1 | 8.9 |
| Médian | 6 | 6 | 6 | 8 | 6 |
| Mode | 6 | 6 | 6 | 12 | 12 |

**Table 28**: The average duration, median and mode (in months) for the different types of innovation

A significant innovation, of whatever type (product/service, process organisational, external relationship), rarely requires more than a year to complete (cf. Table 29). In 57% of cases, the process of product innovation and the implementation of an organisational change took less than 6 months. The proportions are almost the same for process innovation (52%). Around 48% of firms implemented external relationship innovations in under 6 months.

| Duration of innovation projects (in months)<br>Type of ' nnovation | N | 1 - 3 | | 4 - 6 | | 7 - 12 | | more than 12 | |
|---|---|---|---|---|---|---|---|---|---|
| Product-service innovation | 197 | 44 | 22.34% | 69 | 35.03% | 64 | 32.49% | 20 | 10.15% |
| Process innovation | 167 | 32 | 19.16% | 55 | 32.93% | 50 | 29.94% | 30 | 17.96% |
| Organisation innovation | 155 | 44 | 28.39% | 45 | 29.03% | 45 | 29.03% | 21 | 13.55% |
| External relationship innovation | 124 | 30 | 24.19% | 30 | 24.19% | 48 | 38,. 1% | 16 | 12.90% |

**Table 29**: Duration of innovation project according to innovation type

## 5.1 Duration of innovation according to service activity

The different service industries do not seem to differ significantly in terms of the average length of innovation projects (for all categories). The average hovers around 9 months. However, the most frequently-cited duration (mode) is 6 months in the case of financial services and consultancy, but double that figure in the other industries.

If we now bring the different innovation types into the frame, we find that product innovation projects are the shortest in financial services (7.6 months on average), and the longest in operational services (10.5 months). However, the most frequently-cited value is only 3 months in the first case (financial services) and 12 months in the second (operational services).

Process innovation requires, on average, more time in operational services, hotel/catering and retailing than elsewhere. It takes the least amount of time in consultancy (9.5 months), whilst the most frequent value, in this case, is 6 months.

Organisational innovation takes the least time in operational services (7.3 months, with a mode of 6 months). It requires on average nearly a month and a half more in financial services and consultancy.

Finally, external relationship innovation takes, on average, nearly a year in financial services (where its duration is the longest); whilst only taking an average of 7.4 months in operational services (the shortest duration).

A horizontal reading of Table 30 reveals variations (in relation to the sample as a whole) in the classification of project durations according to service activity.

In financial services, the innovation which takes, on average, the longest to introduce is external relationship innovation (11.7 months); whilst product innovation takes the least time (7.6 months).

In consultancy, process innovation requires, on average, the longest time (9.5 months), and product innovation the least time (8.1 months).

In operational services, external relationship and organisational innovations take, on average, three months less than product and process innovations.

Finally, in hotel/catering/retailing, organisational innovation projects take the least time (8 months), whilst process innovation projects take the longest (10.7 months). It must be noted, however, that, in both cases, the most frequently-cited durations are 12 months.

| Type of innovation<br>Service sector | Product-service | | | Process | | | Organisation | | | External relationship | | | All types | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Moy. | Med. | Mod. | Moy. | Med. | Mod. | Moy. | Med. | Mod. | Moy. | Med. | Mod. | Moy. | Med. | Mod. |
| Financial services | 7,6 | 6 | 3 | 10 | 9 | 6 | 8,6 | 6 | 6 | 11,7 | 12 | 12 | 9,3 | 6 | 6 |
| Consultancy | 8,1 | 6 | 6 | 9,5 | 6 | 6 | 8,7 | 6 | 12 | 8,9 | 6 | 12 | 8,8 | 6 | 6 |
| Operational services | 10,5 | 6 | 12 | 10,8 | 9,5 | 12 | 7,3 | 6 | 6 | 7,4 | 6 | 12 | 8,9 | 6 | 12 |
| Hotels-catering-retailing | 8,9 | 6 | 6 | 10,7 | 10 | 12 | 8 | 7 | 12 | 8,9 | 12 | 12 | 9,2 | 8 | 12 |
| Total | 8,3 | 6 | 6 | 9,9 | 6 | 6 | 8,4 | 6 | 6 | 9,1 | 8 | 12 | 8,9 | 6 | 12 |

**Table 30**: Average duration, median and mode (in months) of innovation projects of different types according to service activity

## 5.2 Innovation duration according to firm size

The average length of innovation projects (all types taken together) increases with the size of the firm. Thus, while the average duration for the smallest firms is 7.8 months, it is 10.3 months for the largest firms.

This relationship is confirmed globally by an examination of each of the innovation types (product, process, organisational, external relationship).

Reading the table horizontally indicates that to the small firms tend to devote more time to external relationship innovation projects than the other types, and large firms tend to devote more time to process innovation projects (12.2 months) than to the other types.

| Type of innovation<br>Size of firms | Product-service | Process | Organisation | External relationship | All types |
|---|---|---|---|---|---|

| | Moy. | Med. | Mod. | Moy. | Med. | Mod. | Moy. | Med. | Mod. | Moy. | Med. | Mod. | Moy. | Med. | Mod. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-19 | 7,9 | 6 | 6 | 7,4 | 6 | 6 | 7,5 | 6 | 12 | 8,7 | 7 | 12 | 7,8 | 6 | 6 |
| 20-49 | 7,2 | 6 | 3 | 10,8 | 6 | 6 | 8,6 | 6 | 6 | 9,1 | 6 | 6 | 8,8 | 6 | 6 |
| 50-199 | 8,7 | 6 | 6 | 11,1 | 12 | 12 | 9,3 | 6 | 12 | 9,1 | 7 | 12 | 9,6 | 6 | 6 |
| 200 and more | 9,9 | 12 | 12 | 12,2 | 12 | 12 | 8,8 | 6 | 6 | 10 | 12 | 12 | 10,3 | 12 | 12 |

**Table 31**: Average duration, median and mode (in months) of innovation projects according to firm size

## 6. Testing

The question about carrying out tests only concerned "product/service" innovations. We did not provide an exact definition of the term, which means it could have been interpreted in different ways: "technical" test (test of functioning), marketing test (on potential markets), economic test on forecast income, etc. In services, it is difficult, in many cases, to make a distinction between these different meanings of the notion of "test".

However the meaning of test was taken, it would seem that the systematic absence of any testing of new products/services is relatively rare (12.15% of cases). Nearly half the firms which introduced "product/service" innovations over the period 1992-1997 *always* carry out tests before launching the new product/service; tests are carried out only *occasionally* in 40% of cases.

| Testing of the new products/services | N | Always | | Occasionally | | Never | |
|---|---|---|---|---|---|---|---|
| Total | 214 | 103 | 48.13% | 85 | 39.72% | 26 | 12.15% |

**Table 32**: Testing of new products/services

Our questionnaire did not set out to uncover the reasons for the absence or occasional nature of tests. But, in other studies, we have highlighted a number of arguments, both theoretical and strategic (i.e. linked to practices in firms).

The theoretical arguments are well known. The analytical characteristics of services, i.e. their intangibility, relational and "non-stockable" character sometimes make it difficult to experiment and test service innovation.

Even when it is possible to test new products, service firms often do not do so for individual strategic reasons. The following arguments can be cited as examples of arguments linked to practices in firms:

1) The cost of testing may be as high as the cost of immediately launching the product/service on the market.

2) The limited launch of a product is sometimes considered to "limit its perceived value". There is, therefore, a risk that any evaluation of its potential will be invalid.

3) In cases of imitation (which, as we have seen, are frequent), market testing is not deemed necessary (as the "product/service" has already "proved itself" for the "imitated" competitor),

and an essential factor seems to be introducing it rapidly. Similarly, if the innovation consists of "recycling or repackaging elements which have already been put to the test", both from the economic and functioning efficiency point of view, there is no need to carry out tests.

4) If the innovation is aimed at complementing a product line, so that a complete range can be offered, market testing may seem superfluous, as "the new product will be introduced even if sales forecasts are limited".

5) Some firms, particularly large financial firms, may not want to run the risk of testing their product on a limited population, as problems arising from this, far from leading to improvements (as it should be the case), could damage the product's image with the sales network who would sell it.

6) Some innovations, particularly in financial services and legal consultancy, are brought about by government decisions which have fixed deadlines and therefore do not leave enough time to carry out tests.

### 6.1 Testing according to service activity

In all the service activities, the proportion of firms which always carry out tests is larger than or equal to the proportion of firms which carry them out occasionally, (with the exception of financial services firms, 65% of which carry out tests occasionally).

| Testing of the new product-service<br>Service activity | N | Always | | Occasionally | | Never | |
|---|---|---|---|---|---|---|---|
| Financial services | 38 | 12 | 31.58% | 25 | 65.79% | 1 | 2.63% |
| Consultancy | 137 | 72 | 52.55% | 42 | 30.66% | 23 | 16.79% |
| Operational services | 20 | 10 | 50.00% | 9 | 45.00% | 1 | 5.00% |
| Hotels-catering-retailing | 19 | 9 | 47.37% | 9 | 47.37% | 1 | 5.26% |
| Total | 212 | 103 | 48.58% | 85 | 40.09% | 26 | 12.26% |

**Table 33**: Testing of a new product/service according to service activity

### 6.2 Testing according to firm size

Although, given the limited size of our sample, we cannot draw any firm conclusions, it can be said that:

- paradoxically, the proportion of firms which systematically carry out tests on product/service innovation decreases as the size of the firm increases;

- on the other hand, the proportion of firms which state they carry out tests occasionally increases with firm size;

- finally, the proportion of firms which never carry out any tests decreases with the size of the firm.

More than half of the small firms state that they always carry out product innovation tests; and more than a third say they do so occasionally.

Regarding the largest firms in our sample, the proportion which carries out tests occasionally is equivalent to the proportion which always carries them out (around 45%).

| Testing | N | Always | | Occasionally | | Never | |
|---|---|---|---|---|---|---|---|
| 1-19 | 89 | 46 | 51.69% | 31 | 34.83% | 12 | 13.48% |
| 20 - 49 | 35 | 17 | 48.57% | 13 | 37.14% | 5 | 14.29% |
| 50 and more | 89 | 40 | 44.94% | 40 | 44.94% | 9 | 10.11% |

**Table 34**: Testing of a new product/service according to firm size.

## 7. Protecting innovation

It is extremely difficult to protect innovation in services. Different possible means of protection are shown in Table 35, i.e.:

• brand image,
• dominant market position,
• patents, registered trademarks, etc.,
• marketing, advertising,
• process secrecy and know-how,
• integration with main suppliers of technology,
• integration with main clients,
• "restriction of competition" clauses with key personnel.

All these means of protection are considered to be ineffective or not very effective by a considerable proportion of firms. With one exception (brand image), this share is always far larger than the share of firms which consider these means of protection to be at least partly effective. With the same exception, the percentage of firms which consider the methods to be ineffective/not very effective is always higher than 50%, and in most cases, higher than 60%.

However, the means of protection which are most frequently cited as being effective are:

- brand image (42.65%),
- process secrecy and know-how (30.82%),
- integration with clients (26.16%),
- restriction of competition clauses with key personnel (25%).

| Means of protection | N | Inefficient/not very efficient | | Efficient/very efficient | |
|---|---|---|---|---|---|
| • Brand image | 279 | 113 | 40.50% | 119 | 42.65% |
| • Dominant market position | 279 | 169 | 60.57% | 56 | 20.07% |
| • Patents, registered trademarks, etc. | 279 | 190 | 68.10% | 52 | 18.64% |
| • Marketing, advertising | 279 | 171 | 61.29% | 51 | 18.28% |
| • Process secrecy and know-how | 279 | 146 | 52.33% | 86 | 30.82% |
| • Integration with main suppliers of technology | 279 | 206 | 73.84% | 32 | 11.47% |
| • Integration with main clients | 279 | 158 | 56.63% | 73 | 26.16% |
| • Restriction of competition" clauses with key personnel | 279 | 174 | 62.37% | 70 | 25.09% |
| • Other means | 279 | 98 | 35.13% | 7 | 2.51% |

**Table 35**: Means of protecting innovation

### 7.1 Protection of innovation according to service activity

If we examine the four protection methods which are most frequently cited as being effective by the sample as a whole, i.e. brand image, process secrecy and know-how, integration with clients and restriction of competition clauses, we find that:

Proportionally, brand image is regarded as an important or very important protection method more by financial services, hotel/catering and retailing than by operational services.

Process secrecy and know-how are put forward more by consultancy services (especially know-how, in this case), and by hotel/catering and retailing than by the other industries.

Integration with main clients is an argument mobilised by consultancy and financial services and, to a lesser extent, hotel/catering and retailing, more than by operational services.

Restricted competition clauses with key personnel are invoked very little by financial services (fewer than 10% of these firms regard them as a means of protection). They score most highly in consultancy.

If the other means of protection are examined (those which are rarely designated as effective), other slight differences are revealed. Thus, in our sample as a whole, patents and registered trademarks and integration with main suppliers of technology do not appear to be effective means of protection, but they are considered important in hotel/catering/retailing (where, respectively, 36% and 32% of firms judged them to be effective).

| Service sectors<br><br>Means of protection | | Financial services | Consultancy | Operational services | Hotels-catering-retailing | Total |
|---|---|---|---|---|---|---|
| • Brand image | Inefficient/not very efficient | 39.53% | 41.62% | 34.62% | 40% | 40.50% |
| | Efficient/very efficient | 48.84% | 41.08% | 38.46% | 48% | 42.65% |
| • Dominant market position | Inefficient/not very efficient | 55.81% | 61.62% | 61.54% | 60% | 60.57% |
| | Efficient/very efficient | 20.93% | 20.54% | 19.23% | 16% | 20.07% |
| • Patents, registered trademarks, etc. | Inefficient/not very efficient | 76.74% | 68.11% | 69.23% | 52% | 68.10% |
| | Efficient/very efficient | 16.28% | 17.84% | 11.54% | 36% | 18.64% |
| • Marketing, advertising | Inefficient/not very efficient | 62.79% | 63.78% | 57.69% | 44% | 61.29% |
| | Efficient/very efficient | 23.26% | 16.76% | 15.38% | 24% | 18.28% |
| • Process secrecy and know-how | Inefficient/not very efficient | 69.77% | 48.65% | 53.85% | 48% | 52.33% |
| | Efficient/very efficient | 20.93% | 34.59% | 15.38% | 36% | 30.82% |
| • Integration with main suppliers of technology | Inefficient/not very efficient | 74.42% | 77.84% | 65.38% | 52% | 73.84% |
| | Efficient/very efficient | 13.95% | 8.65% | 7.69% | 32% | 11.47% |
| • Integration with main clients | Inefficient/not very efficient | 58,14% | 59.46% | 34.62% | 56% | 56.63% |
| | Efficient/very efficient | 25,58% | 23.78% | 46.15% | 24% | 26.16% |
| • Restriction of competition" clauses with key personnel | Inefficient/not very efficient | 81,40% | 59.46% | 53.85% | 60% | 62.37% |
| | Efficient/very efficient | 9,30% | 28.65% | 23.08% | 28% | 25.09% |
| • Other means | Inefficient/not very efficient | 41,86% | 36.22% | 19.23% | 32% | 35.13% |
| | Efficient/very efficient | 2,33% | 2.16% | 3.85% | 4% | 2.51% |
| | N | 43 | 185 | 26 | 25 | 279 |

**Table 36**: Means of protecting innovation according to service industry

### 7.2 Protection of innovation according to firm size

If, as in the above section, we start by examining the four means of protection which are most frequently cited as being effective in our sample as a whole, we find that:

- the likelihood of brand image being cited as an effective means of protection increases with the size of the firm. Thus, more than half the firms with more than 200 employees considered it to be an important protection method. This result merits underlining, as it is the

only case where the share of firms which consider a protection method to be important/very important is larger than the share which accords it little or no importance;

- the size factor holds true for integration with main clients;

- however, “keeping process secrecy and know-how” do not seem to depend on the size of the firm.

As regards the other means of protection, “dominant market position”, “patents and registered trademarks”, “marketing and advertising” become more important the larger the firm is; and proportionally more large firms attach importance to “integration with main suppliers of technology” than small firms.

| Size of firms<br><br>Means of protection | | 1-19 | 20 - 49 | 50 - 199 | 200 and more |
|---|---|---|---|---|---|
| • Brand image | Inefficient/not very efficient | 40.65% | 46.15% | 38.46% | 52.08% |
| | Efficient/very efficient | 45.53% | 42.31% | 36.54% | 33.33% |
| • Dominant market position | Inefficient/not very efficient | 13.82% | 17.31% | 25.00% | 35.42% |
| | Efficient/very efficient | 68.29% | 63.46% | 59.62% | 43.75% |
| • Patents, registered trademarks, etc. | Inefficient/not very efficient | 17.89% | 17.31% | 11.54% | 31.25% |
| | Efficient/very efficient | 68.29% | 67.31% | 78.85% | 60.42% |
| • Marketing, advertising | Inefficient/not very efficient | 14.63% | 17.31% | 21.15% | 25.00% |
| | Efficient/very efficient | 67.48% | 63.46% | 51.92% | 58.33% |
| • Process secrecy and know-how | Inefficient/not very efficient | 33.33% | 26.92% | 26.92% | 35.42% |
| | Efficient/very efficient | 50.41% | 53.85% | 53.85% | 56.25% |
| • Integration with main suppliers of technology | Inefficient/not very efficient | 9.76% | 11.54% | 7.69% | 20.83% |
| | Efficient/very efficient | 78.05% | 75.00% | 78.85% | 62.50% |
| • Integration with main clients | Inefficient/not very efficient | 22.76% | 23.08% | 28.85% | 37.50% |
| | Efficient/very efficient | 65.04% | 65.38% | 46.15% | 41.67% |
| • Restriction of competition” clauses with key personnel | Inefficient/not very efficient | 25.20% | 36.54% | 11.54% | 29.17% |
| | Efficient/very efficient | 65.04% | 50.00% | 71.15% | 62.50% |
| • Other means | Inefficient/not very efficient | 3.25% | 0.00% | 1.92% | 4.17% |
| | Efficient/very efficient | 45.53% | 40.38% | 21.15% | 20.83% |
| | N | 123 | 52 | 52 | 48 |

**Table 37**: Means of protecting innovation according to firm size

# CHAPTER 3:

# CONSTRAINTS ON INNOVATION

This chapter, which is shorter than the previous two, is given over to analysing obstacles to innovation in service firms. The main constraints, the importance of which is examined by our survey, are the following (to which must be added those suggested by the participants in our survey, through an open question):

• firm's lack of financial resources,
• lack of financial support from public organisations,
• lack of information and advice from public organisations and R and D institutions,
• lack of access to outside expertise,
• lack of skilled workforce on the labour market
• organisation of the firm as an obstacle to the development of new ideas or learning and improvement of existing ideas,
• main clients' reluctance to change their purchasing habits,
• tax system,
• public regulations and bureaucracy,
• professional regulations and standards,
• ease of imitation and difficulty in reaping the rewards of innovation,
• tailor-made nature of services,
• nature of the market,
• risk, etc.

The issue of constraints on innovation will be looked at, firstly, in a global way, then the following variables will be taken into account: service activity, size of firm. The chapter follows the order of these themes.

## 1. General constraints

With two exceptions, it can be seen (paradoxically) that, in most cases, the shares of firms which consider the main possible constraints to be unimportant or not very important, are larger than those which accord them importance.

The two exceptions are "lack of own financial resources" and 'public regulations and bureaucracy". These two factors are the two constraints cited as being important/very important by an identical (or slightly smaller) share of firms to those which consider them to be unimportant or not very important.

These two factors, like the tax system, are also those which are cited as being important/very important by the largest shares of firms in our sample.

All in all, then, no factor is considered by a majority to be an undisputed constraint on innovation.

The two factors which are least often considered to be important/very important are "lack of information and advice from public organisations and R and D institutions" and "lack of access to outside expertise".

From our survey, the following factors were included in the "other constraints" category, which nearly 12% of firms cite as being important/very important:
- rigidities linked to a long-standing profession,
- lack of time,
- the nature of certain professions which do not easily lend themselves to innovation (e.g. recruitment consultancy),
- inertia, conservative and conformist staff attitudes,
- unfair competition from public and quasi-public organisations (e.g. ARIST) (constraint cited by a market research consultant),
- limited size of the firm,
- recent creation of the firm,
- French cultural specificities.

All the different other factors, other than the ones just mentioned, are cited as being important by equivalent shares of firms (around 20%)

| Obstacles to innovation | N | Unimportant or not very important | | Important/very important | |
|---|---|---|---|---|---|
| • Firm's lack of financial resources | 324 | 119 | 36.73% | 122 | 37.65% |
| • Lack of financial support from public organisations | 324 | 176 | 54.32% | 64 | 19.75% |
| • Lack of information and advice from public organisations and R-D institutions | 324 | 212 | 65.43% | 28 | 8.64% |
| • Lack of access to outside expertise | 324 | 198 | 61.11% | 34 | 10.49% |
| • Lack of skilled workforce on the labour market | 324 | 162 | 50.00% | 70 | 21.60% |
| • The organisation of the firm as an obstacle to the development of new ideas | 324 | 152 | 46.91% | 69 | 21.30% |
| • The organisation of the firm as an obstacle to learning and improvement of existing ideas | 324 | 164 | 50.62% | 53 | 16.36% |
| • Main clients' reluctance to change their purchasing habits | 324 | 141 | 43.52% | 71 | 21.91% |
| • Tax system | 324 | 144 | 44.44% | 101 | 31.17% |
| • Public regulations and bureaucracy | 324 | 118 | 36.42% | 127 | 39.20% |
| • Professional regulations and standards | 324 | 162 | 50.00% | 78 | 24.07% |
| • Others | 324 | 38 | 11.73% | 39 | 12.04% |

**Table 1**: The main constraints on innovation

If we now examine the firms which did not innovate over the period 1992-1997 (n = 45), we find that the main reasons they give for not having innovated are:

- « their services are 'tailor-made': they are created to satisfy the individual needs of the client. Thus, they are always new and it is impossible to distinguish new products, processes, organisations or external relationships » (73.33% of the firms).

- "Doing a good job is far more important than doing new and different things" (73.33% of firms).

There are indications in the first argument of what we have called "ad hoc innovation". Firms which carried out this kind of innovation probably nevertheless declared themselves not to have innovated, as they did not recognise this particular form of innovation in any of the types in the proposed typology (product, process, organisational, external relationship innovation).

All the other arguments, i.e. the ease with which innovation can be imitated, lack of resources, lack of necessity for innovation in a buoyant market, the risky nature of innovation, service firms' supposed lack of natural ability to innovate, are not compelling reasons for the lack of innovation in certain firms. In other words, the majority of firms (often more than 60%) do not consider them to be satisfactory explanations for the absence of innovation during the period 1992-1997.

| Reasons why firms did not innovate | N | unsatifactory/not very satisfactory | | Satisfactory/very satisfactory | |
|---|---|---|---|---|---|
| • Service innovations can easily be imitated by competitors, thus it is difficult to reap the rewards of innovation | 45 | 30 | 66.67% | 3 | 6.67% |
| • Services are 'tailor-made': they are created to meet the individual needs of the client. Thus, they are always new and it is impossible to distinguish new products, processes, organisations or external relationships | 45 | 6 | 13.33% | 33 | 73.33% |
| • There is a preference for a job well done rather than originality | 45 | 6 | 13.33% | 33 | 73.33% |
| • The firm lacks R-D resources necessary to introduce significant changes | 45 | 27 | 60.00% | 6 | 13.33% |
| • Innovation is not necessary since the firm is on in buoyant market | 45 | 26 | 57.78% | 3 | 6.67% |
| • The firm wants to avoid risk | 45 | 25 | 55.56% | 7 | 15.56% |
| • Service firms are just not innovative | 45 | 27 | 60.00% | 7 | 15.56% |

**Table 2**: Reasons why firms did not innovate (shares of non-innovating firms which regarded each of the arguments as satisfactory/highly satisfactory or unsatisfactory/very unsatisfactory).

A number of innovative firms (n=88) also answered the question on reasons why certain firms had not innovated, even though this question was not directed at them.

It can be seen from Table 3 that the share of firms which regard the different justifications for absence of innovation as unsatisfactory or not very satisfactory is larger than those who deem them satisfactory/highly satisfactory.

The two important arguments are, however, the same as before, i.e. the "ad hoc nature of service transactions" and "preference for a job well done rather than originality", and they are also joined by two others: "ease with which competitors can imitate" and, above all, "lack of R and D resources".

To put it another way, of the arguments which seek to justify the absence of innovation, arguments which are considered by the majority to be unsatisfactory, those which are judged *least* unsatisfactory are "the ad hoc nature of service transactions", "preference for a job well done over originality", "ease of imitation" and "lack of R and D resources".

| Reasons why firms did not innovate | N | unsatifactory/not very satisfactory | | Satisfactory/very satisfactory | |
|---|---|---|---|---|---|
| • Service innovations can easily be imitated by competitors, thus it is difficult to reap the rewards of innovation | 88 | 46 | 52.27% | 21 | 23.86% |

| | | | | | |
|---|---|---|---|---|---|
| • Services are 'tailor-made': they are created to meet the individual needs of the client. Thus, they are always new and it is impossible to distinguish new products, processes, organisations or external relationships | 88 | 35 | 39.77% | 31 | 35.23% |
| • There is a preference for a job well done rather than originality | 88 | 34 | 38.64% | 29 | 32.95% |
| • The firm lacks R-D resources necessary to introduce significant changes | 88 | 42 | 47.73% | 24 | 27.27% |
| • Innovation is not necessary since the firm is on in buoyant market | 88 | 68 | 77.27% | 5 | 5.68% |
| • The firm wants to avoid risk | 88 | 62 | 70.45% | 6 | 6.82% |
| • Service firms are just not innovative | 88 | 65 | 73.86% | 8 | 9.09% |

**Table 3**: Reasons for absence of innovation (shares of innovating firms which regard each of the arguments as satisfactory/highly satisfactory or unsatisfactory/not very satisfactory).

## 2. Constraints on innovation according to service activity

Firstly, if we examine the factors which proved to be the main constraints on innovation (cf. § 1) from the point of view of our sample as a whole, i.e.:
- public regulations and bureaucracy,
- firm's lack of financial resources,
- tax system,
we find that:

1) Public regulations and bureaucracy unquestionably seem to be important/very important constraints on innovation in hotel/catering/retailing, operational services and financial services. In each of these cases, and particularly in the first two, the shares of firms which regard these factors as important/very important constraints are far larger than those which accord them no or little importance. This constraint is cited more by hotel/catering/retailing and operational services than by financial services and consultancy. In the case of consultancy, this constraint scored highly, but proportionally more firms considered it to be unimportant or not very important.

2) The lack of financial resources is cited as an important/very important constraint by hotel/catering/retailing and consultancy services, but also by operational services. Once again, in each of these cases, and particularly in the first two, the share of firms which attach importance to this factor is significantly larger than the share which accord it none. Thus, the financial constraint seems to be a more important factor in hotel/catering/retailing, consultancy and, to a lesser extent, operational services, than in financial services, where it is regarded as an important/very important constraint by only 15% of firms.

3) The tax system is also regarded as an important constraint by larger shares of firms from hotel/catering/retailing and operational services than the other industries. However, whilst in hotel/catering/retailing, the share of firms which attach importance to this constraint is larger than that who accords it little or no importance, it is, in contrast, the reverse in operational services and consultancy, whilst in financial services, the proportions are identical.

Examining the other factors prompts the following remarks:

- The lack of support from public organisations seems to be an important/very important constraint in hotel/catering/retailing (the share of firms which considered this constraint to be important/very important is larger than that which accord it little importance). It is in financial services that it is most regarded as unimportant or not very important.

- The lack of skilled workforce seems to be more of a constraint in hotel/catering and retailing than in the other industries.

- "Organisation of the firm" seems to impede the development of new ideas most frequently in financial services.

- Proportionally more of the firms in hotel/catering and retailing than in any other industries consider "main clients' reluctance to change their purchasing habits" to be an important constraint.

- Professional regulations and standards are considered to be constraints more by operational services, hotel/catering and retailing than the other industries. In these areas, the shares of firms which consider "professional regulations and standards" to seriously hamper innovation are larger than those which do not regard them as important constraints. If the consultancy industry is broken down into activities, the relative importance of this constraint, as we shall see, varies among consultancy activities (e.g. legal consultancy).

| Type of activity<br>Obstacles to innovation | | Financial services | Consultancy | Operational services | Hotels-catering-retailing | Total |
|---|---|---|---|---|---|---|
| • Firm's lack of financial resources | Unimp./not very imp. | 55.77% | 33.02% | 27.59% | 16.67% | 36.73% |
| | Imp/very imp | 15.38% | 42.33% | 34.48% | 66.67% | 37.65% |
| • Lack of financial support from public organisations | Unimp./not very imp. | 65.38% | 52.56% | 51.72% | 25.00% | 54.32% |
| | Imp/very imp | 11.54% | 20.47% | 20.69% | 41.67% | 19.75% |
| • Lack of information and advice from public organisations and R- D institutions, | Unimp./not very imp. | 76.92% | 62.79% | 55.17% | 66.67% | 65.43% |
| | Imp/very imp | 1.92% | 9.30% | 10.34% | 25.00% | 8.64% |
| • Lack of access to outside expertise, | Unimp./not very imp. | 51.92% | 60.93% | 62.07% | 75.00% | 61.11% |
| | Imp/very imp | 11.54% | 9.77% | 13.79% | 25.00% | 10.49% |
| • Lack of skilled workforce on the labour market | Unimp./not very imp. | 57.69% | 48.37% | 34.48% | 41.67% | 50.00% |
| | Imp/very imp | 7.69% | 24.19% | 31.03% | 41.67% | 21.60% |
| • The organisation of the firm as an obstacle to the development of new ideas | Unimp./not very imp. | 30.77% | 52.09% | 27.59% | 58.33% | 46.91% |
| | Imp/very imp | 36.54% | 18.60% | 20.69% | 16.67% | 21.30% |
| • The organisation of the firm as an obstacle to learning and improvement of existing ideas | Unimp./not very imp. | 32.69% | 55.81% | 31.03% | 58.33% | 50.62% |
| | Imp/very imp | 21.15% | 14.88% | 20.69% | 25.00% | 16.36% |
| • Main clients' reluctance to change their purchasing habits | Unimp./not very imp. | 46.15% | 47.44% | 27.59% | 25.00% | 43.52% |
| | Imp/very imp | 15.38% | 20.00% | 24.14% | 66.67% | 21.91% |
| • Tax system | Unimp./not very imp. | 32.69% | 48.37% | 44.83% | 33.33% | 44.44% |
| | Imp/very imp | 32.69% | 28.37% | 37.93% | 41.67% | 31.17% |
| • Public regulations and bureaucracy | Unimp./not very imp. | 28.85% | 43.72% | 10.34% | 16.67% | 36.42% |
| | Imp/very imp | 34.62% | 34.88% | 55.17% | 66.67% | 39.20% |
| • Professional regulations and standards | Unimp./not very imp. | 46.15% | 53.95% | 31.03% | 33.33% | 50.00% |
| | Imp/very imp | 21.15% | 21.40% | 44.83% | 41.67% | 24.07% |
| Others | Unimp./not very imp. | 17.31% | 10.70% | 13.79% | 16.67% | 11.73% |
| | Imp/very imp | 3.85% | 13.95% | 10.34% | 0.00% | 12.04% |
| N | | 52 | 215 | 29 | 28 | 324 |

**Table 4**: Constraints on innovation according to type of service activity

In Table 5, the different constraints are classified by order of importance for each service industry. From this, it would seem that:

- for financial services, the three main constraints cited are: "the organisation of the firm, in that it impedes the development of new ideas", public regulation and bureaucracy, and the tax system; whilst the least-frequently cited constraints are the lack of information and advice from public organisations and R and D institutions, and the lack of skilled workforce;

- in consultancy, the three main constraints are lack of resources, public regulations and bureaucracy, the tax system. The rarest constraints are the lack of information and advice from public organisations and R and D institutions and the lack of access to outside expertise;

- in operational services, the three major constraints are the tax system, public regulations and bureaucracy, professional regulations and standards; and the least important ones are the lack of information and advice from public organisations and R and D institutions, and the lack of access to outside expertise;

- in hotel/catering/retailing, three constraints occupy first place, with identical scores; namely, lack of financial resources, public regulations and bureaucracy, but also, unlike the other industries, "main clients' reluctance to change their purchasing habits". The following four constraints come second: "lack of financial support from public organisations", "lack of skilled workforce", "tax system", and "professional regulations and standards".

This table clearly highlights results we have previously pointed out:

- the fact that "the firm's lack of resources" is not amongst the main constraints on innovation in financial services;

- the fact that "lack of information and advice from public organisations and R and D institutions" is often regarded as the least serious constraint on innovation in most activities;

- the fact that "main clients' reluctance to change their purchasing habits" is the main constraint (amongst others) on innovation in hotel/catering and retailing, whilst it only ranks in the middle for the other industries;

- the fact that "public regulations and bureaucracy" is unanimously cited as the first or second most serious constraint for all the industries;

- finally, the fact that "the tax system" is usually classed as the third most important constraint on innovation.

| Type of activity<br><br>Obstacles to innovation | Financial services | Consultancy | Operational services | Hotels-catering-retailing | Total |
|---|---|---|---|---|---|
| • Firm's lack of financial resources | 6 | 1 | 4 | 1 | 2 |
| • Lack of financial support from public organisations | 8 | 6 | 7 | 4 | 8 |
| • Lack of information and advice from public organisations and R-D institutions | 12 | 12 | 11 | 8 | 12 |
| • Lack of access to outside expertise | 8 | 11 | 10 | 8 | 11 |
| • Lack of skilled workforce on the labour market | 10 | 4 | 5 | 4 | 6 |

| | | | | | |
|---|---|---|---|---|---|
| • The organisation of the firm as an obstacle to the development of new ideas | 1 | 8 | 7 | 11 | 7 |
| • The organisation of the firm as an obstacle to learning and improvement of existing ideas | 4 | 9 | 7 | 8 | 9 |
| • Main clients' reluctance to change their purchasing habits | 6 | 7 | 6 | 1 | 5 |
| • Tax system | 3 | 3 | 3 | 4 | 3 |
| • Public regulations and bureaucracy | 2 | 2 | 1 | 1 | 1 |
| • Professional regulations and standards | 4 | 5 | 2 | 4 | 4 |
| • Others | 11 | 10 | 11 | 12 | 10 |

**Table 5**: Classification of the major constraints on innovation according to service activity (Classification of shares of firms from each industry to regard each factor as an important/very important constraint on innovation).

An analysis of constraints on innovation, in the case of the consultancy activity broken down into different activities, reveals some interesting facts. For example:

- the lack of financial resources is considered a constraint on innovation more by market research offices, information technology consultancies and management consultancies than by legal, advertising or recruitment consultancies.

- public regulations and bureaucracy and the tax system are cited most by legal consultancies, who cite professional regulations and standards even more frequently;

- only advertising/communications consultancies really attach any importance to "lack of information and advice from public organisations and R and D institutions" as a constraint on innovation;

- the lack of skilled workforce is seen as a constraint by a non-negligible share of information technology services, management consultancies and advertising consultancies. This factor is seen as a constraint far less by the other industries;

- the organisation of the firm as an "impediment to the development of new ideas" or "to learning and improving existing ideas", intervenes especially in advertising and information technology consultancy.

| Type of activity<br>Obstacles to innovation | | Legal consultancy | IT services | Management consultancy | Market survey | advertising consultancy | Recruitment and training consultancy | Total |
|---|---|---|---|---|---|---|---|---|
| • Firm's lack of financial resources | Unimp./not very imp. | 31.03% | 37.25% | 34.29% | 18.87% | 41.67% | 45.71% | 33.02% |
| | Imp/very imp | 31.03% | 47.06% | 45.71% | 52.83% | 25.00% | 31.43% | 42.33% |
| • Lack of financial support from public organisations | Unimp./not very imp. | 48.28% | 35.29% | 68.57% | 52.83% | 58.33% | 62.86% | 52.56% |
| | Imp/very imp | 6.90% | 29.41% | 20.00% | 20.75% | 33.33% | 14.29% | 20.47% |
| • Lack of information and advice from public organisations and R- D institutions, | Unimp./not very imp. | 44.83% | 56.86% | 80.00% | 58.49% | 58.33% | 77.14% | 62.79% |
| | Imp/very imp | 0.00% | 11.76% | 5.71% | 13.21% | 41.67% | 0.00% | 9.30% |
| • Lack of access to outside expertise | Unimp./not very imp. | 48.28% | 72.55% | 71.43% | 52.83% | 33.33% | 65.71% | 60.93% |
| | Imp/very imp | 3.45% | 5.88% | 11.43% | 15.09% | 41.67% | 0.00% | 9.77% |
| • Lack of skilled workforce on the labour market | Unimp./not very imp. | 34.48% | 45.10% | 42.86% | 49.06% | 58.33% | 65.71% | 48.37% |
| | Imp/very imp | 17.24% | 37.25% | 31.43% | 18.87% | 33.33% | 8.57% | 24.19% |
| • The organisation of the firm as an obstacle to the development of new ideas | Unimp./not very imp. | 44.83% | 58.82% | 51.43% | 52.83% | 41.67% | 51.43% | 52.09% |
| | Imp/very imp | 17.24% | 13.73% | 25.71% | 18.87% | 50.00% | 8.57% | 18.60% |
| • The organisation of the firm | Unimp./not very imp. | 48.28% | 62.75% | 48.57% | 54.72% | 50.00% | 62.86% | 55.81% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| as an obstacle to learning and improvement of existing ideas | Imp/very imp | 3.45% | 9.80% | 34.29% | 11.32% | 50.00% | 5.71% | 14.88% |
| • Main clients' reluctance to change purchasing habits | Unimp./not very imp. | 31.03% | 41.18% | 60.00% | 49.06% | 58.33% | 51.43% | 47.44% |
| | Imp/very imp | 6.90% | 27.45% | 20.00% | 18.87% | 25.00% | 20.00% | 20.00% |
| • Tax system | Unimp./not very imp. | 20.69% | 37.25% | 65.71% | 54.72% | 50.00% | 60.00% | 48.37% |
| | Imp/very imp | 41.38% | 37.25% | 17.14% | 24.53% | 33.33% | 20.00% | 28.37% |
| • Public regulations and bureaucracy | Unimp./not very imp. | 13.79% | 35.29% | 60.00% | 49.06% | 50.00% | 54.29% | 43.72% |
| | Imp/very imp | 51.72% | 49.02% | 22.86% | 30.19% | 41.67% | 17.14% | 34.88% |
| • Professional regulations and standards | Unimp./not very imp. | 10.34% | 47.06% | 68.57% | 71.70% | 50.00% | 60.00% | 53.95% |
| | Imp/very imp | 55.17% | 27.45% | 5.71% | 9.43% | 41.67% | 11.43% | 21.40% |
| Others | Unimp./not very imp. | 0.00% | 11.76% | 14.29% | 11.32% | 8.33% | 14.29% | 10.70% |
| | Imp/very imp | 3.45% | 7.84% | 25.71% | 15.09% | 8.33% | 20.00% | 13.95% |
| N | | 29 | 51 | 35 | 53 | 12 | 35 | 215 |

**Table 6**: Constraints on innovation in the case of different types of consultancy

If the different potential constraints for consultancy are classed by the share of firms which consider them to be important or very important, it emerges that:

- in legal consultancy, the major constraint on innovation is not the "lack of financial resources", as it is for the rest of consultancy, but "professional regulations and standards" (which is not surprising, as these are ancient activities, governed by a professional order). The other two major constraints are "public regulations and bureaucracy" and "the tax system";

- information technology consultancy firms class the constraints in a roughly identical way to consultancy firms as a whole, meaning that the three main constraints are "public regulations and bureaucracy", "lack of own financial resources" and "tax system";

- management consultancy is different from the consultancy industry as a whole in that it regards the following factor as an important constraint: "organisation of the firm which can impede the introduction of new ideas or learning and the improvement of existing ideas". It also distinguishes itself with the place occupied by "public regulations and bureaucracy" in the classification;

- the market research industry does not differ fundamentally from consultancy activities as a whole in the classification of most of the variables, except in the case of "professional regulations and standards", which it regards as the least important constraint, as does management consultancy.

- the advertising and communications industry differs in the lack of importance it attaches to lack of own financial resources (which it ranks as the second least important constraint on innovation). It also differs in that it attaches more importance to the following two factors (ranking them in third place): "lack of information and advice from public organisations and R and D institutions" and "lack of access to outside expertise". In the consultancy industry as a whole, however, these two factors are ranked as the two least important constraints;

- finally, recruitment consultancy diverges from the general classification for the following factors: "lack of skilled workforce", which is less often considered a constraint, "clients' reluctance to change their purchasing habits" which is the second most important constraint for recruitment consultancy, although it is amongst the least important constraints for consultancy as a whole. On the other hand, "public regulations and bureaucracy" intervene far less in recruitment consultancy than in consultancy as a whole.

| Type of activity<br><br>Obstacles to innovation | Legal consultancy | IT services | Management consultancy | Market survey | advertising consultancy | Recruitment and training consultancy | Total |
|---|---|---|---|---|---|---|---|
| • Firm's lack of financial resources | 4 | 2 | 1 | 1 | 10 | 1 | 1 |
| • Lack of financial support from public organisations | 7 | 5 | 7 | 4 | 7 | 6 | 6 |
| • Lack of information and advice from public organisations and R-D institutions | 12 | 9 | 11 | 10 | 3 | 11 | 12 |
| • Lack of access to outside expertise | 9 | 12 | 10 | 8 | 3 | 11 | 11 |
| • Lack of skilled workforce on the labour market | 5 | 3 | 3 | 5 | 7 | 8 | 4 |
| • The organisation of the firm as an obstacle to the development of new ideas | 5 | 8 | 4 | 5 | 1 | 8 | 8 |
| • The organisation of the firm as an obstacle to learning and improvement of existing ideas | 9 | 10 | 2 | 11 | 1 | 10 | 9 |
| • Main clients' reluctance to change their purchasing habits | 7 | 6 | 7 | 5 | 10 | 2 | 7 |
| • Tax system | 3 | 3 | 9 | 3 | 7 | 2 | 3 |
| • Public regulations and bureaucracy | 2 | 1 | 6 | 2 | 3 | 5 | 2 |
| • Professional regulations and standards | 1 | 6 | 11 | 12 | 3 | 7 | 5 |
| • Others | 9 | 11 | 4 | 8 | 12 | 2 | 10 |

**Table 7**: Classification of constraints on innovation for the different consultancy activities (classification in decreasing order of shares of firms regarding each factor as an important/very important constraint on innovation).

## 5. Constraints on innovation according to firm size

The different factors can roughly be divided into three groups:

- those which constitute an obstacle to innovation more in small firms. This is the case, for example, with "lack of own financial resources", "lack of financial support..." and "lack of skilled workforce";

- those which are more of an obstacle to large firms, e.g. "impediments caused by the organisation of the firm", "professional regulations and standards", and "public regulations and bureaucracy"

- those which do not seem to be influenced by the size of firms, e.g. "tax system" and "reluctance of clients to change their purchasing habits".

| Size of firms<br>Obstacles to innovation | | 1-19 | 20 - 49 | 50 - 199 | 200 and more |
|---|---|---|---|---|---|
| • Firm's lack of financial resources | Imp/Very imp | 42.67% | 27.69% | 43.40% | 28.85% |
| | Unimp./Not very imp. | 28.67% | 40.00% | 35.85% | 55.77% |
| • Lack of financial support from public organisations | Imp/Very imp | 26.67% | 13.85% | 7.55% | 17.31% |
| | Unimp./Not very imp. | 42.67% | 53.85% | 73.58% | 69.23% |
| • Lack of information and advice from public organisations and R- D institutions, | Imp/Very imp | 11.33% | 4.62% | 7.55% | 7.69% |
| | Unimp./Not very imp. | 61.33% | 55.38% | 79.25% | 73.08% |
| • Lack of access to outside expertise, | Imp/Very imp | 12.00% | 9.23% | 7.55% | 9.62% |
| | Unimp./Not very imp. | 56.67% | 52.31% | 75.47% | 69.23% |

| | | | | | |
|---|---|---|---|---|---|
| • Lack of skilled workforce on the labour market | Imp/Very imp | 20.67% | 23.08% | 32.08% | 11.54% |
| | Unimp./Not very imp. | 51.33% | 44.62% | 43.40% | 57.69% |
| • The organisation of the firm as an obstacle to the development of new ideas | Imp/Very imp | 12.67% | 18.46% | 41.51% | 28.85% |
| | Unimp./Not very imp. | 58.67% | 38.46% | 32.08% | 38.46% |
| • The organisation of the firm as an obstacle to learning and improvement of existing ideas | Imp/Very imp | 10.67% | 15.38% | 30.19% | 21.15% |
| | Unimp./Not very imp. | 60.67% | 43.08% | 37.74% | 44.23% |
| • Main clients' reluctance to change their purchasing habits | Imp/Very imp | 18.00% | 32.31% | 24.53% | 19.23% |
| | Unimp./Not very imp. | 46.67% | 41.54% | 43.40% | 34.62% |
| • Tax system | Imp/Very imp | 32.00% | 27.69% | 28.30% | 38.46% |
| | Unimp./Not very imp. | 40.67% | 47.69% | 52.83% | 42.31% |
| • Public regulations and bureaucracy | Imp/Very imp | 40.00% | 24.62% | 47.17% | 50.00% |
| | Unimp./Not very imp. | 35.33% | 43.08% | 41.51% | 25.00% |
| • Professional regulations and standards | Imp/Very imp | 22.00% | 20.00% | 30.19% | 30.77% |
| | Unimp./Not very imp. | 51.33% | 44.62% | 50.94% | 51.92% |
| Others | Imp/Very imp | 14.67% | 10.77% | 9.43% | 9.62% |
| | Unimp./Not very imp. | 12.67% | 13.85% | 11.32% | 5.77% |
| N | | 150 | 65 | 53 | 52 |

**Table 8**: Constraints on innovation according to firm size

If we compare only the smallest and largest firms in our sample, we can see that:

- in the smallest firms, the major constraints are the same as those of the sample as a whole, namely "firm's lack of financial resources", "public regulations and bureaucracy", and "tax system";

- in the largest firms, the financial constraint is not so important. However, organisational constraints and constraints linked with professional regulations and standards become more important.

| Size of firms<br><br>Obstacles to innovation | 1-19 | 20 - 49 | 50 - 199 | 200 and more |
|---|---|---|---|---|
| • Firm's lack of financial resources | 1 | 2 | 1 | 4 |
| • Lack of financial support from public organisations | 4 | 9 | 10 | 8 |
| • Lack of information and advice from public organisations and R-D institutions | 11 | 12 | 10 | 12 |
| • Lack of access to outside expertise | 10 | 11 | 10 | 10 |
| • Lack of skilled workforce on the labour market | 6 | 5 | 4 | 9 |
| • The organisation of the firm as an obstacle to the development of new ideas | 9 | 7 | 3 | 4 |
| • The organisation of the firm as an obstacle to learning and | 12 | 8 | 5 | 6 |

| | | | | |
|---|---|---|---|---|
| improvement of existing ideas | | | | |
| • Main clients' reluctance to change their purchasing habits | 7 | 1 | 8 | 7 |
| • Tax system | 3 | 2 | 7 | 2 |
| • Public regulations and bureaucracy | 2 | 4 | 2 | 1 |
| • Professional regulations and standards | 5 | 6 | 5 | 3 |
| • Others | 8 | 10 | 9 | 10 |

**Table 9**: Classification of the main constraints on innovation according to firm size. Classification of shares of firms of each size which regard each factor as an important/very important constraint on innovation.

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