Which are the ways of innovation in PDO and PGI products?

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ABSTRACT

This paper tries to answer the question "Which innovation in PDO and PGI products?" in one very heuristic way. The first step consists in putting a possible hypothetic interpretation of the european regulations CEE n° 2081-92 owing to the notions of intellectual property rights and consumers protection. We insist on the fact that this vision is not compulsory the truth , and is considered as a scenario. Inside this frame, in order to answer the question, theoretical models of action and principle of innovations are introduced ; these models are aimed to justify a plurality of action registers. In the last step, the theoretical analysis is applied to the hypothetic interpretations of the regulations : some conclusions are worked out about the different kind of innovations that are consistent with the heuristic "spirit of the law".

INTRODUCTION

Nowadays, the number of protected products is increasing. The regulation CEE n° 2081-92 about PDO and PGI products can have different interpretations according to the countries, the products, the firms and the interpreter ; this interpretation is dynamic, and has been improving. The vision that is given in the first chapter is only a possible maybe simplified scenario that is put as a frame to a heuristic work about its effects on innovation. This frame has been chosen because it doesn't use only the fuzzy notions of typicity, territory management, or anticompetitive actions, and it is powerful and simple.Yet, these hypothesis are not the Truth.

The theoretical analysis (Chapter 2) that is used to answer the question *"Which are the ways of innovation in PDO-PGI products ?"* is worked out to consider the plurality -inside

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the diversity- of the actors consistency. In a methodological point of view, this approach is useful to understand the diversity in real situations, and to prospect the effects and the possibilities of one hypothesis. The innovation is considered here not as a revolution that would cut a continuity, but as a continuous research of a better efficiency and consistency. The plurality of innovation is then analyzed (part 3) through the compatibility with the interpretation of the regulation. This analysis will be illustrated by a concrete example about the dried ham process.

1. THE SPIRIT OF THE REGULATION CEE N°2081-92 ABOUT PDO AND PGI PRODUCTS : SOME HYPOTHESIS

1.1 From origin to tradition

The first point to analyze is the conceptual link between the notions of origin and tradition. The tradition can be seen as the dynamic dimension of the origin. The tradition is the whole of actions that were born in one origin, and that has been transmitted, improved, changed without any break or any revolution. Moreover, a tradition has to be collective and shared by several actors. In this vision, the tradition necessits a vector of equivalency in space and in time. This vector can have of course very different forms : an organized collectivity, an area, a symbol, a liturgy, ...The most important thing is not the nature of the vector, but the way he acts and creates the equivalency and thus the link with the origin.

The equivalency can be made by a general fundamental message, (case 1) a kind of constant grammar, a valor, a general principle that is constant and adjustable to each act. This principle generates symbols, regularities ; each initiated member can have its own vision , can make the tradition alive, every where, and every time, and can apply or use it according to his own interpretation. The link is not the proximity of origin, but the message or the way of acting that it generated. The french "compagnonnage" or the "artisanal" tradition can be good examples, but we could also speak about the "industrial" tradition, where a scientific corpus of vision of industry drives the organization, the management and the technology inside the firm.

Another kind of equivalency is to refer to origin in each action (Case 2) . The origin can be a specific object, a place, a specific and constant skill or behaviour. The tradition exists only with and/or inside this point. In an extreme case, everything could be made as long as the crucial origine point is followed or respected. The origin is seen as constant, fix, and unalterable. This can be a myth, a legend. The tradition can become a folklore.

Most of real traditional products have been developped and created according to a medium way between these two extremes (Case 3) . The tradition was created from an origin, for example one specific natural environment ; some specific skills, some specific knowledges appeared, in an incremental way, step by step, by trial and errors. One of the two extremes among can be ruling. The skills and the knowledge can have been oriented to the research of some regularities, general laws of variations or general anonymous behaviours (Case 3 bis) : the tradition is not so much linked with the origin, and can be exported and copied. In other cases, the tradition developped some specific skills, more and

more adjusted to the original environment (Case 3 ter) : the link with the origin is better and better managed and known.

1.2 Traditions in food industry

In food industry, each case can exist.
In case 1, Tradition can have been built around a general fact or a general method. The conservating technology for example, have very ancient origin (celtic period for the dried ham) and have been exported and used everywhere. In other cases, it can be the raw material itself that defined a tradition (processing of meat, of milk,...). Methods can become anonymous, and products generic. The link with the origin can be strong, but most often forgot. All kind of organization can be used : industrial, artisanal, ...
In case 2, the food product can be linked to a constant origin. This one can be geographic (as some wines in France, or some olive oils in Greece) or some specific skills and recipes (the "Punti" from Cantal area, the Aligot from Aubrac), whose constituents can't change and are refered to the origin.
In case 3 bis, the product can appear in one specific place, with specific persons or specific organizations ; one collectivity developped and improved their skills in one particular way, made the product known by the consumers but the product is not linked to its origin, but to specific knowledges. The actors become specialists of their product ; the product is linked to a collectivity, and not so much to an origin. Yet, the product can be transferable every where, if the skills are exported, and can at the extreme become generic.
In case 3 ter, the product is submitted to its origin, for example to its natural origin. Traditions are not folklore, and are developped, improved in order to know better the link between the origin and the product. This submision to the origin is not avoided , but used and valued. The producers are specialists of the management of this link, and developped untransferable -because unsuseful everywhere else- localised knowledges.

All these elements among are useful to link origin and notions of intellectual property rights and consumers protection. The analysis that follows is a little caricatural, but is made to put the main questions and notions.

1.3 Traditions and protections in PDO and PGI products :

A lot of different understanding and interpretations of the PDO and PGI regulations have been tempted and defended. They can be considered as an anti-competitive protection, as a constraint to the competition, as a tool of protection and management of the territories,... A simple interpretation is purposed here and will be the base of the work in Chapter 3. This reading is based on the use of two notions : the consumers protection and the intellectual property rights (Art 36, traité de Rome).
These two elements are always present in both PGI and PDO, but in each case, one of them seems dominant.

1.3.1 The PDO products

The PDO regulation lays stress on the link between geographic factors and quality of the final product. So, the PDO is situated in case 3 ter or case 2. Either the origin is always the reference, and the product didn't change, or the producers managed to master the link with the origin without destroying it and the product evoluated inside this frame. The product depends clearly on the specific localized origin. This link is the key notion : only specific skills or specific natural conditions in a given area are not enough. The specificity of this link is the protected notion and make the identity of the product. A similar product produced with the same skills in another area can't be exactly the same. A product made in the same area without respecting the specific link is not the same neither. In this frame, new technologies can be used if they respect this link.

When the product is bought by a consumer, this one buys this specificity. He has to be protected by the control of the link that means the geographic origin and the specific utilization of its characteristics. The consumers protection can justify this regulation. Of course, consequently, the intellectual property is protected : someone who wishes to make the same product will have to install in the area, to know the link, to manage it. The bareers of entry are heavy. The local productions finds here also a protection tool. Yet this protection of the producers is not the first notion.

This analyze can seem very classical. Nevertheless, it gives good basis to study innovation. The case 3 ter shows that this one is possible. The question will be : which innovation can respect the specific link and improve the efficiency of the firm ?

1.3.2 The PGI products

The PGI regulation is not based on quite the same notion than PDO one. A possible way to understand it is to consider that the main protection is here the intellectual property rights, and that PGI regulation is closed to the trademark rights. When a collectivity managed to create a product and to develop it, a collective intellectual property is worked out. The protection concerns the collective. The notion of "reputation" is often mobilized. In order to be consistent with the intellectual property rights, this reputation has to have been constructed by the local collectivity : the reputation is more than an opinion by the consumers about the product. The opinion acts about symbols, idea, and can be built by advertisings for example; an evaluation is not necessary. Here, as the product is old, comes from a tradition, and is worked out by a collective, the reputation asks a continuous evaluation of the product by the consumers. This reputation increases if the evaluation is good and decreases if it is bad. The reputation can improve owing to advertisings : theses ones make the product and the name known by the clients ; the evaluation about the product linked to the name can be made. In this case, the collective signs the product, and so is responsible for its quality. So this reputation can be considered as an intellectual property. We are closed to the trademark, in a specific way. In conclusion, the PGI protects, not the specificity of the product, but the the concordance with specific local collectivity that developped specific skills and an incremental tradition. The product is linked only to this collective and not to a territory. This collectivity is defined by its traditional localization. We are here in the case 3 bis. The definition of the product depends on the

members of this collectivity. Yet, their reputation is based on a specific product, that they have to control and justify ; their skills are developed in one way for one kind of processing ; they become specialists. Moreover, the consumers protection reinforce this limitation of freedom. So, even if the product is not different from others, he should keep a link with its tradition, even if it is not quite necessary. We already observe here the importance of the definition of specifications, and its dynamic.

1.4 Conclusion : our basic hypothesis

The PDO regulation uses the notion of consumers protection because of the specificity of the product itself. The producers' and territory's protection is only a consequence and not a justification : it is possible inside a collective system because of very strong barriers to entry. New technologies or modern skills are possible as long as the product is linked and submitted to its natural and pertinent environment.

The PGI regulation uses mainly the notion of intellectual property rights. The collectivity is protected and defined by its membership to the territory where the tradition was born. The product is linked to this particular collectivity. The collective property has to be defined via the construction of specifications mainly about the process and the raw material. This construction determines the product. The freedom of the producers is limited by the reputation, by the nature and efficiency of the specialized skills, by the consumers protection, and by public national organizations or laws. The innovation seems to be possible and to depend only on the specifications.

These hypothesis should be discussed by Historians, ethnologists, and lawiers. Yet, this heuristic frame of interpretation seems to be possible and is based on very common notions. Inside this frame, the question becomes : *"which innovation can be consistent and efficient with PDO and PGI regulation ?"*

2. FROM COMPREHENSIVE MODELS OF ACTION TO PRINCIPLES OF INNOVATION

Some theoretical papers (R.Salais et M.E.Storper, 1993, Marty F. 1994, 1995) have already demonstrated that there has been existing several models of firm. Each model is related to a specific way for the firm to be consistent, efficient and viable. This specific way conditions the structures of the firm.
In other works (F.Marty, 1996, 1997), we went further by considering that each firm is the result of a system of actions. This system is built in order to manufacture and to sell a product. Four "formats" of action have been theoretically justified. These formats are more or less some "marches of thought" that the actor follows when he acts. They give an interpretation of the action, and try to understand which elements and which datas the actor are used to act, and how he uses them, and for which efficiency.

Without setting out all the details of this analysis, the four formats will be presented with (2.1). From these four dormats of action are deducted four ways to innovate, which each follows a particular "principles of innovation".

In the following analysis, the action is seen in a general case ; it can be collective (made for example by the firm), individual (for example, one specific step in the processing made by one worker), very large (for example,the management of production) or very thin (for example, the cutting of a ham (!)).

The model of the analysis of action is detailed in (Marty, 96). One important idea is to use the different kinds of uncertainty to find an exhaustive list of the ways of acting. Its main ideas are drawn here.

2.1 One model of action

As in the reality, we consider the actor acts in uncertainty and in complexity. He has different goals when he acts. These goals drive him :

-to focus on certain points of his environment which have a meaning in this action for these goals,

-to imagine proceedings that may contribute to realise the objectives.

The actor works out a way of acting that is expected to solve his problem (an "heuristics"), but that can evolve in the train of the action. The actor know how he can act, but not always why he acts in one particular way : his rationality is procedural . The action is not the result of a maximisation ; it isn't based on the reality but on a partial and reasonable picture of the reality. Thus, the choice of some informations about the context of action, and the intellectual creation of proceedings can be seen as the determiners of the action.

Finally, the actor chooses one way of acting. The action takes part of very complex and real interactions and escapes the intention of the actor. The result of this action is always different from what had been imagined by the actor. Then, the action is never over ; that's a first element of dynamics.

At this point of the reasoning, the diversity of the action is explained : it depends on the actor, the goals, the environment, the possible proceedings, ... But we must go further to understand how the pluralism and the regularities of the action is built, and why some action are efficient and why some others are not.

In order to answer to these questions, the model studies the way itself to:

-choose focus points in the context of the action,

-imagine reasonable and feasible proceedings.

Whatever the context is or whatever the proceedings can be, there always exist uncertainty. Because of this uncertainty, the action could get jammed. Nevertheless, the actor finds a reasoning action. He works out a solution that treat this uncertainty and that enables him to act. There are two manners to treat uncertainty :

-either the actor considers that uncertainty follows general variations (known by statistics) or general laws (known by scientific analysis) ; this uncertainty becomes a risk that may be calculated and probabilised,

-or the actor considers that uncertainty comes from the specificity of each case, that can't be agregated, and thus that can't be known by general unlocalised knowledges. The actor will have to act owing to specific localised knowledges.

When we come back to the process of action presented before, we can apply the different ways to treat uncertainty in the two following steps :
-when the actor chooses some specific reasonable points in his context ; the actor will consider and treat uncertainty in his context with one of the two manners,
-when the actor imagines heuristics for action ; he will consider (most often unconsciously) that the uncertainty in the way that he realises his heuristics can be treated in one of the two manners.
When we apply the two manners to the two steps, we obtain four cases. The way to treat or to consider uncertainty in each step has a great influence about the action itself. So, we obtain four ways of acting, that are named "principles of action". Each principle give one format to the action. More over, when the actor acts, he must be consistent with his consideration of the uncertainty in its context and the uncertainty in his heuristics. Thus, he must be consistent with the principle he follows. So , we can define four "principles of consistency". Those give the way to be consistent and also to innovate and to learn about the action, in order to be more and more consistent, so more and more efficient.

An illustration is given about a concrete example of technologic innovation. This example is the drying of a ham. This phase is aimed to decrease the rate of moisture inside the ham and to make the salt entered in the ham (the water activity decreases). This example is a little caricatured in the following work in order to clear the theoric analysis. Moreover, the author unluckily is not a technologist in the dried ham processing.When an actor wishes to make a ham dried, he put it in a drying cellar. Two rates have to be constant : the rate of moisture between the moisture inside the ham and outside the ham, and the rate of moisture between the moisture inside the cellar and outside the cellar. Three main technologies can be chosen :
-either the cellar is "natural", that means has windows that are opened and closed according to the temperature, the moistures, the wind, and the ham degree of drying,
-or the cellar is opened to the outside, but has a system that regulates the moistures, the temperature, and the air speed in order to keep the rates constant,
-ot the cellar is quite closed, not linked with the variations of the outside, and that keeps the moistures, and consequently the rate of moistures, constant by creating a constant environment. The only degree of variation is the ham degree of drying whose the evolution can be mastered.
How can we analyse the choice and the action of the drier man ?

2.2 Four principles of action : illustration by the action of drying a ham

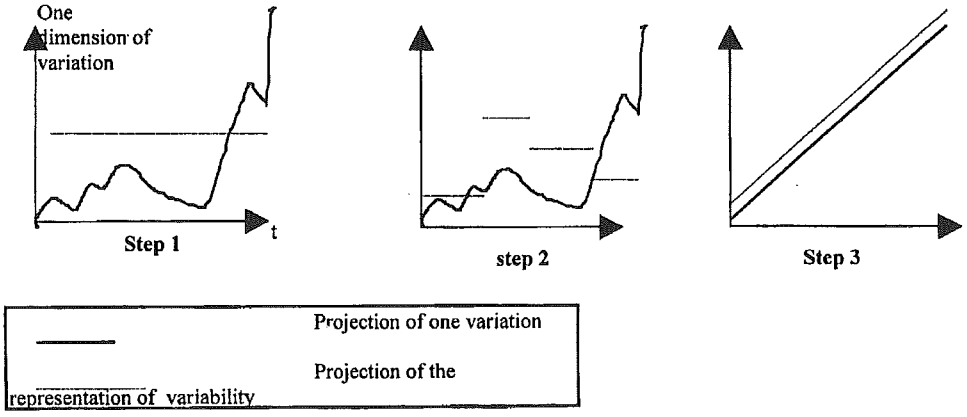
The first principle of action is said to be "rationalized". The actor considers that the context is foreseable owing to general laws, and that the heuristics to act in this context are themselves foreseable. The principle of consistency will be to foresee as far as possible the variations owing to general laws, and to realise the heuristics in the most possible foreseable way. So the action will be constant, fixed, unflexible. We can define three steps in the consistency :
-either the actor considers that the context is foreseable because it doesn't vary, and so that he can always act in the same way,

-or the actor considers that the variations are foreseable with some general laws (without taking all the complexity into account) (the models is the reality) and that he can always act in the same way if he controls the result of action a posteriori,

-or the actor creates a reality that is quite the same thing than the model, which is the best for the applying of general laws, and act in the most a priori and general optimized way.

The rationalized "principle of innovation" is what drives the innovation in order to become more and more consistent with the principle of action. It means that the innovation will have to enable the actor to evoluate from the step 1 to the step 3. The other principles of innovation are defined in the same way, in the two following cases.

Schematization of the variability management : the rationalized case



In the example of the ham drying, the variations of the context (here, the moistures) are not taken into account. The moistures are considered as constant, or conform to the a priori explicative model. In the step 1, the drying cellar is opened to the outside, but the windows are always in the same position. The variations of climate and wind are not considered as

very important (it is the case in some very short and fast productions). In the step 2, the climate is seen as constant over some periods and the ham are considered as homogeneous. The checking is made a posteriori, and the drying is changed if there are great problems, or if the ham putrefies. In the last step, the reality is made closed to the a priori model : this one becomes the reality, that means the environment is really constant, without any variability. The hams are standardized and the cellar is quite artificial with controlled moistures. This kind of hams can be processed everywhere with some very weak rates of breakages, and very good qualities.

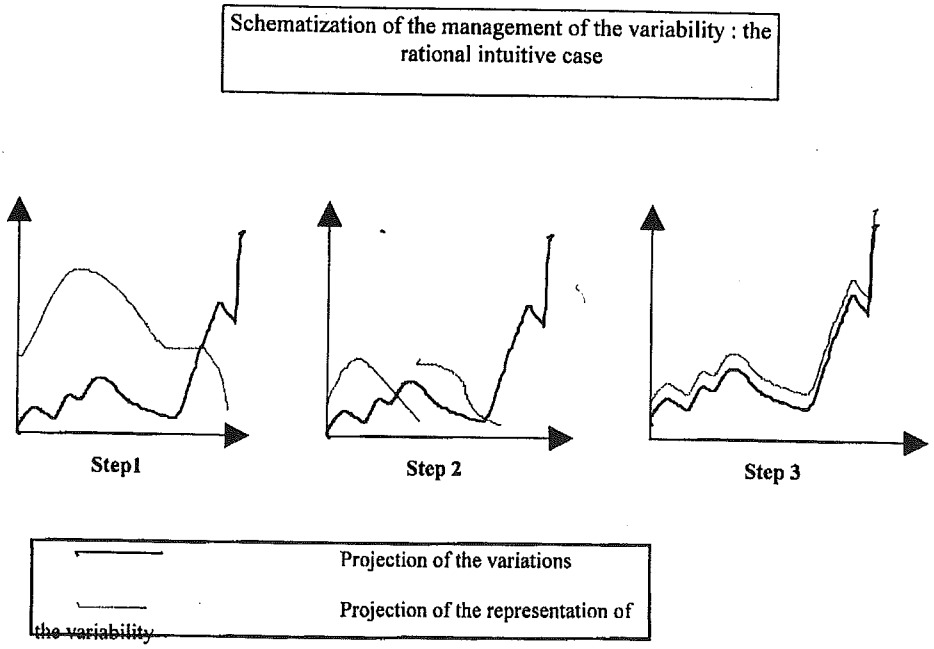
The second principle is "rational intuitive". The actor considers that the context is not foreseable with general knowledge : it can be known with localised knowledge. The actor considers the uncertainty in the applying of his heuristic as not foreseable, but can manage with localised knowledge, used case by case. The principle of consistency consists in knowing as far as possible the whole variations and variability of the context, with personnal and "opened" knowledge, and to build heuristics whose applying will be adapted to each situation. The variations and the variability will be considered as resources.

The different steps in consistency will be the followings , from the least to the most consistent:

-either the actor considers that the context and the heuristics are always the same than what he made before, than what he is used to ; the action is not adapted to each situation and is based on usual practices,

-or the actor considers that each situation is more or less the same than the others, but verifies very often that the result is usual ; if the result is unusual, he will try to know better the context and to build a more adapted heuristic,

-or the actor considers that each context is different, and must be known in its complete variation and specificity and the heuristic applied must be specific and adapted to each situation.



In the example of the ham drying, the actor considers the variations of the moistures, take it into account in order to adjust itself to these variations in order to keep the rates constant. The actor will use its empiric skills to open and to close the windows. If he is in the step 1, he will follow always the same rythm according to the seasons, without checking the result about the ham. In the step 2, the actor checks very often the ham (in five points by soundings), and will adjust the windows by trial and error. In step 3, the knowledge of a lot of different areas, climates, skills, experiments enable the actor to know very well and quickly which is the best drying according to the quality of the ham.

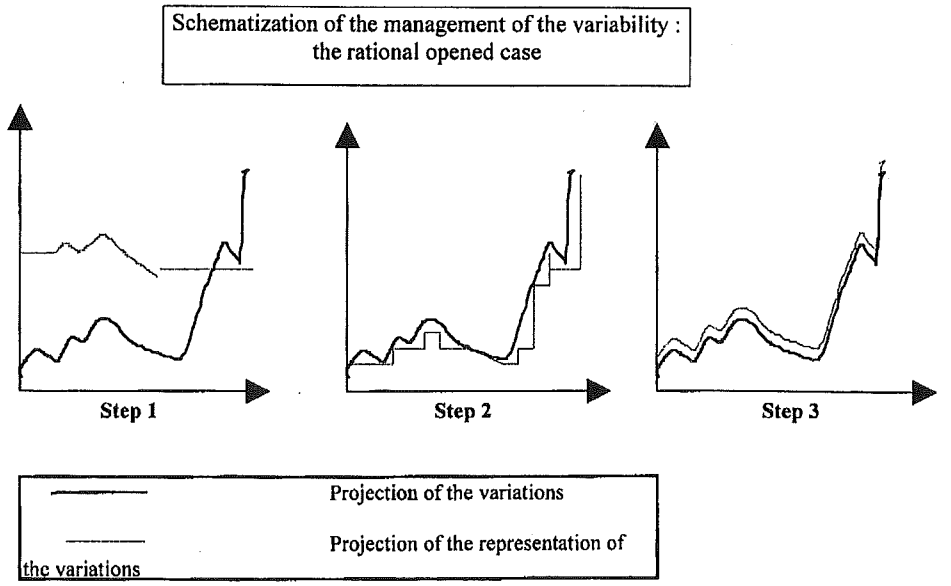
The third principle is "rational opened". The actor considers that the uncertainty in the context can't be foreseable with general knowledge and that the uncertainty in the applying of the heuristics can be foreseable with general laws. The principle of consistency consists in accepting and knowing as far as possible the variations and variability of the context with specific knowledge and to build as far as possible one heuristics mastered with general laws. This principle is very interesting : the action has to be adapted to a very flexible context and to be foreseable. So the action can't be constant as in the rationalized principle. The specific knowledge will be the personnal understanding of the context and the adaptation owing to general laws. So, the unlocalised general laws will be only used to make the applying of the adaptation foreseable.Thus, the unlocalised general knowledges

will be considered as flexible tools, that can be used in very different manners according to the context.
The three steps in consistency are :

-either the actor considers the whole variations of a part of the context and adapts his action to a part of the variations but always with best-known general laws used in a specific way,

-or the actor takes into account the whole variations of the context but builds an heuristics, case by case, or inside the action ; the actor will have to verify very often the action, and to change, memorize and formalize the heuristics in order to use them if a similar problem appears,

-or the actor takes into account the whole variations and works out an heuristics that will be able to treat and to adapt itself to every case. The action regulates itself, owing to general tools (or "artefacts"), used in a specific and localised way.



In the example of the rational opened ham drying, the actor considers the variations and the environment as a resource. He uses formalized knowledges, in order to adjust itself to the environment. Here, the drying cellars are opened and submitted to the variations of climate, and of the hams quality. Yet, the adjustment to these variations is regulated by an automatism that keeps the rates constant by acting about the inside moisture, air speed and temperature. In the first step, the windows are opened only when the climate is the same than good calculated and restricted conditions. In the second step, the checking is regular ,

and the hams are considered as homogeneous inside one batch. The inside moistures, temperature, and air speed are regurlarly adjusted, in order to be as close as possible to the outside conditions: the natural variations are considered as parameters to adjust the automatism. Very often (as in some firms under iso 9002), a qualified and specialist drier has to control the regulation of the cellars and to adjust better the automatism or the internal conditions. In the step 3, (if it exists in the reality), the adjustment is permanent, linked to a lot of parameters,, and is regulated by feed-back for example. The external conditions are completely followed, and each ham is checked, continuously. In other food industries, the fuzzy logic can be used to create "intelligent" machines (as washing-machine for example).

The fourth and last principle is "rational creator". The actor considers the context as foreseable with general laws but will work out heuristics that are specific, different for each case. So, the actor will consider general elements as specific.The principle of consistency asks the actor to take into account a variation completely foreseen by a general knowledge and to work an heuristic as far as possible specific.

The three levels in consistency are :

-either the actor considers the context as foreseen by a general law, and try to study where the general law is not applyable, where it has its limits (the heuristics becomes specific),

-or the actor considers the context as foreseable by general laws, study if different laws or different reasoning give different results, and try to find a specific theory that could find what is behind the difference between the result of the different general laws,

-or the actor considers that the context is foreseable by general laws, but build an heuristic that gives a new interpretation to the significance of the context known owing to general laws.

This principle is not very often found in agro-food industry. It is very present in the research for example.

2.3 Conclusion

This model of action doesn't explain what the actor really makes to reach his goals. It just tries to understand how the actor acts, and how his way to act creates a consistency and an efficiency, and how he can be more consistent with himself. In the chapter 3, the goal is to analyze which kinds of innovation in which step of consistency is possible in the frame defined in chapter 1.

3. WHICH PRINCIPLE OF INNOVATION IN PDO AND PGI PRODUCTS ?

For each protection, the principles of innovation and their level of consistency are crossed with the "spirit of the law" defined in chapter 1.

3.1 Which innovation in PDO products ?

The example of the ham drying is not the best to speak about the link with the tradition and geographic parameters. Actually, the influence of the climate and natural drying oven,

and the final quality of the ham has never been scientifically proved. The final quality depends much more on the raw material quality. Yet, some specialists observe that the hams that are made in quite artificial and closed drying oven are different from the others.
As it was said before, this paper is heuristic ; it seems compulsory to caricature a little the technologic analysis. In order to illustrate the analysis, we consider here that this link between the quality of the ham and the submission or the adjustement to natural variations are real. In this hypothesis, a part of the specificity comes from the local climate.

3.1.1 PDO products and rational intuitive principle of innovation

The rational intuitive principle uses local skills developped in an incremental way. The tradition is quite embedded in its context. The link with the origin is strong : the rational intuitive can be used in the cases 2 and 3 ter (cf chapter 1).
The cases where new standard technologies are imported are not treated here, because it isn't consistent with this principle. Actually, the rational intuitive action can not be confused with the artisanal one. When a new standard and anonymous technology is used, the principle to analyse is the rationalized one.

Yet, the PDO products have to be at least conformable to the specifications. The way to work out these specifications is very important for the rational intuitive principle.
If the specifications give directives for the final product only, this one will have to be conform with the PDO. As the product, in this case, is very specific, the final control can be sufficient. In this case, the actor has to manage the quality with the rational intuitive example : the step 1 (cf chapter 2) is not efficient, because the product is not valued in its best way, and the final result is not mastered. The rate of unaccepted product could be too high. In the steps 2 or 3, the quality can be managed, with a good efficiency. The local skills are used, and the link between the territory and the product is empirically known. Some innovations can appear in the tradition : a new way to use a method, or a new synthesis of several skills. In the case of the ham drying, some rational intuitive innovations can appear : some of the producers try to search the ancient or foreign methods, try to know which is the best one in their context . Thus, the periods of drying, the utilization of cotton bags, of fireplaces ... can appear again. This research of diversity enable the actor to innovate. This kind of innovation is quite consistent with the PDO regulation.
If the specifications give specific processes, technology, periods, scientific parameters, the rational intuitive actor will know problems. On one hand, he won't be able to use its empiric specific skills. On the other hand, he won't be able to understand and to value the scientific knowledges in the best way. The "format" of the specifications is primeval. For example, the rational intuitive actors can't use their skills in the drying, if they must have a controlled drying oven, if they must register the rate of moisture,... The definition itself of an empiric specific knowledge is that it can't be formalized, and controlled by general parameters.
In conclusion, the innovation is possible, if the product is specific enough to enable the controls to be applied about final product only.

3.1.2 The rationalized principle in PDO products

The rationalized principle is not consistent with PDO products, if the product is really linked and submitted to natural geographic variations. The method has to be optimized, constant, and general, based on an a priori calculated model. So the two firts steps in rationalized principle are not possible to follow.
Yet, if the specifications do not protect the natural link and the submission to the geographic conditions, the third step can be employed. Actually, this step can produce whatever it wants, because it masters the process. The product will be constant, homogeneous, produced in long series, with economics of scale. Moreover, the rate of breakage will be very little, because the product has always the same charcteristics that are defined a priori. In our caricatural example, it is the case if the specifications don't ask to use opened drying oven. These ones are quite closed, artificial, with constant parameters. The final quality is good, the product is mastered, but the link with the geographic conditions disappeared. The innovations has to make the process as constant as possible, that means with quite standardized hams, and quite artificial optimized drying oven. We insist on the fact that this example is caricatured.

3.1.3 The rational opened principle in PDO products

In this principle, the actors accepts the variations and builds heuristics with formalized knowledges. If we apply this principle to the link with the geographic parameters, this link will be taken into account by the rational opened principle, and formalized with scientific knowledge. The innovations will be created about the knowledge of this link, and about the management of the adjustment to this link by the actor. So, the rational opened innovation is consistent with the PDO products, in the case 3 ter. The quite new technologies, the formalization is not aimed to be as closed as possible to the scientific model, but to know scientifically the link to manage it better, and to manage the variability as a resource. The three steps in this principle are consistent. So, the "industrial" equipment is possible, , the quite modern technologies also, if they are used in a specific way.

In our example, the drying oven are more and more opened, with a more and more self-regulating system. In some firms (step 2), the drying oven are opened, and a specialist comes to check, and to adjust the automatism with its own skills.
These firms can seem very far from the tradition, but are very closed to the natural link that makes specificity.

Conclusion

This analysis shows :
-the importance of a real link between geographic conditions and specificity of the product ,
-the necessity of the translation of this link inside the specifications,
-the importance of the kinds of control inside the process or about the final product,
-the possibility of several kind of innovations, more or less different according to the specifications.

3.2 Which innovation in PGI products ?

In the chosen frame (chapter 1), the PGI is linked to the collectivity. The analysis of innovation assumes that the question of the definition of this collectivity is solved, with the notion of intellectual property. The technologic innovations depends strongly on the specifications. All kinds of innovation are a priori consistent with the PGI products. It will be the level of quality, the specifications about the process, and the management of the reputation that will drive the actors in one way, or that will exclude some principles of innovation. Instead of studying the possibility of the principles inside the PGI, the investigation is made about three scenarios :
-either the specifications are very weak and let freedom in order that everyone can act in the principle he wishes,
-or the specifications are very close to the traditionnal skills,
-or the specifications define a product maybe not specific but in a high quality of the final product.

3.2.1 The specifications of freedom :

Some specifications enable the actor to follow whatever principle, in whatever step of efficiency. The specifications are very large, for example about a localization only, and about some points of the tradition. The choice of equipments, production rythm, and final quality are free. This kind of specifications is based on the maximum that enable the firm to make whatever they want. The PGI product is thus considered as a reputation capital only. Some problems can appear in the evolution of the product, that will become very different according to the followed principles of innovation. The firm manages alone the product, without bargaining with the collectivity. Every kind of technology can appear. One question can be put, that is not solved in this paper : if a firm strategy uses only the price competition in a differenciated product, which will be the freedom for the others (for example, a competition based on differenciation inside the PGI) ? Moreover, the technologies can be standardized and simplified, in the rationalized principle , to become more and more anonymous : which is the reality of the specification in this case ? Sometimes, can the protection of the consumers be antagonist with the intellectual property rights? This case is very closed to an analysis of a collective trademark ; the reputation can have a regulating role.

3.2.2 The specifications in tradition

It seems to be very hard to base specifications only about traditions : the repairs are very fuzzy, and the traditions evoluates, excepted in the case 2 (Chapter 1). There is no constant point as in a PDO product. Thus, the specifications have to define and control the way to make the product, that means a specific process, as close as possible to the traditionnal skills.

This is consistent with the rational intuitive principle, in the steps 1 and 2. Yet, the step 3 may be too innovative. The rational opened and rationalized principles are not possible in

this scheme. For the first one, it can exist no freedom to use new technologies, new knowledges to master better the product, without changing it ; every difference with the traditional skills is seen as an error or as a fault.

This kind of specifications has the advantage to protect specific skills and to create a very "typical" product. Yet, the danger is to create an "indian reservation" without any dynamic and adjustability to the variations of the environment (market, technology, competition, ...). In the example of the drying oven, a natural drier could be interesting to protect the link with the nature, or to use specific skills. Yet, when it is compulsory, the innovation in the management of the variability is cut. It can be dangerous in the price and quality competition with substitutes products.

3.2.3 The high quality specifications

This kind of specifications manages the capital "reputation" : it tries to be differenciated and to benefit from a positiv evaluation of the product by the consumers. The product hasn't to be specific ; it just must be "good" for the consumers. As the evaluation has to be always positiv, the controls can't be made only about the product to certify a good quality. The specifications define processes, quality of raw material,..., and could even be driven all along the supply chain to master the quality.

Each principle has to reach this quality with its own resources. In rational intuitive principle, the steps 2 and 3 can be followed ; the empiric innovation is made to reach the best quality and the best valorization of the raw material. The link with the tradition is always moving and can evoluate a lot. The innovation is not oriented to the mastery of the link with the nature, but to the highest quality of the product. In rational opened principle, the steps 1,2,3 can be followed, owing to the management of the variability. The rates of breakage, the scope and the scale are optimized according to the specific resources of the environment of the firm. In the rationalized principle, the step 3 is possible : the innovation is turned to the "zero default" and to the minimization of the "quality costs" inside the specifications. The steps 1 and 2 reach a constancy in the product by simplifying as far as possible the process and to minimize the production costs : that can not be efficient to produce a high quality.

Conclusion

The innovation is very depending on the kind of specifications that it follows. The different scenarios are quite specific on the subject of technological dynamic, and quality of the product. These specifications, in this paper, have a great influence about the innovation. In other works, we try to show that specifications have influence about the whole efficiency of the firm , via their consitency. In the european countries, the institutionnal strategies took more or less into account this freedom inside the PGI regulation. In France for example, a possibility of differenciation exists inside the PGI products : the red label and the conformity certificate, that are different in their goals and in the quality they protect. This point will be deepened in some other works.

CONCLUSION

In conclusion, even if they are introduced in the same regulations, the two protections PGI and PDO are quite different from each others in their definitions, and above all in their spirit. Their management is quite specific. For example, the technological innovation doesn't offer the same resources and constraints to the producers. To cut a long story short, a PDO product is specific and localized, and a PGI product is the property of the specialists that created it. A more extensive research should be carried out to analyse the role of complementary protections in the national laws (as the red label and the conformity certificate in France).

The technological innovation is only one dimension of the management : the strategy, the education, the research of competition advantages, the internal organization, the link with the up and downstream supply chain are very important elements. In order to understand the management of the PDO and PGI products, it seems to be primeval to understand the different consistent ways to make, to sell and to manage a product. In other works, we tried to link theses dimensions to work out some "models of firms" (Marty, 94, 95, Chiozza and al, 1997) that may be considered as heuristic economic models of "quality management".

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