

The economy of qualities

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Abstract

The aim of this paper is to highlight the main characteristics of what the authors call 'the economy of qualities'. The authors show that qualifying products and positioning goods are major concerns for agents evolving within the 'economy of qualities'. Competition in such an economy is structured through two basic mechanisms. The first is what the authors propose to call the process of singularization of products. The second is the mechanism whereby consumers are attached to, and detached from, goods that are proposed to them. At the heart of these logics, one can find multiple socio-technical devices that are designed by economic agents, which ensure the distribution of cognitive competencies, and which constantly and finely tune supply and demand. Relying upon Jean Gadrey's work, the authors claim that the economy of qualities is nowhere more effective than in services providing activities, and especially in those sectors that invest heavily in New Information and Communication Technologies (ICTs). Finally, the authors suggest that, in the economy of qualities, the functioning and the organization of markets are issues that are shared by scholars and actors. In these highly reflexive markets, a collaboration between them is needed.

Keywords: markets; quality; services; economy.

As Charles Smith, one of the pioneers of 'new' economic sociology, so rightly pointed out, forms of organization of economic markets and their modes of functioning are becoming an explicit issue for multiple actors and especially for economic agents themselves (Smith 2000). Markets evolve and, like species, become differentiated and diversified. But this evolution is grounded in no pre-established logic. Nor is it simply the consequence of a natural tendency to adapt. Economic markets are caught in a reflexive activity: the actors concerned explicitly question their organization and, based on an analysis of their functioning, try to conceive and establish new rules for the game.

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This reflexivity is evident mainly in the proliferation of hybrid forums in which the functioning and organization of particular markets (e.g. transgenic colza or breast cancer predisposition gene tests) are discussed and debated (Callon *et al.* 2001).¹

'Forums' because they are public spaces, the specific structuring of which is yet to be defined. 'Hybrid' for two reasons. The first is the variety and heterogeneity of the actors involved. In debate on the organization of markets we find: professional economists from different schools of thought, anthropologists and sociologists; economic actors (industrialists, consumer associations and social movements protesting against the increasing control of certain centres of power, etc.); international or national organizations such as the IMF, IRDB and ERDB which have their say in the structuring of markets; specialists of intellectual property, experts in management techniques and, more and more often, researchers in the life or natural sciences. The second reason they are hybrid is because the questions raised concern the economy,² politics,³ ethics,⁴ law⁵ and, finally, even science.⁶

In these hybrid forums it is impossible to separate or dissociate the different components of the issues, even for the sake of simplifying the analysis. The forms of organization of markets defended by the actors engaged in the controversy vary, depending on those actors' political or ethical points of view or the way in which they evaluate the reliability of scientific facts or the efficacy of available technology. Isolating problems and solutions that could be considered purely economic would lead to socially illegitimate solutions.⁷

There is nothing new about markets being the subject of debate and their modes of organization depending on (non-commercial!) transactions between groups with differing and sometimes even opposing views and interests. Studies attesting to this are starting to become available, although they are still too few (Dumez and Jeunemaitre 1998; Gao 1998, Miller 1998, Cochoy 1998). What seems to be new is the fact that the locus of these debates and resulting decisions is more and more frequently (relatively) open public arenas.

One of the most visible consequences of public debates on questions that tend usually to be monopolized by specialists (or by professional decision makers who rely on expert opinions) is the resulting redistribution of competencies and the increasing role granted to economic agents themselves. Professional economists no longer have the direct or indirect monopoly (assuming they did ever have it) on authorized and legitimate discourse. This does not mean that they are excluded from the debate. On the contrary, they are cordially invited to participate, but they are no longer alone. Next to them we find not only specialists from other scientific disciplines (anthropologists, sociologists, political scientists and, depending on the nature of the markets under consideration, biologists, chemists or climatologists) but also, and above all, the actors concerned with the markets under discussion. Economists, sociologists and biologists can no longer confine themselves to an outdated form of epistemology. The actors are now colleagues whom they have to take into consideration and who contribute in their own right to the production of knowledge and its transcription in reality,

which sometimes ends up corresponding to theories about it.⁸ The forum creates an arena in which the great divide between specialists and laypersons is redistributed. It creates material conditions for co-operation between laboratory research performed by experts and specialists, on the one hand, and research 'in the wild' that makes it possible for laypersons to be vigilant and sometimes prompts them to propose guidelines for new research (Callon *et al.* 2001).

As far as it concerns markets and their organization, this reflexive – because collaborative – research should progressively be focused on a small number of questions, including what I suggest calling the qualification of products. Real markets and the agents inhabiting them have in common with the stylized markets of economics textbooks the same core question: the classification of goods offered to consumers. Economic agents devote a large share of their resources to positioning the products they design, produce, distribute or consume, in relation to others. Any theoretical and formal description of a market starts with the inevitable statement: take goods p_1 , p_2 , p_3 , etc., without which no stylized model would be possible. How could we talk about supply and demand, in practical or theoretical terms, if there were no agreement, at least tacit or even imaginable, on the list of products and their characteristics?⁹ How could we describe, in practice and theory, the structures of competition within the same market, or between related markets, if relations of similitude or dissimilitude between the goods that circulate could not be established?¹⁰

One of the most visible manifestations of this shared concern (how to classify and position goods) is reflected in the upsurge in debate on the concept of a service. The distinction between manufactured goods and services, which has generated recurrent and endlessly open debates, is becoming central again, probably because it is at the heart of a set of questions on the transformation of the economic system and/or on the appearance of new models of growth and regulation (Gadrey 2000). Whether one talks about the new economy, the information economy, the knowledge economy or even, more directly, of the service economy, one is expressing the possibility of a profound transformation of the rules by which markets function, a transformation that is thought to be related essentially to radical changes in the characteristics of the goods traded.

Our view in this article is that the emerging convergence between the interests of researchers and the preoccupations of economic agents, around the question of services, warrants encouragement and clarification. It is likely, eventually, to promote the constitution of hybrid forums in which new forms of organization of economic activity could be discussed. To show the advantages of such convergence, I shall take a detour via the general question of the definition of goods and products. Then, based on both the economic tradition and on sociological and anthropological work, we shall put forward a product definition that will lead us, in the second part, to show the active and reflexive role of economic agents in the qualification of products. This will enable us to demonstrate the emergence of new forms of competition and to emphasize the

advantages of the concept of a service for describing and explaining them. We suggest calling this new form of organization of markets the economy of qualities.

The key argument in this article is the suggestion that, in the economy of qualities, which can also be called the service economy, because the questions posed by researchers and economic agents are to a large degree identical, co-operation between them is inevitable. The organization of markets becomes a collective issue and the economy becomes (again) political. One of social sciences' objectives might be to contribute, as far as possible, to that development.¹¹

The product as a variable: conflict and negotiation around the qualification of goods

What is a product? When one consults political economics textbooks one is struck by the diversity of terms used to denote the objects of commercial transactions.¹²

Faced with this semantic proliferation and resulting imprecision, it is out of the question to try to control the use of concepts, especially since each of them sheds particular light on the reality in question. To better understand the emergence of new forms of organization of markets and new modes of competition, it nevertheless seems useful to make a distinction – necessarily arbitrary but nevertheless rooted in etymology – between a good and a product (two concepts which are often used interchangeable in the vocabulary of economic theory).

Talking of a good means emphasizing the fact that the aim of any economic activity is to satisfy needs (what is good, sought after, wanted). Qualifying these goods as economic means adding that their production and circulation involve the mobilization of necessarily rare resources, or that these goods can be attached to property rights which are transferable from one agent to another. The concept of an economic good implies a degree of stabilization of the characteristics that are associated with it, which explain why it is in demand and why, being wanted as such, it is traded.

A product, on the other hand, is an economic good seen from the point of view of its production, circulation and consumption. The concept (*producere*: to bring forward) shows that it consists of a sequence of actions, a series of operations that transform it, move it and cause it to change hands, to cross a series of metamorphoses that end up putting it into a form judged useful by an economic agent who pays for it. During these transformations its characteristics change.

The product is thus a process, whereas the good corresponds to a state, to a result or, more precisely, to a moment in that never-ending process. As an economic good a car is an object, a thing with a well-defined shape, which is used to meet specific needs and which has an established value in a market context. But it is more than that. It is also an object that has a life, a career. Seen from

the angle of its conception and then production, it starts off by existing in the form of a set of specifications, then a model, then a prototype, then a series of assembled elements and, finally, a car in a catalogue that is ordered from a dealer and has characteristics which can be described relatively objectively and with a certain degree of consensus. Once it is in the hands of its driver the car continues moving, not only on roads but also, later, for maintenance purposes to workshops, then to second-hand dealers. At times it becomes again an object on paper, which takes it place alongside other cars in the guide to second-hand car prices in specialized magazines.

The product (considered as a sequence of transformations) describes, in both senses of the term, the different networks co-ordinating the actors involved in its design, production, distribution and consumption. The product singles out the agents and binds them together and, reciprocally, it is the agents that, by adjustment, iteration and transformation, define its characteristics.

Once the distinction between goods and products has been established, the question of their relations remains. These can be considered from a dual point of view: that of the process of qualification of goods and that of the product considered as a strategic variable.

To deepen and enrich the proposed distinction between product and good, we shall start with the definition of a good, as given in most economics manuals. 'A good can be described as a bundle of characteristics: quality, location, time, availability, consumer's information about its existence and . . . so on. Each consumer has a ranking over the mix of variables' (Tirole 1989: 96). In other words, a good can be defined by a combination of characteristics that establish its singularity. This singularity, because it stems from a combination, is relational. In fact, the selected characteristics can be used to describe other goods, with which relations of similitude or proximity are likely to be established. Defining a good means positioning it in a space of goods, in a system of differences and similarities, of distinct yet connected categories.¹³

How are these characteristics established, which make it possible to say that two goods are relatively similar but different or else totally dissimilar and radically incomparable?

First, these properties are not observed; they are 'revealed' through tests or trials which involve interactions between agents (teams) and the goods to be qualified. The fact that a wine is syrupy, that it matures with age, that it has a high or low alcohol content, that it comes from the Médoc region or Touraine are all properties that will be used to characterize it but which, to be identified and objectified, require the implementation of certified tests and the realization of codified measurements.¹⁴ The same applies to a car. Its road-holding, engine capacity, consumption and comfort, the resistance of its paint to corrosion and its delivery time are all parameters that, to be appreciated, evaluated and objectified, need a battery of tests, test benches, approved measurement instruments, documents guaranteeing traceability, etc. The characteristics of a good are not properties which already exist and on which information simply has to be produced so that everyone can be aware of them. Their definition or, in other

words, their objectification, implies specific metrological work and heavy investments in measuring equipment. The consequence is that agreement on the characteristics is sometimes, in fact often, difficult to achieve. Not only may the list of characteristics be controversial (which characteristics ought to be taken into consideration?) but so also, above all, is the value to be given to each of them. Once agreement has been reached it will be characterized by a degree of robustness if the procedures used were objective.

Second, the definition of these characteristics is modified as the product develops and changes. The characterization of a vehicle in the research laboratory is obviously not the same as that on the sales brochure distributed by the dealer, even if the two lists of characteristics are related. It is also different from the one proposed to a sub-contractor who designs and manufactures parts.

The notion of a characteristic in its standard sense (and particularly in the definition proposed by Tirole) tends to mask both the existence of progressive metamorphoses of the product and the necessity for successive investment to organize the trials required for characterization. That is why we prefer talking of qualities and of a (continuous) process of qualification-requalification, for they are simply two sides to the same coin. All quality is obtained at the end of a process of qualification, and all qualification aims to establish a constellation of characteristics, stabilized at least for a while, which are attached to the product and transform it temporarily into a tradable good in the market.¹⁵

A good is defined by the qualities attributed to it during qualification trials. These qualities are therefore twofold. They are intrinsic: the good is engaged in the qualification trial and the result obviously depends on the good in question. But they are also extrinsic: not only are the qualities shaped by the device used to test and measure the good (and therefore depend on the choice and characteristics of that device) but their formulation and explanation also generate evaluations and judgements which vary from one agent to the next. The notion of quality has the advantage of closely binding these two meanings and of including the classical question in both economics and economic sociology of the hierarchy of comparable goods (as when one talks of the quality of a service or second-hand car). Talking of quality means raising the question of the controversial processes of qualification, processes through which qualities are attributed, stabilized, objectified and arranged. It therefore consists of giving oneself the means to go, with no solution of continuity, from the good to the product, from the result to the process and its organization.

Being by definition variable, the *product* is a strategic variable for the different economic agents engaged in the process of its successive qualifications-requalifications. Seen from the point of view of its conception, a good, as noted above, moves through different stages: the Twingo presented by Renault's design department has qualities which will progressively be transformed and adjusted, until the version available on the market is obtained. That final version will, moreover, have qualities that differ depending on the place in which it is sold, the year in which it is licensed, the fact of being first or second-hand, and so on. Products, to borrow Appadurai's apt expression, are goods with a career

(Appadurai 1986). Conversely, goods are (temporarily) stabilized products. In the former case, the list of qualities is open; in the latter, it is (temporarily) closed.

The process of qualification-requalification, as described by the good/product twosome, is at the heart of the dynamics of economic markets. It was on the existence of this very process that Chamberlin based his theory of monopolistic competition (1946). He started with the idea, proposed above, that the qualities that allow goods to be differentiated from one another constitute a very open list. They may be characteristics that common sense would automatically describe as intrinsic, but may also be brands, packaging or special recipients, particular sales conditions such as location, seller's reputation or personal relations between the salesperson and customers. Chamberlin underscored the fact that all these qualities constitute the good in the following striking sentence: the customer buys not only the 'material' good but also the reputation and honour of the seller. Even if Chamberlin does not explicitly say so, this means that all these qualities have the same ontological status, and that it would be wrong to distinguish between primary and secondary qualities, for example, or between the 'real' good and its successive presentations. Yet, Chamberlin adds, these qualities which define a good and make it possible to position it in relation to other goods are not established once and for all. They have the strange characteristic of being constituent of the good but nonetheless reconfigurable.

Chamberlin's conclusion is essential in our argument. The good, as a moment in the life of a product, as a configuration likely to vary in a continuous process of qualification-requalification, must be considered as an economic variable in the same way that prices are:

By variation (of the product) we may be referring to a modification of the quality of the product itself – technological changes, new model, better raw materials; we may mean the packaging or a new recipient; or, finally, we may mean better and more friendly service, a different way of doing business.

In his introduction to the French translation, Perroux stresses the point. He notes that, for the firm, the ability to modify the list of qualities is a strategic resource since it is a matter of positioning the good in the space of goods (a space comprising all possible dimensions and qualities).

Expressed in our categories, the good, a point in time in the career of a product which starts before it and continues after it, is an economic variable in its own right, which the different economic agents can manipulate to suit their strategic goals.¹⁶

Of what do these manipulations consist? Or, put differently, what are the economic implications of the qualification-requalification of products? Once again, we turn to Chamberlin, for his answer here is also central to our approach. The qualification of goods is at the heart of economic competition and the organization of markets. According to him, the establishment of the list of qualities of a good involves the linking up or, rather, the co-construction of

supply and demand. With hindsight this mutual adaptation between what a firm proposes and what consumers want always seems somewhat miraculous. Chamberlin points out that it is based on a double movement. On the one hand, it leads to a singularization of the good (so that it is distinguished from other goods and satisfies a demand that other goods cannot meet). On the other hand, it makes the good comparable to other existing goods, so that new markets are constructed through the extension and renewal of existing ones. Different and similar, singular and comparable, such is the paradoxical nature of the economic goods constituting the dynamics of markets.

It is of course economic agents, from either the supply or demand side, or involved in either distribution or marketing, that construct these singularities and substitutabilities. The challenge which they share and which divides them is to establish this difficult adjustment between a supply and a demand that is formed around a list of qualities – an adjustment that is temporary and constantly threatened because it operates against a background of substitutability and comparability. The good relates to a certain structuration of competition, which acts both as a constraint and a resource for the collective qualification-requalification of products.

This strategic game of positioning or, as we proposed, of qualification-requalification of goods, has two important consequences for forms of organization and modalities of competition.

First, the contrast between a situation of monopoly and one of pure competition no longer has meaning. Through construction, a product is always both singular and similar to other products, because it is immersed in a space of qualities that makes comparisons possible. Chamberlin proposed the concept of monopolistic competition to describe this dynamic. Chamberlin synthesizes this point in the following assertive statement, often cited: 'It is to be recognized that the whole is not a single market, but a network of related markets, one for each seller.'¹⁷ From this point of view, consumers are just as active as the other parties involved. They participate in the process of qualifying available products. It is their ability to judge and evaluate that is mobilized to establish and classify relevant differences. There is no reason to believe that agents on the supply side are capable of imposing on consumers both their perception of qualities and the way they grade those qualities. Interactions involving complex and reciprocal influences, to which we shall return, are the rule rather than the exception.

Second, and Chamberlin makes this point in passing, the requalification process can be carried out either 'gradually and unconsciously', taking into account the reactions of the different agents involved, or in an organized manner. In the latter case, economic agents, that is the firm, but also the spokespersons of intermediaries and consumers, are explicitly defined as being involved in the strategic management of product qualification. They attempt to answer the following questions: how are products positioned in the sphere of goods? how are they distinguished from other goods and to what extent can they be substituted, at least partially, for some of them? This strategic management starts from the design stage and is seen as a governable process in which all

agents participate, from the research and design departments right down to the end users, through the production, purchasing and marketing divisions.

The economy of qualities

To consider the qualification of goods as one of the central issues in the dynamic organization of markets, makes the situations in which this qualification-requalification constitutes an explicit challenge for all the agents involved particularly interesting. For reasons that will emerge clearly further on in this paper, we suggest using the term 'economy of qualities' for this (dynamic) economy of the product (as opposed to a more static economy of the good) in which the modalities of the establishment of supply and demand, and forms of competition, are all shaped by the organized strategies deployed by the different actors to qualify goods. These highly reflexive markets are organized around two structuring mechanisms: the singularization of goods and the attachment of goods to (and detachment from) those who consume them.

The singularization of goods

The economy of qualities is based above all on the singularity of the goods offered to consumers. In other words, what is sought after is a very close relationship between what the consumer wants and expects, on the one hand, and what is offered, on the other. Many authors have emphasized these interactions between supply and demand, as well as the personalization of products they allow and the progressive adjustments to which they give rise.¹⁸ But the perspective adopted here, that of the qualification of goods, allows us to enrich and complete existing analyses.

Let us consider the question from the demand side first: how do consumers perceive differences between products and how do they evaluate them? In other words, how do they qualify products and classify them by giving them an order of preference?

The answer to this question should avoid the explanation that immediately comes to mind, which accepts the idea of a radical separation between supply and demand, with the product serving simply as an intermediary between the two. In this widespread view, the qualities of products are intrinsic characteristics, inseparably attached to the products. Consumers are supposed to perceive these qualities (hence, the importance of information) and it is assumed that the way in which they appreciate, evaluate and classify them depends on their own preferences. The latter can be considered as strictly individual (as in the standard neo-classical model) or (as in the extreme sociologizing version) related to membership of a group or social class that tries to distinguish itself or form an identity by adopting a position in relation to the preferences of other groups.¹⁹ From our point of view, this is impossible. The qualities of a product

depend on the joint work of a host of actors and there is no reason to believe that consumers do not participate, like the other actors concerned, in the objectification of those qualities.²⁰

How, in these conditions, can we explain consumers' participation in the qualification of the goods for which they (finally) express a demand? The best way of avoiding difficulties associated with the traditional concept of preference is to introduce the more realistic and now well-documented concept of distributed cognition (Hutchins 1995; Mallard 1996). The perception of differences and their evaluation, a dual operation that constitutes the exercise of judgement, implies a consumer immersed in a socio-technical system of which the different elements will each, in its own way, participate in the implementation of that dual operation. Cochoy's ethnography of supermarket customers is very instructive from this point of view (Cochoy forthcoming).

Cochoy is interested in the particularly disturbing case in which the consumer has to choose between two almost identical products.²¹ As he shows, this situation is very common. Moreover, advertisements often influence the paradox by adding a strange injunction: between these two identical products choose ours! Chamberlin was right. The singularization of a product, which allows its attachment to a particular consumer, is obtained against a background of similitude. The difference that enables a product to capture the consumer always involves the prior assertion of a resemblance which suggests an association between the consumer's former attachments and the new ones proposed.

How do consumers manage to grasp differences when products are so similar? How can I explain why I choose a Philips VCR rather than a Sony or, even more ordinarily, fruit yoghurts made by Danone rather than Nestlé? To explain why and how consumers end up opting for one or the other, Cochoy points to the part played by two decisive mechanisms:

- The establishment of a socio-cognitive arrangement that situates the different products in relation to one another: a particular point on a shelf; packaging, the semiotic analysis of which shows that it helps simultaneously to characterize the product and to compare it with other seemingly similar products; and references added by the distributor. Advertising, studied so well by Chamberlin, is another element in this apparatus. Consumers are not alone, facing a product, left to determine its qualities. They are guided, assisted by material devices which act as points of reference, supports, affordances in which information is distributed.
- But consumers also have a life outside the supermarket. For example, they have a family. The products they buy are tested in their home; collective evaluations are made; learning takes place, which gives rise to evaluations. More broadly, our consumers are caught in social networks in which tastes are formed, discussed and imitated. Moreover, these networks are not purely social. Tests and evaluations are always based on material devices in which bodies are involved (Teil 1998; Thévenot 1993). The lessons learned from them are sometimes synthesized in lists that consumers draw up with the

people they live with before going shopping. When faced with a shelf offering a profusion of similar products, the list will enable them to rely on elements external to the situation. For some products and markets our consumers can also consult magazines or guides produced by specialists or consumer associations (Mallard 2000). In the case of high tech goods or, more generally, products that are difficult to qualify (because objective tests are more difficult to set up), these intermediaries play a crucial part, in some cases going so far as to organize what Hatchuel (1995) calls a prescriber's market. We thus see the complexity of the process of judgement through which properties are attributed to products and evaluations are made. It is always, as Chamberlin so clearly saw, through the comparison and explanation of differences that these judgements are made. Such comparisons and explanations suppose the existence of a complex socio-technical device that supports the consumer in her evaluation work.

Let us now turn to the supply side. It has in common with demand the obsession with positioning products. How is it possible to ensure that consumers identify properties that they then evaluate positively? This question is crucial, as the consumers' attachment and consequent profits depend on the answer. This clearly explains why all the firm's activities and those of everyone involved in it turn around the positioning and qualification of the product. And the only way to go about it is by trial and error and the progressive learning it allows: trying some positions, observing consumers' evaluations, trying to clarify their judgements, taking them into account when repositioning the product, etc.²² As we have seen, and Chamberlin stressed this point, this work of requalification can concern either what common sense would tend to consider to be the materiality of the product (orange juice, its acidity, the origin of the pulp) or its presentation (its wrapping, its position on the shelf or advertisements for it). Yet, in the approach adopted here, there is no reason to distinguish between the two. In both cases what counts is the qualification of the product: one involves work on the orange; the other involves work on the bottle, its label or its place on the shelf. But, from the point of view of interest to us here, there is no need to distinguish between these two types of qualification that contribute equally to the singularization of the product.²³

The distinction between supply and demand is useful for emphasizing the symmetry and similitude of behaviours of the different economic agents engaged in qualification. Yet it does have a major drawback: it makes the anonymous and collective work of market professionals invisible, despite the key role they play in the qualification-requalification of products. In the mass market these professionals working behind the scenes are legion and far more numerous than omnipresent designers, packagers or merchandisers. Cécile Méadel and Vololona Rabeharisoa followed the career of orange juice from the orange groves of southern Spain to the display of the juice in a bottle in a range on a shelf (Méadel and Rabeharisoa 1999). Different actors come onto the scene at different stages in the orange juice's career: the taster who, in close collaboration

with the buyer, stabilizes the properties of the juice when production first begins; the sales manager who displays the plastic from which the bottles are made; the advertising agency and its brief; the marketing services and the market surveys that prompt it to segment supply and demand so as to take into account profound changes; the tasting sessions organized with different panels of uninformed consumers or informed professionals who are put into a position to reveal their tastes and judgements (Méadel and Rabeharisoa 2001). All these people working on qualification share a product which they shape and transform: the orange and its juice constitute their world. But they are simultaneously in a distant relationship. They pass the product around and on to the next in line so that, on the basis of work already done, they can propose and prepare other qualifications. The final adjustment is always in the hands of the newcomer (Barrey *et al.* 2000). That is why the co-ordination of these professionals is difficult: the maintenance of their difference is essential but too much distance could cause errors as the product moves between them. All in all, what is being produced is a progressive 'profiling' of products that, through successive adjustment and iteration, ends up profiling both the demand and the consumer.

This profiling which, when successful, results in the qualities of products corresponding exactly to those that consumers want, is concluded with consumers' attachment to the goods they buy and consume: it is that particular bottle, that orange juice, that the customer in the supermarket prefers. This attachment to a singularized product cannot be disassociated from the configuration – through supply and demand – of an apparatus of distributed cognition in which information and references are spread out between many elements. The consumer's preferences are tied into this apparatus. This is why they can be both stable and reconfigurable.

Detachment and different attachment

All attachment is constantly threatened. This mechanism is central in the question under consideration here. Competition between firms occurs precisely around this dialectic of attachment and detachment. Capturing, 'attaching' consumers by 'detaching' them from the networks built by rivals is the mainspring of competition.

How does this form of detachment occur? Answer: by getting consumers to requalify the different products offered to them, that is, by repositioning a product in such a way that it becomes visible to consumers, so that they are prompted to embark on a new effort at evaluation.²⁴ One can speak of a calculative supply. But calculations do not simply concern prices and profits. They are mainly about products and their qualities.

A fairly simple way of understanding how this requalification operates is by turning once again to the demand side and adapting March's distinction between decision making based on consequences (logics of consequences) and routine decision making (logics of appropriateness) (March 1994). It would be

a mistake to have to choose between two opposite conceptions of the economic agent in general and the consumer in particular. Agents who follow routines and those who calculate and decide on the basis of the consequences of their choices, both exist. Moreover, those same agents, for example supermarket customers, generally swing from one position to the next, rapidly and sequentially.

Attached consumers are ones who are caught up in routines. They are driven by the distributed apparatus of qualification. The differences they perceive and the evaluations they make are stabilized, objectified. They buy goods, the qualities of which they are familiar. They grade them and then use those scales. In the case of the supermarket, consumers functioning according to routines push their trolleys around, always use the same list, when they use one at all, and go from shelf to shelf, never hesitating on the choice of the products they buy. It is always the same information that is mobilized and treated by the collective to which they belong.

Consumers engaged in the requalification process hesitate. They wonder what they should buy, are puzzled when faced with an impressive range of orange juices or when they notice a new product standing out among the others.

How does this switch operate? How is the same consumer, caught until then in routines, turned into a decision maker? This is where one needs to turn to the supply side and towards professionals of qualification. They constantly try to destabilize consumers, to extract them from routines and prompt them to re-evaluate the qualities of products, hoping that that requalification might be favourable to them.

Cécile Méadel and Vololona Rabearisoa take the example of an orange-juice producer whose sales declined. To remedy the situation it decided to launch a product requalification project with the aim of changing the position of its products in the market. The origin of the oranges, the taste of the juice and its packaging (among other things) were changed. But customers still had to be informed of these changes. The strategy chosen, both simple and common, clearly illustrates the nature of the mechanisms at play in this switch. To the questions: 'How to break the consumers' attachment to their favourite brands? How to extract them from the routines they follow with a certain delight, and get them to grasp the bottle without thinking?' the solution devised by (re)qualification professionals offered an exemplary answer. The strategy consisted of reactivating the network in which customers were immersed by focusing, for example, initially on those consumers who were accompanied by their children. The idea was to attract the children's attention by means of a prominent feature, for example a bottle offering a free Pokemon. The child would predictably detach herself from her father, pull him by the arm, force him to leave the routine he automatically followed, and put him in front of a product which, strictly speaking, he had not seen. A discussion between father and child would follow, which was likely to end in a purchase and, eventually, in attachment to a new brand. If the children's network were effective, the new attachment would spread well beyond that single family unit.

This scene, so ordinary and obvious, is instructive. By acting on the collective

in which consumers are immersed, that is, by giving weight to children's evaluation, the supplier is in a position to attach consumers after detaching them from another network in which they are caught. The orange juice proposed, one quality of which is perhaps the slightly sweeter taste but which has, above all, a connection with the Pokemon network, has been differentiated and has attached a new consumer. This clearly illustrates the general mechanism we wish to describe. It is through a reconfiguration of the socio-cognitive apparatus (the new orange juice stands out on the shelf and modifies the circle of those with whom customers are to interact and deliberate in revising their preferences and finally ending up with new judgements and evaluations) that detachment and reattachment are effected.

In the economy of qualities, this struggle for attachment and detachment is at the heart of competition. It entails the collective (re)qualification of the products that become strategic variables. The positioning of products and the shaping of preferences are endogenous variables that agents manipulate and calculate.²⁵ What we propose to show now is that the modalities of the organization it implies resemble those of the service economy as described by Jean Gadrey.

Service activities as the basis of the economy of qualities

Until now the validity of the subject of this paper has been general. At no point have we raised the question of the distinction between material goods and service provision. The process of (re)qualification, whether it concerns an insurance contract, home care for the aged, a transport service, a fruit juice, a motorcar or an apartment, follows the same logic. Forms of competition that are set up and centre around the struggle for attachment and detachment of customers to the goods offered to them likewise follow the same logic. Is it useful and of any interest, in these conditions, to revive problematic distinctions? Why not stick to the good/product twosome, rather than adding confusion by introducing criteria that flirt with metaphysics, like those of materiality or non-materiality of products?

That could be a possible strategy. But it would have the drawback of overlooking the concerns of actors who talk increasingly about services or service relations, stressing the importance of users and the quality of the services offered. The service economy exists in reality, in official classifications and in the categories used by agents. Ignoring that would run counter to our aim, which enjoins us to consider those agents as competent colleagues who know what they are saying and doing. It would also amount to not seeing that the economy of qualities, as defined above, easily encompasses what actors call service provision. What we should like to suggest hereafter is precisely that what we mean by the term 'service' or 'service activity' increasingly corresponds to forms of organization of markets in which the qualification of products is a central and constant concern. Perhaps the service economy is just another name given to the economy of qualities by the agents concerned and certain economists.

To demonstrate this in rough terms, let us start with Jean Gadrey's (2000) definition. According to him, any purchase of services by an economic agent B (individual or organization) is a purchase from an organization A of the right to use, for a specified period, a technical or human capacity possessed by A to produce (on agent B or on the goods that agent possesses) useful effects that do not have the form of new economic entities. On the basis of this definition, Jean Gadrey suggests distinguishing three service logics: *request for intervention*, *making available* and *show*, the definitions of which can be summarized as follows:

- In the case of the logic of a request for intervention, B (for example, the owner of a car) addresses a request for intervention to A who is the owner of a set of human and technical capacities (the garage or mechanics workshop) the mobilization of which will allow B's demand to be satisfied.
- In the case of the logic of making available, B, based on a simple decision, uses a technico-human capacity which functions and which A makes available to B in mutually agreed conditions.²⁶ Examples of such logics are transport, telephone and electricity.
- In the case of a show (or spectacle), B decides to attend, in conditions proposed by organization A or negotiated with it, a human performance (a play, an amusement park, a show on a river cruise, etc.) generally supported by technical devices.

The advantage of this definition, and of the resulting classification into three logics, is that it clearly demonstrates the link between service activities and the economy of qualities. The particular frame of the service relationship in which the service provision takes place has two consequences. First, it facilitates the setting up of the (reflexive) work through which the different agents engaged in the process pose and solve the problem of the singularization of products. Second, it facilitates the formulation and implementation of strategies aimed at managing consumers' attachment to and detachment from the products offered to them.

In his definition, Jean Gadrey introduces the key concept of socio-technical capacity. This socio-technical capacity consists in human competencies and material devices that have been designed and arranged in a way in which they can be mobilized in order to achieve desired results. In the request for intervention logic, it consists of a set of means for the purpose of investigation, control, maintenance and reparation, which combine instruments and machines but also specialized technicians who are mobilized in an organized way to produce the expected effects on B. In the making available logic, this technical capacity, often invisible to the user, may be considerable, as in the case of connection to electricity, telecommunications or the domestic water supply network. B, by lifting her telephone receiver, opening a tap or switching on her washing machine, sets in motion a complex arrangement of humans and non-humans whose actions have been adjusted in relation to one another and prepared for mobilization at any time and at any point of access to the network.

The property of that socio-technical capacity is sometimes shared between different owners. A car rental network makes available its vehicles, its rental sales agents, its agencies and its maintenance and insurance services, but also takes advantage of the road infrastructure (a public good) that will enable its customers to travel about. In the logic of show, the manager of a theatre or amusement park and the organizer of a pleasure cruise on the Seine group together a series of participants, each of whom plays a part in a script or scenario prepared in advance and the realization of which would be impossible without the engagement of material mediums participating actively in the show (the Seine and the boat are needed, as are the theatre, its stage and comfortable seats, the projector: each of these non-human entities contributes, in its own unique way, to the show) (Akrich 1992).

In all these situations the beneficiary B acquires – and this is what the commercial transaction is about – a right to (specified) use of that socio-technical capacity. It is to repair B's car that the garage is mobilized. It is to enable her to light her apartment that the turbines generate electricity year after year, that agencies carefully monitor her consumption and that high-tension lines criss-cross the countryside. It is for the audience's pleasure that the actress repeats her monologue for the hundredth time, that the usherette leads people to the seats they have reserved on the Internet, etc. Service provision consists in the effects produced by the mobilization and reasoned use of this socio-technical capacity.

Thus defined, service provision is not radically different from other forms of goods placed on the market.²⁷ But, owing to the key importance it gives to the relationship between the socio-technical capacity (in the seller's hands) and the customer (who uses it), it allows greater reflexivity on activities of qualification and singularization. What we have suggested calling a socio-technical device, a device that enables us to think of qualification in terms of distributed cognition, is in fact very similar to what Gadrey calls socio-technical capacity. In the case of service provision, this socio-technical device occupies a central place, for the success of the service depends on it directly and quasi-perceptibly. This can be expressed differently by emphasizing the fact that service provision, by allowing consumers to use this socio-technical capacity, organizes a system of action in which consumers participate personally in order to benefit from that use. In the course of the interaction thus constructed, they become elements in this system of action. They act, react and, most importantly, interact, thus gradually constructing and clarifying their preferences. Service provision is a machine (sometimes a machination) designed to reveal what customers want and progressively to construct the irreducible singularization of their demands along with their satisfaction.

It is with the use of new information and communication technologies that this logic of singularization reaches its peak. Take the pragmatic case of the Internet user. When she goes onto the Web through a portal, the Internet user is faced with a distributed cognition device that, in every sense, is comparable to the one described when we presented a supermarket customer hesitating in

the choice between several orange juices. She first chooses between different providers and then between the different services proposed by the chosen provider. Most of her activity will consist of qualifying (i.e. classifying, evaluating and judging) the products offered to her, by comparing and relating them to others. This qualification, the generality of which we discussed above, is even more present, in a purer form, in the case of the Internet. With information renewed on the screen, with links and cross-references and with scroll menus that multiply options from which users can and must choose, the Internet is a machinery that is entirely oriented towards the singularization of products. Whether the user is visiting the site of a supermarket or Club Internet, this qualification takes place within a distributed cognition device. But, in the latter case, it takes place through programs whose only function is to provide and link information so that consumers are in a position to make choices.

Not only do providers create and provide this system in which Internet user are immersed, they are also in a favourable position to monitor users, observe their preferences and, based on these observations, singularize the products offered to them. E-commerce companies hope to base their competitive lead on their ability constantly to observe customers making choices, linking products and showing their preferences. Since they are able to record customers' previous purchases and their reactions to new offers, suppliers end up knowing as much as customers themselves do about what they want and expect. This shared knowledge, which evolves as new experiences accumulate, is based on consumers' engagement in a socio-technical device with which they interact and evolve.

In service provision, as defined by Gadrey, business is structured around this qualification process made possible by the establishment of the device and by the right granted to the customer to use it. From this point of view, new ICTs make an irreplaceable contribution. Between the supermarket X and E-bay there is a difference not of nature but of degree. By mobilizing new ICTs, e-commerce makes the qualification and requalification of products the central concern in service provision.²⁸ The work of attachment is an obsession explicitly shared by all the actors, including the end user. Paraphrasing La Boétie, we could talk of consumers' voluntary attachment to the products they qualify in close interaction with supply intermediaries, whether they are human or non-human. It is not by coincidence that, to describe these opportunities provided by e-commerce to qualify the user-consumer's position, the two contradictory words 'independence' and 'dependence' are used: independence, because the Web multiplies openings, facilitates comparisons, etc.; dependence because it conversely promotes singularization and the attachments it allows.²⁹

We could multiply examples and consider the logics of show and intervention in order to demonstrate that service provisions are always part of the economy of qualities, because they focus on socio-technical capacities or devices, and promote their mobilization by customers prompted to participate in the process of qualifying the products intended for them. This is just one way of saying, in a more precise form, that what is important in the service business is the

relationship or, rather, system of relationships which, on a material and collective basis, organizes the qualification of products. The emblematic nature of services is increasing even further with the development of information networks and computer technology.

The second characteristic of service provision, as defined by Jean Gadrey, is the character, both lasting and limited in time, of the consumer's right to use the socio-technical device. This temporal framing facilitates the reasoned control and management of operations of attachment, detachment and re-attachment. It constitutes a sound base for the establishment of lasting relations, constantly re-evaluated, between service provider and customer.

Take the case of the car market. As Jean Gadrey points out, buying a car is fundamentally different from renting one.³⁰ Of what does this difference consist? Obviously, of the consumer's lesser attachment to the product he consumes. As the owner of his car he will have to make greater investments to detach himself than if he were simply renting the car. A weaker attachment enables him, moreover, to participate more actively (because more frequently and on the basis of more recent experiences) in the singularization of the product he buys. Seen from the service provider's point of view, rental enables him to concentrate on qualification of the product and on its renegotiation to answer questions such as: what are observable uses? How do they evolve? In what kind of business is such or such a type of customer?

This example, which has a general value, shows that the joint advantage for consumer and supplier in establishing a lasting use of the socio-technical capacity, while setting a limit in time to the relationship, is that it allows the increasingly intense and profound qualification of products and the singularization they afford. This relationship simultaneously encourages agents to focus on the returns from ongoing experience and to take them into consideration when renewing the contract and the service.

This collective work on the qualification of products and, consequently, on users' attachment, implies consumers who are calculating rather than set in routines. This in itself implies a risk, for consumers with routines are unquestionably an advantage in the short term for the service provider: they remain attached, loyal, reliable. On the other hand, any attempt to experiment with what they want and hence to model their preferences is more difficult, if not impossible. In an economy where competition concerns the qualification of products (for the purpose of their singularization and the consumers' attachment), a 'routinized' consumer³¹ is a constant threat since interaction that has been interrupted can be taken up and re-established by a rival, who will thus adopt a position to detach the consumer by giving him back his ability to calculate, in order to swing him, with his active and calculated participation, towards new attachments.

The paradox is clear. In the economy of qualities it is preferable for the service provider to co-operate with the consumer and therefore to deal with a calculating consumer, at least on a regular basis without long intervals in-between. This is possible only by limiting the periods of routine attachment and by constantly

calling into question the singularization of products proposed in order to launch new negotiations and adjustments of their (re)qualification. Service provision, as defined by Jean Gadrey, facilitates the detailed and regular management of this delicate balance between attachment and detachment. The right to use socio-technical capacities belonging to the service provider, for a limited period of time: this definition describes a frame that allows compatibility and complementarity between the entanglement of personal relations (and the collective deliberations they allow), on the one hand, and the possibility for agents to get out of these relations, to detach themselves in order to evaluate the advantages of new attachments, on the other.

Conclusion

The organization of economic markets and the formulation of their rules of functioning are an increasingly explicit issue not only for social scientists and political decision makers but also for economic agents themselves. The upsurge of this reflexive activity is reflected in particular in the emergence of what we have suggested calling the economy of qualities. In this economy, inhabited by actors who are real professionals in product qualification and the profiling of goods, consumers are constantly prompted to question their preferences and tastes and, finally, through the explicit debates that that implies, their own social identity. As the anthropology of consumption has so clearly shown, classifying products, positioning them and evaluating them inevitably leads to the classification of the people attached to those goods. Consumption becomes both more rational (not that the consumer is more rational but because (distributed) cognition devices become infinitely richer, more sophisticated and reflexive) and more emotional (consumers are constantly referred to the construction of their social identity since their choices and preferences become objects of deliberation: the distinction of products and social distinction are part of the same movement). As for suppliers, one of their main concerns is to facilitate and organize to their own advantage this process of (re)qualification.

The functioning of the economy of qualities involves the establishment of forms of organization that facilitate the intensification of collaboration between supply and demand, in a way that enables consumers to participate actively in the qualification of products. The establishment of distributed cognition devices, intended to organize real life experiments on preferences, tends to blur habitual distinctions between production, distribution and consumption. Design, as an activity that crosses through the entire organization, becomes central: the firm organizes itself to make the dynamic process of qualification and requalification of products possible and manageable.

In the economy of qualities, competition turns around the attachment of consumers to products whose qualities have progressively been defined with their active participation. The dynamic of reflexive attachment implies consumers who are calculating, that is, capable of perceiving differences and grading them,

and who are accompanied and supported in this evaluation and judgement by suppliers and their intermediaries. Competition between firms plays on the formatting of socio-technical devices which, distributing and redistributing the material bases of cognition, format the bases of calculation and preferences.

We have suggested that the economy of services, especially where new ICTs are involved, is emblematic of this economy of qualities. It is reflected in forms of organization and competition that encourage reflexive behaviours in actors, especially those relating to the qualification of goods. The beneficiary and service provider co-operate closely in the singularization of the services proposed. To be sure, the modalities of this co-operation differ, depending on the logic. In the logic of intervention, the consumer adjusts to the socio-technical device whereas in the logic of making available it is the device that goes to the user. In the logic of representation the two meet each other halfway, so that forms of life and emotions are shared. Having the user at one's place, being at his place or building a place to be with him: in all three cases, the economy of goods gives way to an economy of relations.

It has been possible to demonstrate the emergence and diffusion of the economy of qualities, and to suggest the existence of a link between this economy of qualities and what is commonly called the service economy, owing to a frame of analysis that can be traced back to Chamberlin and sociological and anthropological work on markets. This dual detour has led to the observation that it is possible to bring together the preoccupations of actors who, in the economy of qualities, devote a large part of their resources and cognitive capacities to the qualification of goods, on the one hand, and questions that certain economists and sociologists ask, on the other. This link attests to the reflexive dimension of the economy of qualities. Once established, it should promote the constitution of hybrid forums capable of holding debates on the organization of markets, which have become all the more open both to debate and governance as they deliberately inscribe themselves in a service economy that uses new ICTs on a massive scale.

Notes

- 1 Smith gives the example of e-commerce where the organization of auctions is constantly the object of debates, experiments and evaluations. These markets are highly reflexive (see also Giddens 1998).
- 2 The issues debated are, for example, the granting of property rights, the setting of prices, the organization of competition, the regulation of international trade and the modalities of intervention by public authorities.
- 3 As, for example, questions of national independence and sovereignty or of social equity.
- 4 The organization of markets and ethical considerations cannot be dissociated in the case of biotechnologies. Can human organs be transformed into merchandise and, if so, under what conditions? Should the cloning and commercialization of secondary products be allowed? Should genetic tests be allowed as a condition for insurance contracts?

5 Here again, biotechnology multiplies subjects of controversy, such as, for example, those on the conditions of gene patentability.

6 Socio-technical controversies analysed by science studies more and more frequently include the subject of markets, for non-human entities constantly flow over established frames, producing externalities that have to be taken into account. By crossing the barriers of species, do prions connect two markets, that of beef and that of aquaculture salmon, previously considered to be separate? What protocol should be chosen to establish incontestable figures for the impact of greenhouse gases on global warming or to calculate possible penalties?

7 When talking of the social acceptability of technologies, one has to include social technologies and talk of the social acceptability not of markets in general but of a particular form of market.

8 The social sciences, like the other sciences and perhaps even more than them, are performative. They contribute to the existence of the realities they describe. Being aware of this performative dimension implies a reflexivity that should lead specialists to agree to collaborate with the actors themselves.

9 The aggregation of demand is not a theoretical problem; it is above all a practical problem that has to be solved by economic agents. The solutions devised are multiple. For a suggestive analysis, see Salais and Storper (1993).

10 Apart from Chamberlin, and White (White 1981), very few authors have considered the products of their qualification as strategic variables for economic agents. We note, however, the significant and original contributions of the French school and especially of Salais (Salais and Storper 1993), Eymard-Duvernay (1994) and Thévenot (1989).

11 In his introduction to *The Laws of the Markets*, Michel Callon emphasized the performative role of the economic sciences, going so far as to say that 'economic activities are embedded in economics' (Callon 1998). This expression should not be misunderstood. Two observations warrant attention. First, economics as a discipline is not alone in accomplishing this performing and framing. It is helped by other disciplines in the social sciences but also, and above all, by the actors themselves and especially by professionals of the market (marketing specialists, accountants, managers, etc.) who readily mobilize lasting material devices to make these frames irreversible. (As Weber remarked, there could be no possible encounter between supply and demand without technical and material arrangements such as the supermarket with its shelves and tills, etc.). Second, the role played by economics as a discipline increases along with hybrid forums within which the organization of markets is debated, and which supply a vast audience for specialists who were previously more or less in the background.

12 Economic agents have re-appropriated this concept which had disappeared from the vocabulary of political economics. In the service sector today engineers and sales people frequently talk of use values as opposed to utility.

13 The incommensurability of goods (as in the classical example of butter and cannons or in that of wine and canvas between which the agents in economics textbooks establish necessarily random preferences) is an outcome of the classifications themselves. In reality, it is by a series of small gaps, tiny shifts, that, starting with a given category of goods, we end up with one or more radically different categories. In its great wisdom, economic theory leaves agents to answer the question by introducing concepts such as that of crossed elasticity.

14 As we shall see below, not all the properties of products are necessarily obtained in metrological networks. For a subtle analysis of the different mechanisms, see Bessy and Chateauraynaud (1995).

15 One of the advantages of this definition is that it enables us to apply the same analysis to the production of 'bads' – the name traditionally given to 'goods' that produce negative externalities.

16 Economic theory distinguishes between markets where agents are 'price takers' and those where they are 'price makers'. This distinction could, and should, be extended to

products by contrasting markets where agents are 'product takers' and markets where they are 'product makers'.

17 White is one of the only authors to have followed the programme thus outlined by Chamberlin. This programme jettisons the two concepts of monopoly and competition, which, as ideal types, are simply useless and even result in a profound lack of comprehension of the functioning of real markets. Chamberlin synthesizes his demonstration as follows:

Price adjustments are, in fact, but one phase, and often a relatively unimportant phase, of the whole competitive process. . . . The fact of such competition should at least be brought into the open by including the 'product' as a variable in the problem. . . . For a complete picture, indeed, each element of the 'product' should be regarded as a separate variable.

(Chamberlin 1946: 73)

It is interesting to note that, in Appendix C to his book, Chamberlin discusses at length the seminal article by Hotelling (1929) in which that author lays the foundations of an economy of quality (products differ according to a variable which is the seller's location).

18 We borrow the concept of singularization from Karpik (1989). It is preferable to the more common one of personalization or customization, for it maintains the unity of a process which concerns goods and agents in such a way that they cannot be dissociated. Yet the economy of quality studied by Karpik tends to prefer configurations in which the main issue is the quality of products (e.g. a lawyer's or teacher's service). By choosing to talk of an economy of qualities, we consider the most general case in which it is the (necessarily multidimensional) qualification of products and especially the processes of their (re)qualification that are the key issue. This enables us to include all productive operations in the analysis without neglecting forms of competition.

19 For an exhaustive review of the literature on preferences, see Cochoy (in prep.). He shows the limits of the classical approaches of Samuelson, of Sen, of Akerloff and of Lancaster, and highlights the importance of situations in which the qualities of products are variables and their characterization is dynamic.

20 A cogent demonstration of this was made by Smith (1989) in his work on public auctions.

21 As he shows, this situation is only a particular case of a more general paradox, studied for a long time: that of Buridan's donkey.

22 One of the emblematic forms of this life-size experimental work is that of supermarkets, from every point of view identical to ordinary supermarkets but transformed into real laboratories in which a number of parameters can be varied and in which customers' behaviours are observed in detail.

23 The definition of a good as a 'bundle of characteristics' is very valuable, for it establishes no ranking of characteristics.

24 The consumer in question is not necessarily the final user. The process of (re)qualification involves many stages. At some of those stages markets may be organized, binding a supply and a demand around the good thus defined.

25 The concept of calculation must be understood here very generally, as proposed by Michel Callon in *The Laws of the Markets*. Calculating implies: a) that different options are open, b) that conceivable decisions are known, and c) that it is possible to associate each decision with the realization of a particular option. As shown, these situations imply framing. It is easy to check whether distributed cognition devices, considered above, produce such frames. Saying that markets are reflexive is obviously not asserting that agents are calculating (they are always calculating to some degree, but in different ways); it is emphasizing the fact that the design and implementation of framing devices become key concerns for the different agents involved.

26 Again according to Gadrey, 'the conventions and contracts corresponding to them consider in general: a) that A is responsible for the smooth functioning of the capacity

in question, according to prevailing standards, and b) that B must use these capacities well. In terms of property law he does not have the right to use and abuse them as he feels fit.'

27 Gadrey shows, however, that there are economic differences between the purchase of socio-technical capacities and the purchase of their use (modalities of appropriation, storage, evaluation of production and of performance, etc.).

28 Qualification is at the heart of the customer's strolling around in a supermarket, along the rows of shelves. With the Internet and e-commerce, it becomes the very matter of market relations. E-consumers scroll menus and supermarket clients stroll around in alleys.

29 In the case of the Web, these attachments are inscribed in navigation software which proposes bookmarks but also favourites to go to.

30 Between these two eventualities there exists a whole series of intermediate situations. For example, contracts can be drawn up in which the user is not the owner but may become the owner after a predetermined number of years. Clauses can also be added which provide for replacement cars in case of breakdowns or maintenance. The product becomes more complex; it becomes a 'bundle of qualities' that allow singularizations and differentiations *ad libitum*.

31 Thomas (1991) says 'entangled'. On the relationship between entanglement and disentanglement (calculation), see Callon (1998).

32 This paper was first published as 'L'économie des qualités' (*Politix* 2000, 52: 211–39).

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