INTUITION CAN HELP IN SEGMENTING INDUSTRIAL MARKETS

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ABSTRACT

After pointing out some differences between theory and practice in segmenting industrial market, this paper reviews the literature on the subject. The latter reveals that too mechanist or too quantitative segmentation methods are quite inappropriate for the industrial environment where the markets are concentrated and the data sometimes rare.

Based on this observation, the article suggests, finally, looks at the problem from another angle by mixing formally a little intuition with the analysis. An application of the method is illustrating the end of the article.
Among all the management tools, the segmentation of industrial markets presents a specificity; there is a strong gap between theory and practice. We find on the one hand literature which presents nice theories. On the other hand, we find industrial companies who are miles away from putting in practice these linear and well run-in methods. It is, indeed, very common to see approximate segmentation based on the structure of the actual sales department or on the structure of an existing database. In other words, people make it as easy as possible even if they spoil the job. Yet, R. Corey pretends that only good segmentation leads to good strategy.\(^1\) Shapiro et Bonoma\(^2\) observed that the segmentation—when it is done—does not play the important role that it should. They pretend that most of the time, marketing managers use segmentation as a means to explain the results more than as a way to elaborate planning.

In fact, we feel that the subject is neither correctly treated by literature nor correctly mastered by industrial managers. As B. Saporta\(^3\) says, "when you look at the methods used by industrial companies to segment their market, you feel there is a paradox. On the one hand, the more we study the conditions of work in the companies, the more we are convinced that segmentation should be the starting point of the marketing strategy. At the same time we must admit that segmentation is rarely used, and sometimes badly understood by most companies. It is clear that many improvements can be made in this field, that could undoubtedly help companies improve their performance".

Saporta says so for commercialised products. But the observation of more than a hundred radical innovations reinforces Saporta's analysis. The firms do not know how to deal with segmentation when the market does not yet exist. The universe does not exist and the possible criteria are so many that combining them leads to many more segments that a man can manage. In these conditions, systematic and rigorous methods seem to be a little apart from the industrial reality. We are bound to take into account more empirical data,

more experience and even a little bit of intuition to deal with the segmentation of industrial markets.

To mix these so different points of view, this article proposes first to examine the segmentation literature to show its limits. We shall after present an alternative method starting from the actual industrial practices to avoid the risk of rejection. The aim of this method is not too ambitious. We do not want industrial managers to become "premium segmenters". We just want to help them improve their empirical practices.

SHORT REVIEW OF THE LITERATURE ABOUT INDUSTRIAL MARKET SEGMENTATION

When we look at papers about segmentation we find some common characteristics. The authors start by giving a list of criteria that can possibly explain market segmentation. Then, they give an order to use these criteria. For example, Shapiro et Bonoma⁴, with their famous "Nested approach", suggest starting with easier criteria and finishing with the most difficult to get. They classify by level of difficulty the criteria to use successively.

- environment criteria (activity, size, geographical location).
- exploitation criteria (client technology, type of products bought, experience).
- purchasing criteria (purchasing organisation, purchasing strategy).
- circumstance criteria (order urgency, quantity).
- personal features of the decision maker.

Nevertheless, Saporta says again that this approach is limited as underlined by Webster⁵; "The authors propose no precise rule to decide when we must stop looking for relevant variables. Some criteria (conjunctural) are sometimes linked to some others (environment). And moreover, a major problem hides behind the choice of conjunctural

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⁵ WEBSTER : 1984 (P. 95-101).
variables; can we consider for example that some specific circumstances (order urgency, for example) are relevant segmentation criteria?"

Beyond the very frequent "nested approach" of Shapiro & Bonoma we shall also mention another dominant model in industrial marketing, which mixes macro-segmentation and micro-segmentation. Introduced by Frank, Massy & Wind⁶, it was frequently used in literature such as by Wind & Cardozo⁷ and by Dorey & Valla⁸. This two level method consists in shaping first macro-segments on the basis of descriptive criteria (size, activity, geographical location...). Then, we select one or several macro-segments according to their advantages. Lastly, we identify micro-segments inside these macro-segments by using the features of the buying centre.

Furthermore, beside this well-known literature there is a great number of models using one or several of the following basis of segmentation:

- geographical segmentation,
- demographical segmentation,
- psychographic segmentation,
- behavioural segmentation,
- segmentation by opportunity of purchase,
- segmentation by circumstance of use,
- segmentation by rate of use,
- segmentation by rate of fidelity...

As we can see, the list is long and one point can generally be criticised. This point is that the authors never give any clear pieces of information about how to choose and combine the criteria.

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Among all the existing methods of segmentation, one of them seems to be closer to the clients problems. It is called "benefit segmentation". The principle of this method consists in grouping the customers whose needs for our product are the same. The segments of market defined in this way are very relevant to the marketing strategy.

In summary, in all this literature about segmentation in industrial environment, the authors discuss the essential questions to be asked to prepare the segmentation, suggest as many criteria as possible, but never properly say how you do it. Thus, implementing these methods is still hard job.

A third type of literature about segmentation concerns mathematical tools. We can find a large sample of these mathematical methods in A. Smadja's book. These methods works properly when the problem is complicated but not complex (problems easy to handle, many data to process) and when a specialist is at our disposal. On the contrary they do not work very well in industrial marketing where sense must emerge from complexity (the number of answers is low but the dimensions of the problem are numerous and interlinked, the stake is very important and the points of view opposite) and where data are rare (impossible to make the problem statistic).

In summary the methods to segment consumer markets (with a very large number of customers) are well run-in and are practical for those who know how to use them. At the contrary, all these mechanist methods are limited when the clients are few, when the markets are concentrated or when they do not yet exist. As a matter of fact, in this last situation, one sole actor can change everything on the market due to its role or its weight. One sole event can ruin instantaneously the most serious analysis. Furthermore, in industrial environments, we are in the field of rare, uncertain, changing and unreliable

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data which do not fit with rigorous methods. Consequently, industrial companies are often in methodological difficulty to segment their markets.

In conclusion to this quick screening of the literature, we should bear in mind that most methods have their disadvantages (too mechanist or inappropriate for the quality of data), and, thus, it is very difficult to find the right one to segment its market.

**INTRODUCE A LITTLE OF INTUITION IN THIS WORLD OF RIGOUR**

When we try to understand why industrial marketers seem to be frightened by methods of segmentation, they declare that they feel they are loosing contact with reality. The method acts more as a screen than as a help to understand the market. So, how do they do that? As they have not much confidence in mathematical tools (too complex), as they do not read a lot (not enough time), most of them use their experience, the "muddling through", the "trial-error" or, still worse, their intuition. But no manager, no "homo rationnalis" dare say that he/she uses his/her intuition for professional purpose because it looks like sorcery.

But why intuition and reason are they so rarely used together? It could be the fault of intuition which is prejudiced by managers who do not dare say that they use it. And it is still worse in literature. No scholar would run the risk of ruining his reputation by saying that intuition can be a marketing tool. If we want to look serious in management, we need hard and logical methods, we need criteria, marks, charts a.s.o.

Equations, charts and matrices will alas never make management decisions perfectly reliable, certain and completely rational. In the best case we shall be able to rationalize them. But there will always remain this slight uncertainty due to the fact that we can never be sure we know all the conditions of the experience. We can neither be sure to have collected all pieces of information necessary to take the decision.
As the doubt is in place, why shouldn't we admit completely that intuition can play an important role in professional decisions. Let us go a little further and let us see if we could not use intuition in segmenting industrial markets.

As a matter of fact if we start saying that industrial managers use their intuition to get a projection in which they recognize themselves and recognize their market, why shouldn't we go further and help them in "professionalising" their intuition to do still better.

For those of you who still have doubts about intuition efficiency we shall take a common example of us using our intuition. 95% of all drivers driving their car on a small country road and seeing an old mustard yellow Austin Allegro, driven by an old Scottish farmer, smoking an unlit fag, do the same. They overtake, they slow down, they go away from him. They do so because their experience tells them that this chap is dangerous and it is better to be far away from him if they want to avoid a catastrophe. You need neither statistical series nor a representative sample. Just two or three experiences are sufficient to recognize instinctively the situation. Intuition is, in this case an excellent way to make a quick synthesis of a great number of data collected through experiences. We get a vision of the world through our experience as say the constructivists.

There is just a small step to cross to assume that anybody is able to use his/her intuition for professional aim. The only condition is that this intuition is based on strong field experience. In this sense, intuition is much more defined as an empirical tool than the one used by a fortune-teller who feels the hidden things.

Nevertheless, a problem still remains with intuition; it is difficult to convince other people just on the basis of our intuition. Even if we are sure of our intuition, it is difficult to convince our boss our banker or our shareholder. They may have their own intuition and, as they are boss, banker, shareholder, their intuition will be better than ours. We must then jump another step and rationalize, justify, rebuild the intuitive reasoning until it resists any criticism from our boss, banker, shareholder.
AN EXAMPLE TO SHOW HOW TO USE INTUITION AND RATIONALIZATION IN SEGMENTATION

We shall examine in this example how to segment the future market of a technological innovation. In other words, the market does not exist yet and we typically cannot use historical or statistical data to segment the market for this data does not exist.

We shall first make an assumption based on the observation of many cases of industrial purchases; industrial clients never buy a product if they do not need to solve a technical problem. Taking this into account, we shall first segment the market from a technical point of view. We shall call "application" a technical problem that the clients want to solve.

But the experience shows that it is not sufficient that a problem exists to say that there is a market. We must analyse and understand the reasons why a customer is interested in this specific innovation. For this reason, we shall also segment the market from a behavioural point of view. Once we have these two segmentations (technical and behavioural) we cross them to get the segmentation matrix which represents the virtual future market of innovation.

![Segmentation Matrix]

Table 1

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To shorten the present paper we shall just explain how to get the technical segmentation (i.e. the applications) but the intuition / rationalization principle is also available for the behavioural segmentation. To illustrate, we shall take the example of a new aluminium alloy that a company wants to sell in the automotive industry.

The segmentation process that we shall now present runs four steps:

- use check-off
- intuitive grouping of individual uses
- first rationalization by two logical tests
- second rationalization by identification and combination of criteria

Uses check-off

To make the technical segmentation we first need to collect on the market all the ideas of use suggested by the prospects. For example, automotive companies could suggest to use this new aluminium alloy for making the following products:

- piston;
- intervalve bridge
- crankshaft;
- connecting rod;
- piston axle;
- rocker;
- temperature gauge;
- gear box forks;
- brake calliper;
- bumper bracket.
Intuitive grouping of uses into applications

Intuitively, we group together, all uses (i.e. piston, con-rod ...) showing the same kind of technical problem to solve and we call this group an "application". In the present case, we can for example build three groups of uses, i.e. three applications:

<table>
<thead>
<tr>
<th>APPLICATIONS</th>
<th>dynamic lightning</th>
<th>static lightning</th>
<th>improvement of characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCTS</td>
<td>Piston axle</td>
<td>Brake calliper</td>
<td>Temperature gauge</td>
</tr>
<tr>
<td></td>
<td>Piston</td>
<td>Bumper bracket</td>
<td>Intervlve bridge</td>
</tr>
<tr>
<td></td>
<td>Connecting rod</td>
<td></td>
<td>Gear box fork</td>
</tr>
<tr>
<td></td>
<td>Crankshaft</td>
<td></td>
<td>Rocker</td>
</tr>
</tbody>
</table>

Table 2

First rationalization with two logical tests

Once the intuitive grouping has been made, we use two logical tests to rationalize the job. These two tests are:

- The Functions / Applications matrix,
- The Competing Technologies / Applications matrix.

How can these two matrixes, be considered as logical tests?

In functional analysis we consider that the function is the thing bought by the customer to solve his problem. But, if two technical problems are different they must admit two different solutions. In other words, we cannot find more than one combination of functions for each application (defined as a technical problem solving). Furthermore, all the uses grouped inside an application must require the same functions to ensure that the application is a homogeneous group of uses.
If it was not the case we would have to group together the applications requiring the same combination of functions and split heterogeneous application. We can illustrate this second case with the aluminium alloy example. The function/application matrix built around the original intuitive grouping of uses is shown as follows:

<table>
<thead>
<tr>
<th>Functions</th>
<th>Dynamic lightning</th>
<th>Static lightning</th>
<th>Improvement of characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Improvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of uses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>matrix</td>
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<td></td>
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<td>built</td>
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<td>around</td>
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<td></td>
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<tr>
<td></td>
<td>the original</td>
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<tr>
<td></td>
<td>intuitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>grouping</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>of uses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>is shown</td>
<td></td>
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<td>as follows:</td>
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</tbody>
</table>

Table 3

Now, a more precise analysis of the third column revealed that there is no need to reduce friction in intervalve bridge and temperature gauge. Thus, the matrix had to be cut on the following way:

<table>
<thead>
<tr>
<th>Functions</th>
<th>Dynamic lightning</th>
<th>Static lightning</th>
<th>Long life friction parts</th>
<th>High-temperature engine (Hi efficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Improvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of uses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>matrix</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>built</td>
<td></td>
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<td></td>
<td>around</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>the original</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>intuitive</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>grouping</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>of uses</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td>as follows:</td>
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</tbody>
</table>

Table 4
Then we have four tougher applications because they are well justified by the list of functions required in each case.

On the contrary we can group two applications that have been abusively split. Then, we put together applications in which the same functions are needed. As a matter of fact, as the sum of functions required is no more than the "list of requirements" of the product, it is, in fact the solution to the client's problem. Now, if two problems (i.e. two applications) admit the same solution, we can suppose that they are so similar that we can group them.

The rationalization of the segmentation can now still be reinforced by the Competing Technologies/Applications matrix. This matrix plays exactly the same role as the Functions/Applications matrix for the technologies in competition with ours are analytical solutions (i.e. the contents of the offer) to the client's problem.

Searching and combining the criteria of the technical segmentation

Once the applications have been consolidated by the previous tools, next step consists in describing them with as many details as possible.

For example, in the case of a non destructive control device, we shall describe the materials to be analysed, the features of the device, the competing technologies, the required functions, the required performance, the type of analysis to be done.

Then, we try to point out the similarities and the differences between all these characteristics. These similarities and differences become no more than the modalities of the segmentation criteria. For example, some applications can be defined by the fact that composite materials are analysed while metal is analysed in the others. "Composite materials" and "Metal" may be considered as the two modalities of a same criterion called "Material to be analysed".
If we do the same systematically to all characteristics we can progressively draw up a list of segmentation criteria.

Finally, different combinations of these modalities are screened and only remain the combinations that lead to the consolidated applications. In the case of the non destructive control device we could for example keep the following segmentation tree:

<table>
<thead>
<tr>
<th>Material to be analysed</th>
<th>Metal</th>
<th>Composite Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>System configuration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portable</td>
<td>Steady action</td>
<td>Steady action</td>
</tr>
<tr>
<td>Static</td>
<td>Static</td>
<td>Relative motion</td>
</tr>
<tr>
<td>Way of getting the measure</td>
<td></td>
<td>Scanning</td>
</tr>
<tr>
<td>Outdoor defect detection</td>
<td>Defect detection in hostile environment</td>
<td>Defect detection inside parts in continuous motion</td>
</tr>
<tr>
<td></td>
<td>Defect description in composite materials</td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Building the matrix of segmentation

Once this job is accomplished, a similar operation is done on the clients' behaviour and both segmentations are crossed to produce the final matrix of segmentation. The complete segmentation of the non destructive control device could look like the following:
At the end, the segments (the non-empty cells of the matrix) just have to be named by selecting the common descriptive features of the clients inside the segment. To finish the job, the segments are quantified and the sum of all quantities gives approximately the market size.

CONCLUSION

In conclusion, a first draft of segmentation can be very quickly got by intuition. This draft is far from being perfect but it is not a problem as long as we know that it is just a starting point. The aim of the operation is just to get some first classification poles to begin the rationalization process. In the case of the above segmentation the logical test matrixes and the research of the segmentation criteria played this role of rationalization. If we look carefully at what we have done, we have made no more than putting in practice
some principles used in mathematical methods such as the "heap method" or the "dynamic clouds method". In these two methods some grouping poles are first chosen (randomly or not) and some mathematical tests are done to maximise intraclass homogeneity and interclass heterogeneity. The first unfinished classification is progressively improved until we reach an approached result that always can be endlessly modified. The segmentation is adjusted to the market, step by step, it is compared to the market and it is validated by this comparison at the same time that it validates the market. In these conditions, the segmentation can considered as an "ideal type" in the meaning of Max WEBER\textsuperscript{13} : "The ideal type is a guide to build hypothesis, a coherent fiction to which the situation or the action is compared. It is a construction to compare oneself to the reality. The reality can be measured by the ideal type because the ideal type is measured to the reality and precises itself while it precises the gap with the reality".

But, even partly invalid the segmentation is useful because, at least, it exists. Now, it is always much easier to criticise and improve something than to build for the first time. In fact the reason of being of the segmentation is to build a first and original representation of the market. So, the segmentation becomes a heuristic tool, a tool to discover the reality. It rationalizes the market and reminds us that "the reality is not rational but only rationalizable".

The practice of this way of segmenting the market proves that rationalization gives a strong power of conviction to the segmentation because it relies on a construction, more logical more justified and more communicable than the only intuition. But this benefit is small compared to what the exercise brings to the one who does the job and appropriates progressively the representation that he produces. The process of segmentation forces to write, to project on the paper the ideas turning endlessly in mind. Now, as long as the ideas turn in mind it is impossible to know if they are valid, complete, justified. As soon as we draw the ideas on the paper we get a jig-saw puzzle effect. We just begin to see the image when we start putting the parts together. Furthermore, the only way to know if we

have all the parts, or if some are missing, is to build the puzzle. In this latter case we have to search for the missing pieces of information but the job is very focused on what is missing, hence very efficient.
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