

Organizational Innovation in European firms :

A critical overview of the survey evidence

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The purpose of this paper is to provide an initial synthetical analysis of the lessons to be drawn from the study of the diffusion of organizational innovations in European firms¹. This study is based on the exploitation of four major nationwide surveys that were respectively carried out in Germany, Great Britain, Denmark and France². Thus, the present working paper intends to complete and extend a series of studies aiming at making a thorough examination of the links existing between organizational innovation and firms' competitiveness, as part of a reflection already initiated in « Made in Europe »³.

Considering the vast array of the methods and measurement or evaluation tools that are commonly used (making extremely difficult to compare results) and the largely heterogeneous aspect of the different methods, goals, and consequently final results of those different studies, our ambition will remain limited.

¹ The present paper is thus based on the various investigations carried out on this theme, and more particularly on L'huilery [1997], but it is different in so far as its special object....

² For a first presentation of the characteristics of those major surveys, please refer to the charts to be found in the first annex to this study, as established by S. L'huilery [1997]. Let us warn our reader that the results of the French surveys will not be mentioned in this paper, since they are available, in their exhaustive version, notably in Greenan [1996a] and [1996b]. These works will mostly be used from a methodological viewpoint, in order to contrast and discuss some approaches or results that we will deal with later on in the course of the present study.

³ On this aspect, please refer to the special issue « Made in Europe » of the IPTS review (IPTS [1997-15]). Concerning the links between organizational innovation and European firms' competitiveness, cf. Andreassen e alii [1995] (chapter 1), as well as the various contributions by Coriat, Dosi, Weinstein, Malerba e alii, in IPTS [1997] and IPTS [1997-15] .

Yet, in order to fulfil our goals, we have decided to focus our attention on the following three series of problems :

1. **the identification and nature of organizational innovations**, as they stand out from the various surveys,
2. a first approach of **the scope, levels and modes of the diffusion of organizational innovations** in the european firms,
3. some preliminary findings a regards the **appraising and measuring of the performances that can be directly linked to the dissemination of innovations.**
4. Lastly, in a final section, we will offer some reflections on the results themselves, as well as on the means used to **pursue the investigation** on the various themes dealt with in the present study.

1. IDENTIFICATION AND CONTENT OF ORGANIZATIONAL INNOVATIONS

A close analysis of the various questionnaires, as well as of the use their authors have made of them, highlights the fact that the **implicit concepts of organizational innovation largely differ** from one survey to another. Our intention is to make things clearer on the following points.

1. « Forms » versus « organizational traits » : two alternative approaches

A first contrast shows up in the questionnaires, whose aim is to trace organizational innovations by trying to **identify the patterns of labor division and task coordination**, that are generally clearly identified (for instance the introduction of “teamwork”, “just-in-time” methods or the existence of quality circles...), considered as sufficiently recent and representative of innovative practices, of approaches that essentially try to appraise some **new organizational traits**, without really paying attention to the means and patterns used to obtain them. Thus, the following two groups of approaches can be described.

1. A first group of questionnaires is based on based on « new », and supposedly well identified « forms » of organization.

The most representative ones were used by the ISI [1996-1] and [1996-4]. Searching for « **New Production Concepts** “, the ISI carried out several investigations. A first series of results (cf. ISI [1996-1] is based on a list of 8 items, most of which are directly focused on tracing the existence (or not), among the firms that were surveyed, of practices directly corresponding to clearly identified organizational patterns (quality circles, kan-ban systems, JIT with suppliers, team work, certification).

The idea underlying this survey is that these new, both recent patterns, whose **efficiency has been acknowledged** (at least in certain environments and under certain conditions), constitute an accurate indicator of the firms’ move towards a certain organizational state of the art and know-how that, at a given period, (the 90s), characterize a given industry.

2. Another group of questionnaires is based on what we call specific « organizational traits » of the innovating firms.

The most representative of the surveys based on such an approach is the Danish one (DISKO [1996-16]) and (DISKO [1996-17]), which appears as solely focused on **the search for some “organizational traits” attached to the innovative firms**. Thus, contrary to the German survey approach, only one question in the Danish one (among the 7 core questions making up the basic questioning relative to changes), deals with a codified and identifiable organizational pattern (namely : the presence of “quality circles” groups). The majority of the other core questions (5 in 7) mostly deal with the identification of the implementation of « principles », corresponding to some

traits of intra-organizational coordination methods, such as the setting up of cross occupational working groups, systems for collection of proposals from employees, job rotation, delegation of responsibility, integration of function. The last question deals with wages based upon quality and results (cf. DK appendix : Graph 1)⁴.

Such questions aim at pointing out some **organizational attributes**, that are implicitly considered as so many positive indicators of an organization's abilities to react and evolve when faced with unstable environments. Hence the insistence on some criteria relative to **intra and inter-group cooperation and cooperation patterns**, within each organization.

Indeed, the model proposed here (cf. Disko [1996-17] is that an **“innovating firm”** is a **“flexible firm”**. The latter trait being defined as **the dynamic capacity to adjust to changing environments**, paying less attention to the organizational patterns that make it possible to reach such a pattern than to the abilities to react, that can eventually be associated to and result from such patterns. The degree of flexibility is gauged from 0 to 14, according to a double set of criteria that concern “internal flexibility indicators” (i.e. intra-organizational changes) on the one hand, and “external” flexibility indicators. inter-organizational changes) on the other. (cf. DK : Graph 2).

In practice, however, it is often a mixture of those two basic approaches that dominates, in which the different criteria are intertwined (see for example the British or the French surveys).

After this first and brief study of the structure and composition of questionnaires, we can thus point out the vast diversity and heterogeneity of the implicit conceptions of organizational innovation. Indeed, such heterogeneity calls for a commentary, both theoretical and methodological, on **the very definition of organizational innovation**. We will deal with this subject later on (cf. the conclusion of the present section), so as to be able to examine the subject more thoroughly, with the help of further data.

2. On methodology and indicators

It is rather difficult to interpret the extent of the changes that have affected the division of labor with the available answers. The main difficulties can be presented as follows.

1. Firstly, it is impossible to identify the differences existing between various innovating patterns. For instance, if most questionnaires include questions relative to the introduction (or not) of “teams”, the answers remain too vague. **Is it possible, for instance, to compare teams that are set up after the Swedish model to those imitating the Japanese model ?**⁵ In the same way, it is also impossible to have any idea about the nature and contents of the **learning processes**⁶ that take place within work teams, since they largely vary according to how those teams are coordinated, about the levels of the tasks and responsibilities those teams are entrusted with, and about the way they are inter-related and their relationships with their hierarchies.

⁴ All the charts and graphs that were gathered in the various national surveys appear in the appendix to the present report. They are identified under DK for Denmark, G for Germany, and GB for Great Britain.

⁵ On this point, please refer to Cole's founder works [1979].

⁶ Cf. the discussion between Cole and Adler [1993] and Berggren [1994] on the comparison between NUMI and UDDEVALAA, as well as our suggested re-reading of it, in Coriat [1998] to be published.

2. Similarly, we may question some of the indicators that are used in the different surveys. It is the case for example of the “outsourcing” indicator used in the British survey. In the absence of any information relative to the criteria applied by firms to such a process of outsourcing, it is, indeed impossible to identify the concrete practices deployed the firms. If outsourcing consists of subcontracting a certain kind of activities through classical and very old forms of “bidding”, outsourcing certainly corresponds to an organizational change, but can we go as far as to say it is an organizational **innovation** ? (It is by the way worth noting that the results of the survey on this innovating process in terms of performances are quite mixed...)⁷.

Likewise, in the British survey for instance, the use of an indicator such as the existence or not of BPR (Business Process Re-engineering) poses a problem. Indeed, the existence of such a process within a firm clearly testifies to changing organizational patterns, but nothing can be asserted as to the nature and orientation of those changes, or the new organizational patterns or traits themselves. Has there been an effort to rationalize, after a classical Taylorist approach aimed at the division of labor, or conversely, have some teams and cross exchange groups been set up in order to devise forms of coordination, less hierarchical and more “horizontal” ? **The use of this kind of indicator as such does not make it possible to choose between these two options which, as far as innovation is concerned, would however lead to some very different conclusions**⁸. This remark applies to « outsourcing » criteria already presented ⁹.

These considerations confirm, if need be, the necessity to have a **preliminary and explicit reflection on the concept of organizational innovation which is used as a reference** as well as a justification for the use of the indicators that are considered as relevant.

3. Lastly, some other questions ought to be mentioned, like, for instance, those related to the difficulty to estimate **the level of novelty** that can be associated with effective changes. This limit already exists when dealing with well-known and codified practices, but it is all the more important when dealing with **practices that could be « real » innovations** (i.e. if they are different from the

⁷ Other works (particularly those of the French surveys, cf. Greenan [1996a] and [1996b] for instance), explicitly

deal with this subject and bring negative answers. Such is the case, for example, when , starting from the typology between 4 big series of firms established in Greenan [1996a], one of the categories brings together a group of firms that did undertake changes, but in order to get a more thorough approach of the traditional modes of the division of labour. Such an approach thus **poses the question of the legitimacy to consider any noticeable pattern change, whatever its nature, as an innovation.**

⁸ As can be seen, it is indispensable to clarify the question of knowing whether any « change », (and no doubt the re-engineering practice leads to one), can be considered as an innovation or not.

⁹ The same kind of problem arises in the Danish survey with the indicators related to « wages based upon quality and results, not piece work ». Let us note here that the indication « not piece work », included in the question firms had to answer, is highly interesting, since it enriches the reflexion already formulated about the difference to be established between « organizational forms » and organizational innovation. The indication « not piece work » is interesting in so far as it clearly indicates that the survey does not aim at identifying **any kind of change** (the introduction of wages based upon piece work would represent one), but **some particular types of changes**, that are supposed to be sources of innovation. To put it differently, in the Danish survey, **an implicit innovation concept exists, which makes it possible to differentiate between two types of changes**, clearly separating those that can be considered as innovations from those that cannot.

« best practices » in the considered industry). **Such radical new practices, once they have been designed and introduced, cannot be identified**¹⁰.

Having reached the end of our questioning on the way organizational innovation is captured and characterized in surveys, we shall try to offer a first series of conclusions.

3. A first assessment : the notion of organizational innovation and how it is captured in surveys.

Is it possible to merge the various implicit or explicit notions of organizational innovation used in surveys into one sole notion ? If so, can this sole notion enlighten the discussion and possibly be used as an anchor for the definition of pertinent and coherent indicators ? We now intend to answer these questions.

Organizational innovation as a simple change organizational change.

The reason why organizational innovation is difficult to identify is its **multidimensional character** which, from an empirical as well as a theoretical viewpoint, can only be approached and defined as a **joint** group of attributes.

If we limit ourselves to the information gathered from our previous investigation, it appears that innovation can be captured either through i) some very clear-cut **patterns of labor division** (i.e. the existence of “teams”, a question to be found in almost all surveys), or ii) through **the ways tasks are coordinated** between actors within the basic work units that are analyzed between those same unit themselves (for instance the more or less “cooperative” modes of distribution of information), or else, and more often iii) through a **combination of both types of indicators**.

Matters get even more complex if we point out that the **coordination mode** itself, being very subtle, is not easy to define, since when considered in its broadest meaning as « relationship patterns between goal-pursuing agents » (March and Simon [1993]), this kind of approach can be made by using extremely diverse elements and procedures. Taking the works of Simon and March [1993] as a reference, it is possible to assert that coordination, as for its contents, encompasses the following three areas, namely : the management and processing of **informations**, of **knowledges and of (conflicting) interests** management, they themselves being coordinated through different types of incentives¹¹.

Our analysis makes it clear that the various approaches differ according to what they consider as innovations : either patterns of labor division (dominant in the German approach) or coordination specificity's (i.e. the Danish approach), using mixed tools to capture the process of information,

¹⁰ Only the qualitative survey might succeed in doing so. Some organizational innovations developed by American firms and relative to R&D management and product innovation could only be captured via qualitative, monographic surveys (Cf. Iansiti and West [1997], as well as, more generally on this particular aspect, the reflexion conducted by O. Weinstein [1997]).

¹¹ In a recent article (cf. B. Coriat, O. Weinstein [1997]), we tried to point out all the benefits that could be had from an organizational approach based on the distinction between information, know-how and interests, showing how the different theories relative to the firm finally depend on one or the other (or sometimes both) of these determinations. We think the same benefit can be had from these distinctions by applying it to the notion of organizational innovation (cf. later on, when this viewpoint is developed and discussed).

know-how or interest coordination¹². The problem is that the indicators selected by the surveys can provide only one of the constituting dimensions of organizational innovation, which, by itself, does not lead to strongly consolidated conclusions.

To put things differently, if we consider that organizational innovation consists of a **cluster of changes affecting the labor division and coordination patterns that prevail within a given organization (or between several organizations), these very patterns possessing a triple dimension (information, knowledge and know-how, interests)**, we then understand what each one of the implicit concepts of organizational innovation captures, and the difficulty to interpret the result of the confrontation of the information delivered by each one.

The lack of clarity resulting from the comparison of the different questionnaires is due to the fact that in the absence of a complete and coherent definition of organizational innovation (clearly stated ex ante), those questionnaires (including the items they contain), try to capture one or the other of the dimensions of organizational innovation, treating it as an indicator of the presence of organizational innovation itself.. This implicit strategy is certainly efficient when considering its object: it clearly indicates the presence or the absence (i.e. the sign of a possible organizational innovation), but it is not really informative about its real contents, or the distance that separates it from the previous organization. It does not tell us anything either on the degree of coherence between the different dimensions of the change introduced (between level and type of labor division and coordination patterns) or the real depth of the change.

Having said this, we can now tackle the subject of the more precise relationship existing between a mere change of pattern and organizational innovation.

Organizational change and « innovation »

We can certainly infer from the above analysis that a constituent element of organizational innovation lies in its own change of pattern. Does it necessarily mean that any change of pattern corresponds to a form of innovation, or to put it even more bluntly, if an organizational pattern change is a necessary condition to organizational innovation, is it a sufficient one ?

The analysis of the different questionnaires fails to bring homogeneous answers. One part of the surveys implicitly brings affirmative answers to our questions, by implicitly saying that any pattern change corresponds to a form of organizational innovation. Such is the case with the British survey, in which innovating practices include the mere existence of re-engineering (whatever the object) or outsourcing, even if, as it has been pointed out before, in both cases, nothing allows us to distinguish the meaning or the contents of the pattern changes involved in such practices. The Danish survey, on the contrary, thanks to certain questions, clearly shows **that only some changes are considered as factors of organizational innovations.**

Is it possible to choose between these two options ? If we follow the Danish intuition, the pattern change can be considered as innovating only in the presence of a list of pre-established best practices (or organizational traits obtained thanks to their introduction within organizations). This type of approach entails the possibility of determining such a list. **The Danes manage to do so by asserting that the change of direction leads to a given notion of « flexibility », and that only the practices that make it possible are innovating.** The British survey, on the other hand, is more

¹² From this standpoint, it is then perfectly legitimate for payments by results (i.e. the Danish survey) to be selected as indicators.

agnostic as to the existence of a supposed « direction » for innovation, since any change is considered as an innovation indicator.

All in all, and without aiming at reaching a decisive conclusion, it should be noted that one of the difficulties of defining organizational innovations (and so to capture and measure them in surveys) lies precisely in the necessity of having to (even implicitly) make a choice so as to decide which (and for what reasons) change **practices** can be considered as innovative, thus excluding other practices that are not considered as representative of organizational innovations, in spite of their existence.

2. SCOPE, LEVELS AND PROCESS OF THE DIFFUSION OF INNOVATION

Even if the groups of firms taken into consideration by the different surveys are heterogeneous (cf. chart down below), a certain « image » of the dissemination of innovative practices can be outlined.

1. The populations targeted by the different surveys

Sector-related surveys

For instance the German survey (ISI), whose scope is strictly restricted to the **machine tool sector** should be mentioned. In this case, and even if its conclusions cannot be applied to other sectors, the survey offers the following advantages : i) it is easier to interpret the collected data. Indeed, in this case, with a survey focused on the dissemination of a given number of patterns known for their innovative aspects, the analysis of the comparability of the dissemination of the various patterns and of the performances that are associated to them takes on a real meaning ; ii) size effects are also significant. Some very accurate and pertinent remarks (if not conclusions), have been made regarding the dissemination of the various patterns and their effects, according to firms' sizes.

Multisector-related approaches corresponding to a given firm size

The British survey belongs to this category. It targeted **all the medium and large sized firms**, classified in 4 categories (beyond 150-259, 300-499, 500-999, beyond 1,000), out of a sample taken from 15 sectors considered to be representative **of the whole manufacturing sector**¹³. (Cf. GB : Graph 2).

More generalists surveys

The Danish survey is here a good illustration¹⁴, since its goal was to **cover the whole Danish private sector, in both manufacturing and services**. In this case, it has become possible to infer some lessons after comparing firms' behaviors in both sectors, and several unexpected aspects have shown up.

2. First findings about diffusion

Our intention here is to analyze some of the results provided by various national surveys, country by country, before formulating some more global remarks.

¹³ The initial ambition, partly fulfilled only because of the unequal rate of answers, was to interview 10 firms in each sector. In spite of the difficulties, this average was almost respected.

¹⁴ It is worth noting that the French survey belongs to this category. Indeed, it deals with a wide range of manufacturing sectors, in order to establish a typology among four categories of firms (cf. supra).

Yet, we should make a preliminary and useful comment on **the origins of changes**. According to a commonly held belief, the driving motive behind the introduction of changes is, for innovating firms, their **perception of a fiercer competition**¹⁵, **both in its classical patterns** (cost or market share-based competition) **and its newer ones** (competition based on quality, delays, flexibility, responsiveness)¹⁶. The most active firms, as far as changes are concerned, are those that have the most acute **perception** of the changing environment and of the threats looming on the horizon.

In Great Britain, dissemination is less extended than expected, but « alive » and bound to develop.

If we first consider Great Britain's case, the extension of the various practices among firms is **not as great** as expected. A more precise idea can be obtained if we compare the results of the group of the most disseminated practices to those of the least disseminated ones.

The most disseminated practices : CSCP, JIT, TBWG, ICT¹⁷, have entirely or largely penetrated only 1/3 of all firms, while these same practices (even if they are the most widespread nationwide) are practically absent in about 1/3 of firms.

If we consider the least disseminated practices (TQM, Outsourcing, Concurrent Engineering and Manufacturing Cells), we notice that they are totally or practically absent in more than 60% of all firms.

We should take into account the fact that the majority of the most widespread practices are recent (the 90s), whereas the least disseminated are generally older ones, for instance « Outsourcing » and « Manufacturing Cells » (cf. GB : chart 4).

It is worth noting that **wherever these practices have been introduced, they are still alive**, and have never been abandoned. It is even more encouraging to find out, through the questionnaires, that their massive extension is envisaged in the future. For all of the 12 practices, only less than

¹⁵ This motive comes first, if we put aside the fact that technological innovation is largely mentioned as a reason for organizational change, which thus appears as induced and determined by the introduction of new technologies.

¹⁶ This clearly appears in the Danish survey. Among the various sources of changes, we find « Sharper competition » (81,7%), then « need for better contacts with customers » (68,7%), implying « need for better flexibility for employees (81,9%) and « simulating the development of qualifications » (68,7%). (cf. DK : graph 4).

According to the British survey, which focuses on three reasons for changes : « Cost Cutting », « Quality Improvements » and « Responsiveness », or on the combination of these reasons, all three related to competition patterns, they are directly responsible, whatever the practice, for the introduction of changes (cf. GB : chart 5). On this aspect, the British survey is even more precise, since it makes it possible to associate the type of « practices » chosen by firms to each one of these reasons.

As for the German survey, it confirms the answers already examined, i.e. that the perception of a competitive environment, threatening their existence and their incomes is at the heart of innovative firms' initiatives. This is confirmed by the fact that the best results in terms of performances have been obtained by the firms whose existence was most threatened, because of the deterioration of their competitiveness (cf. ISI [1996-1]).

¹⁷ Our readers should be reminded that the definition and contents of the different practices acknowledged as innovative appear in the appendix (cf. GB : chart 1).

10% of all answers envisage their reduction, except for Outsourcing, where the percentage goes up to 22% (cf. GB : charts 8 and 9).

It seems then that the group of innovative firms (users), less tightly organised than might have been expected, is deeply attached to its practices and undergoing changes, and even envisages their development and extension.

In Germany and Denmark, the pace of introduction is fast, but dissemination remains relatively slow.

The German study, though conducted with different analysis and measurement tools, does not contradict these results. The following aspects are highlighted by this study.

Whereas the dissemination pace is relatively fast, the dissemination level remains moderate. Except for the changes that have been operated with a view to obtaining a « certification » (the strong German trend towards changes aiming to improve or guarantee quality has already been insisted upon), there is a wide gap between the presence of a new practice inside a firm and its extensive use, which means that new practices are often only locally developed, so as to obtain given results. Hence the scope for their development and extension (cf. A : charts 1 and 3).

The Danish survey points out the same trend (cf. DK : 6A, 6B and 6C). Dissemination remains extremely contrasted : it is very uneven depending on the practices concerned, and introduction paces themselves largely vary. In all cases, the number of firms showing little concern is important. Lastly, like in other national surveys, we can notice that when an innovative practice is present, the vast majority of answers indicate that the concerned populations remain inferior to 50%. When such practices are effectively in use however, they are developing fast.

To bring an intermediary conclusion to this point, it seems that **beyond national specificities, some structural traits of the dissemination of organizational innovation could be distinguished. This dissemination , though limited, is significant, both in the number of firms concerned as for the populations inside those firms, since the latter tend to favour differing practices. Lastly, the firms that have embarked on organizational innovation process intend to carry on and to develop and extend them.**

3. Size and sector-related effects

The questionnaires have highlighted another dissemination trait, relative to clearly identified size and sector-related effects.

As for size-related effects, the German study clearly states that whatever the nature of the considered innovation (three different ones were measured), the dissemination level of organizational innovation increases with the size of the firm.

Likewise, if we consider the firms' sector or nature of activity (following a product/market type approach), dissemination levels vary, as well as the dissemination of each one of the patterns (cf. A : chart 2).

These results lead us to insist on the fact that if innovation choices (i.e. of the different patterns introduced) are a key element in the firm's performance, **they do not all have the same goals and cannot be developed in the same environments.** The firms' characteristics (size,

products/markets,...) thus imply the most relevant selection of innovation patterns, in accordance with the firms' capacities to absorb them.

Though it was conducted slightly differently, the Danish survey showed the same size and sector-related effects. As we know, in this study, innovation was measured according to a « global flexibility index ». Using such a measurement tool, the following conclusions were reached : i) medium and large-sized are more innovative (or « flexible » », as the authors of the questionnaires put it) than small ones ; ii) the manufacturing sector is more prone to innovate than the service one (cf. DK chart 3B).

Some additional illustrations of this phenomenon could easily be provided. In so far as it seems clearly established (cf. S. L'Huilery's analysis [197] which confirms this result on a wide sample of national surveys), we will limit ourselves to these indications.

4. Factors or limits to innovation development, development potentialities

The Danish survey offers a particular interest regarding the factors that may hinder or boost the dissemination of innovations. Indeed, it contains some questions that try to locate and identify these factors in an explicit way.

Three potential determinants are thus examined.

1. The survey tries to find out to what extent **different categories of internal actors** within a firm facilitate or limit innovative practices. The analysis of **the role played at different levels by hierarchy and management** provides valuable indications on some « micro-micro » factors of the dissemination of innovations (cf. DK : chart 8). It should be noted that these indications are in perfect agreement with those, more qualitative, which are provided by other works on labour or organization sociology, that all insist on the role of « middle » management in the success of organizational dissemination, the decision to innovate largely depending on the top managers' will and their personal commitment in this direction.
 2. It also tries to determine the role played by some « **external** » **factors** : the availability of financial « stimuli », the proximity of resource centres on which to rely in order to foster a policy of organizational changes. On the whole, these factors play a minor role (positive or negative) compared to internal ones (cf. DK : chart 8).
 3. An important aspect is that of « **immediate environmental factors** », which play an uneven role, according to circumstances, in the adoption or dissemination of innovations. The need for contacts with customers or among workers themselves¹⁸ seems to play a clear role in the decision to innovate. It is quite surprising, on the other hand, to note that contacts with subcontractors do not seem to matter much.
- l. It is worth insisting on **the role played by staff turnover** (due to dismissal or hiring procedures) **in organizational changes**. Hiring appears as closely tied to changes and it is one of the characteristic factors that accompany the greatest changes. The hiring of new staff (and thus new skills) seems to play the most significant role in the most flexible firms. Consequently, staff turnover (dismissal, hiring and also intra-firm mobility) seems closely related to organizational changes. It is notable

¹⁸ This indication is perfectly coherent with that relative to the role played by the « micro-micro » determinants of innovation dissemination.

that this result is largely verified in the French surveys that have tried to evaluate the effects of organizational (or technological) changes on qualifications (cf. Greenan [1196a] and [1196b]).

5. Lastly, we ought to recall that whatever the difficulties or obstacles to the dissemination of innovations, most questionnaires agree on the fact that even if organizational innovation **development potentialities** vary according to patterns or practices, they remain on the whole important. The three Danish, German and British surveys all agree on this point (cf. DK : charts 6A, 6B, 6C ; A : charts 3 and 4 ; GB : charts 10 and 11).

5. To conclude : « a european club of innovative firms » : its main traits

We have said, earlier on, that when examined from the dissemination viewpoint, the different national surveys conveyed the idea that innovative firms constituted a kind of « club ». Our purpose here is to give more information on some of these main traits :

- innovative firms represent a significant percentage (about 1/3)¹⁹ of all the firms surveyed, but they do not make up a majority ;
- they are generally to be found among larger firms rather than in small and medium-sized ones ;
- according to the Danish survey (the only one to question this point), they are mostly found in the manufacturing rather than in the service sector, even if this result should be tempered by the fact that service industries are more likely to be naturally flexible, which makes the need for organizational change less urgent and pressing ;
- innovating firms are not necessarily those that experienced the worst difficulties, but are found among those that are most aware of the changes that have occurred in their environment and of the need for them to adjust to those changes ;
- a strong group shows up among innovating firms, applying organizational innovation in several areas and under different patterns : innovating firms thus seem to have mostly embarked on multidimensional process ;
- lastly, those processes seem to possess their own self-fuelled dynamism. The firms that have embarked on organizational innovation processes are generally keen to persevere along on this way, even if the first results, notably in terms of economic benefits, do not always measure up to previous expectations.

These outlines, even if they should be more precise, thus provide a first image of what innovative firms are like.

3. PERFORMANCES

1 . The diversity and relevance of the chosen indicators

The nature of the chosen indicators varies considerably according to the surveys, but such diversity represents a valuable source of knowledge. Things may be presented as follows.

A first series of approaches aims at establishing quantified performance measurements per category of organizational innovation.

The German study clearly opted for this approach. It offers the following three traits :

¹⁹ This percentage is purely indicative. Different results are obtained according to surveying techniques and aggregation procedures. Still, this percentage seems to us not too far from reality.

-The measurement is carried out by comparing, for each one of the chosen patterns, the performances obtained by the firms that use the given pattern with those that do not use it. The benefit of organizational innovation is thus distinctly quantified.

-Three performance criteria may be listed : **a) the VAT evolution per head** (between user and non-user firm), **b) the savings in terms of garbage and rejects**, **c) the effects on the reductions of the number of inventory days for outstanding bills**. It is worth noting that **d) the cumulated effect** of the three types of practices is also evaluated.

As it appears, most indicators refer to **the logic of cost reduction and thus of cost competitiveness, in the classical approach**. Yet, as we will see later, the German survey, concerning the relationships between organizational innovation and product innovation uses indicators that mostly refer to non-cost and quality.

Other more qualitative approaches combine cost and non-cost competitiveness indicators.

The British survey opted for a unique and different approach. Indeed, the impact of different practices on different performance indicators is evaluated. To be more precise, the method consists of evaluating the different practices according to three series of goals : a) cost reduction, b) quality improvement, c) **responsiveness** to the market. We ought to notice the interest of such an approach, which tries to assess cost/competitiveness and then non-cost impacts before offering a more dynamic and heterogeneous indicator, i.e. responsiveness.

Yet, it should be mentioned that performances are evaluated after a very special criterion, i.e. « **the degree of conformity of performances compared to expected goals** » (in terms of cost, quality or responsiveness). As well, this degree of conformity should be attributed to the appreciation of managers who introduce changes (cf. GB : charts 5 and 6).

The originality of this evaluation method partly accounts for performances that do not always measure up to previous expectations. As the survey points out, the question that may be asked is whether the managers' expectation levels were not too high. However (cf. section 2 of this article on the dissemination of innovations), the performances are always evaluated as sufficiently good for their development potentiality to be deemed important by the very managers that provided the value judgements (even when the latter are mitigated and express their disappointment when compared with previous expectations).

2. « Cost » and « Quality » effects

Whatever the diversity of approaches and measurements, it is striking to notice that a common lesson can be drawn from the surveys : **the effects of the introduction of organizational innovation are always significant**, whether they be cost or quality effects, and the correlations between innovations and performances are always obvious.

This element also accounts for the fact that when this information was collected, it clearly appeared that innovating firms really intended to pursue the introduction of new practices, except for rare cases, when their development was not envisaged. Quite significantly, it concerned older practices (outsourcing), whose innovating character could be questioned (BRE), if we refer to two examples taken from the British survey.

3. Other findings

1...According to innovation patterns, sectors and firm sizes

Several lessons can be drawn and be submitted to discussion. The main ones are as follows.

1. Each practice seems perfectly well adapted to a specific goal. One of the obvious results of the British survey is to establish that **different practices seem respectively better adapted to specific goals**. « Thus for example TQM has been shown to perform relatively well at improving quality, whilst JIT is more successful for increasing responsiveness... » (cf. ERSC [1997]). Hence the following conclusion : « **a differentiated and targeted approach is required** », whose meaning we will deal with later on.
2. A « grape-shaped » development. Another conclusion of the British and German surveys points out the existence of **complementary** effects between practices. Thus, in the British survey and according to its authors, SCP, Teams, ICP and TQM develop at fast and comparable paces, and are accompanied by good performances. So that innovations seem to call for one another, to reinforce one another in order to develop complementary effects between themselves. To use an analogous image to Schumpeter's suggested one, we could say that **certain series of organizational innovations develop after a grape-shaped pattern**.
3. The existence of a given pattern does not guarantee that its introduction took place in the required and efficient conditions. Besides, and as the British survey points it out, it is always possible for a given practice to have been introduced (and quantitatively selected), but nothing ascertains its introduction was rightly or efficiently carried out. It is not surprising then that this practice should be associated with disappointing performances. As it is mentioned in the British survey : »For example, Team work based Working groups can take many different forms. An investment in this practice may have met with failure because the form implemented was not the « best ». This may be further complicated because what is « best » may vary between situations. For example, one form of Team-Based Work may suit one company but not another » (cf. ERSC [1997] p.31).
4. The « systemic » dimension : some contrasting effects that do not necessarily provide the same results

Each time surveys have tried to evaluate this aspect, they have stressed the fact that not only do different types of innovations or practices disseminate unevenly according to firms' sizes or sectors of activity, but the effects of identical practices in terms of performances distinctly vary according to the specificities of the firms that use them.

This result was pointed out by the German survey. From this point of view, the comparison that was established between two types of companies (cf. A : chart 8), is particularly interesting. It shows : i) **how identical practices are unevenly disseminated according to the firms' sizes and specificities** and ii) **how different performances are associated with certain practices (for instance the setting up of team work)**. The explanation is given by comparing the different nature s of the labour organization in both types of firms, operating on different markets.

In the same way, the British survey shows that there may be a contradiction between different practices if their respective goals are taken into consideration.

5. To Conclude : some positive, obvious, but largely perfectible effects

The following points seem to emerge out of the collected data.

Firstly, however imperfect they may be regarded when taken individually, the diversity of the indicators that were used is, in itself, a good result. It shows that **different approaches may be pursued** in such a task, from simple qualitative measurement tools (cf. the British questionnaires relative to performances evaluated by managers), to accurate ones in terms of impact on the added value or the shortening of development periods (cf. German studies). Once more, **the addition and complementarity are significant**. For lack of undisputable indicators or data capture instruments, the diversity of approaches and the concordant aspect of the results that were obtained allow an approximative capture, thus giving credibility to the whole thing.

Basically, and even if each particular measurement tool is, as said before, incomplete or disputable,, the conjunction of data points out the fact that **the introduction of organizational innovation really entails improved performances**. The latter vary according to the category of firms, their size or sector of activity, but the whole trend cannot be questioned.

These positive effects concern **cost competitiveness as well as numerous other factors related to non cost competitiveness**. We will deal with this aspect later on because we think it is of special importance and should contribute to the forthcoming reflection on this theme.

Lastly, the systemic dimension of the effects of organizational innovation on performances should not be left aside. **Indeed, innovations appear all the more positive as they were introduced « additionally » and complementarily and are accompanied by more consistency** with the other organizational dimensions of the firms they penetrate.

4. CONCLUDING REMARKS, AND FURTHER REFELXIONS AND ORIENTATIONS

Havaing reached the final stage of our study, our intention is now to sum up its main conclusions and indicate a few key areas which should be investigated more thoroughly.

1. Problems of Definition and Measurement

The main difficulties are inherent in the multidimensional character of organizational innovation, and also in the fact that most of the accepted definitions (often implicitly) **do not generally encompass the whole dimension of the phenomenon**.

We are also faced with another difficulty, i.e. the relevance of the distinction between « pattern changes » on the one hand, and « organizational innovation » as such on the other. This question should not be underestimated because several French surveys have pointed out that some clear-cut pattern changes have often been identified within firms that could not be considered as innovative, in so far as organizational innovation and state of the art are concerned. **On the contrary, those surveys show that some clear-cut and coherent pattern changes aim (and manage) to set up organizational patterns that reproduce Taylorist patterns.**²⁰

Nevertheless, we hope the present study will have pointed out a few useful principles to avoid such difficulties. Indeed, if we admit that organizational innovation takes up the treble dimension of **information, know-how and interest coordination**, it then seems feasible to build up coherent questionnaires, that will later make it possible to clearly identify the real nature of pattern changes,

²⁰ This remains true even if, in some cases, they try to take advantage of recent innovations (for instance quality circles, used as tools to exert closer social control on labour than in classical Taylorist patterns, where such control can only be exerted at a distance, by branch foremen).

as well as their coherence, and finally to evaluate if the considered pattern can really be regarded as an innovation, in the literal sense of the word. The setting up of such a questionnaire, that would avoid the numerous and different limits we have listed in today's available and much used other questionnaires, may doubtless represent one of the most important and efficient extensions of our study.

2. A diffusion which remains discriminated against and not as extended as expected, but with considerable potentialities.

In spite of the heterogeneous aspect of questionnaires, it clearly appears that **European companies are deeply concerned by the introduction of organizational innovating practices**. On this particular aspect, we have outlined the emergence of a « club » of European innovative firms, whose main characteristics have been analysed (cf. section 2, point D).

At this stage of our study, we would like to insist on an essential conclusion, i.e. **the considerable development potentialities still existing for organizational innovation**. These potentialities clearly appear if we consider, whatever the survey, that about 2/3 of companies are only marginally or partially concerned by organizational innovations. It should also be noted that this percentage is much higher if we limit ourselves to small or medium-sized firms.

This remark calls for some additional comments.

- **As far as firms that are already innovating are concerned (about 1/3 of the total, to be found mostly among the bigger ones), all surveys agree on the idea that they have entered a kind of self-fuelled dynamism**. They massively express their intention to carry on along the path of organizational innovation, encouraged by its first fallouts, even if they do not always measure up to managers' expectations.

- **As far as small and medium-sized firms are concerned, i. e. the less innovating ones, it obviously seems that public policies should help them take the plunge**, so that they might join the « club » of innovative firms. In the past, public policies managed to encourage **technical** innovation. It is their duty today to do so with **organizational** innovation.

Such policies would be all the more welcomed since the surveys point out that the performances linked to organizational changes are clearly identified.

3. Organizational innovation is at the crossroads between cost and non cost competitiveness : new arguments in favour of “organizational efficiency”.

This part of the study is of paramount importance because it establishes a series of key proposals that can be summed up as follows.

- The first one of these proposals is that, whatever the selected criterion, **organizational innovation always means increased and significant performances, all the more so it is introduced with continuity and perseverance**.

- As with dissemination, **the potentialities for development appear as considerable** (and both results are perfectly coherent with each other).

- It should mostly be insisted on the fact that **organizational innovations are unique in so far as they influence both cost and non cost firm competitiveness.**²¹

From a theoretical viewpoint, this backs up the idea that organizational innovations should be analysed as **process innovations**²², taking it into account though that their performances simultaneously depend on cost and non cost firm competitiveness, which is not true of all process innovations.. These empirical results more generally back up the series of theoretical work based on the theory of organizations, aiming at stressing the role of « **organizational efficiency** » as a **source of autonomous progress in performances** (cf. B. Coriat and O. Weinstein [1995], as well as Gabrié and Jacquier [1994]).Once again, a more systematic comparison between these theoretical works and empirical results could represent a possible development for the present study, helping to further along the general knowledge on this crucial point.

Taking all these elements into account, a key aspect should be examined by way of conclusion. Indeed, how can we explain the contrasted, if not limited, dissemination of organizational innovation ? If its benefits are so obvious, why do firms often appear (2/3 of the samples, on average) so reluctant and hesitant to introduce it ?

4. Limits and obstacles to the development of organizational innovation.

Several hypotheses can be formulated concerning the slowness or the difficulties with which organizational innovation is disseminated. Some of them are directly provided by the questionnaires that have been analysed, whereas some others are deduced from them. In all cases, the various hypotheses formulated here are not exclusive of one another. On the contrary, they appear as complementary.

- **The incentives for companies to innovate** certainly account for the slowness of the dissemination process. The determining factor seems to be **the intensity with which the changes that have affected the environment are perceived**. As the perception of this intensity varies, the necessity to innovate varies accordingly. Objectively, some sectors or companies are undoubtedly less exposed to competition than others, or else they develop their activities in such a way that external environmental changes are either insignificant for them or do not really concern them. Yet, **the subjective dimension** should also be mentioned. Changes may be quite real without firms perceiving them, or perceiving the need to innovate in order to overcome their difficulties. Such seems to be the case with small or medium-sized firms, whose managers, for lack of overtures, do not always think in terms of organizational innovation. If such a proposal is formulated, it is because it appears that the advice given by professional organizations is often conducive to decisions and individual initiatives among bosses.

- This point should be all the less underestimated as an obvious obstacle to organizational innovation dissemination lies in the fact that **know-how, in this field, is little codified and little disseminated**. It often implies the necessity to resort to experts, which small and medium-sized firms are not used to. It should be noted that **the most widespread practices correspond to**

²¹ These results confirm some prior studies on the same theme (cf. Taddei and Coriat [1993], as well as Andreassen et al [1995]. They also back up the development on the same problem to be found in *Made in Europe* (cf. IPTS [1997-17], as well as Coriat and Dosis's contributions in IPTS (1997).

²² Even if, (though it is a related question), several studies show (cf. those mentioned in ISI) **an obvious and positive correlation between organizational innovations and product innovations.**

relatively well established codifications, for which a clear and visible « supply » exists (provided by specialised consultants or organizations). Such is the case today, for instance, with **certification and normalisation to comply with ISO standards**. To a certain extent, some Japanese practices (JIT), which are developing fast, are made available today, under the form of "« ackages », by specialised organizations.

- Another difficulty (partly linked to the absence of clear codification), lies in the fact that organizational innovation, in so far as it aims to modify inter-agents coordination patterns, **questions hierachical and governance systems within companies**. In this case, the whole social structure itself of the company is concerned, and any organizational change appears as a major risk for managers. Only if they are convinced of the necessity for their firms to undergo such changes will take the plunge. As for « middle management » (which the Danish survey studied more exhaustively), they see organizational changes as a complex mixture of **threats and opportunities**. Threats concerning their well-established and acknowledged prerogatives and skills. Opportunities if organizational change may facilitate their promotion. Thus, organizational change leads to strategic behaviours from agents trying to take advantage of those changes. Hence the risky aspect of organizational change for the company. Hence too, as noted in the Danish survey, the key role played by « middle management » in the dissemination pace and the extent of the organizational changes that are introduced, and ultimately in the company's performances.

Our last word will be to call an essential characteristic of organizational innovation to attention. **Organizational innovation can only fully materialize if its systemic dimension is totally recalled and taken into account**. We mean that a « local » change (concerning one aspect of the division and coordination of labour), may very well lead to no positive results, but even to supplementary disfunctions if the organization is not adapted and made coherent with the locally introduced changes. All the surveys insist on this point. The British survey, for instance, explicitly poses the question whether innovations were introduced at the right place and in the right way. Similarly, the german survey clearly shows that the same king of innovation produces different effects according to the nature of firms. All these elements highlight the difficulty inherent in organizational innovation, which might account for the pace and conditions of its dissemination as well as for the performances that depend on it.

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