The Actor Roles of e-Market Intermediaries

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Abstract

This paper develops the concepts of ‘actor role’ and ‘activity’ viewed as an application of the Enterprise Ontology to electronic market intermediation. We briefly review some essential features of intermediation in electronic markets. We also demonstrate the absence of a common terminology in the literature and we propose a typology that can be used to analyze and compare functional interactions for new market intermediation realities. Our study suggests that to understand how ICT impact the market intermediation process, we need to complement the traditional macroanalytic focus on transactions with a role/activity analysis at the level of the intermediating firm. Analyzing intermediation from an actor role perspective, it is suggested that an intermediary may play four roles: Dealer, Informant, Logistician and Trusted third party. Aside, related activities are derived from the existing literature. We discuss the impact of ICT on these roles and we conclude by suggesting interesting avenues for future empirical research.

Keywords

Market Intermediation; Electronic Intermediaries; Actor Roles; DILT Typology
I. Introduction

Over the last 15 years, much progress has been made in the analysis of market intermediation, and probably even more since the Internet really entered the business sphere. Several papers published over the last years represent significant progress in studying the influence of ICT on market intermediation (Berthon et al., 2003; Rabinovich et al., 2007). In financial economics, the latter concept is part of a broader literature called “market microstructure”. Scholars in management are also interested in intermediation processes as they provide an understanding of e-business issues. With its “intermediation theory of the firm”, Spulber (2003, p.253) was the first to promote a unified framework integrating economics and management perspectives, i.e. based on economic concepts (game theory, opportunity costs, rents, etc.) and on strategic ones (resources, value, roles, etc.). However, even if intermediaries represent a large part of the economy, it is still difficult to get a precise and generally accepted answer to the following question: “What do market intermediaries really do?”

Our study both complements and differs from existing literature about roles and functions of market intermediaries. First, we use different units of description. Relying on IS science and more precisely on the Enterprise Ontology developed by Uschold et al. (1997), we suggest a consolidated framework that is based on a differentiation between “actor roles” and “activities”. Second, we build a typology that can be used to analyze and compare functional interactions for new market intermediation realities.

The remainder of the article is organized as follows. In the next section, we highlight important considerations on electronic intermediation that have been emphasized to
date and we summarize the most relevant earlier research results. We then show the existence of an ontological problem in defining intermediation constructs. We next move into the paper’s core contribution, and present our proposition of typology by focusing on each of the categories, i.e. the actor roles of market intermediaries. In Section 5, a discussion considers how the Internet has impacted each actor role. We end the paper, suggesting paths for empirical research in market microstructure.

II. Market Intermediation: from Disintermediation to Re-intermediation

The emergence of networked organizations at the end of the last century favored electronic business. From that point of view, Internet is a perfect illustration of an innovative technology that has created new business opportunities. However, market intermediation exists since a longer time than the Internet media and other ICT applications. So, the electronic feature of intermediation shifts the activity from a physical environment to a virtual one, but does not create new economic rules fit for electronic intermediation. Contrary to what was thought for a long time, electronic intermediation is not incompatible with the classic market intermediation business. Nevertheless, it is true that the virtual environment has an impact on how intermediation is proceeded and on how value is shared among trade partners and transaction stakeholders.

A market intermediary is an economic agent that helps supply and demand meet, whether by purchasing from suppliers and reselling to buyers or by helping both to
meet each other (Hackett, 1992, p.301; Spulber, 1996, p.135). This definition supposes that two kinds of intermediaries do exist: first, the one who buys and sells with a margin of profit (i.e. the merchant); second, the one who facilitates a commercial exchange not necessarily by interacting directly in the transaction (i.e. the broker). In both cases, the intermediary does not receive any utility from consuming the good or the service that is traded (Biglaiser, 1993, p.212). His profit comes either from the buy and resell operation's margin or from the remuneration of his matching role.

In a market microstructure framework, Spulber (1996, p.147) argues that there is a place for an intermediary when the overall gain of a decentralized exchange is lower than the one reached after an intermediated exchange. When the latter situation occurs, the third agent can capture the value equivalent to the trade surplus. Economists will show that intermediaries are always in competition with decentralized trade, in which buyers and sellers negotiate the terms of exchange directly (Bhattacharya and Hagerty, 1987; Gehrig, 1993).

The Internet has modified the traditional usage of resources. As a consequence, it changed the perceptions of intermediary's usefulness. Despite the Internet bubble crisis in March 2000, some actors seized this market opportunity. Whether they were already in business (traditional players) or whether they were new entrants (pure players), advancements in ICT allowed multiple reconfigurations of existing business models. The latter have been widely explored in the literature (Mahadevan, 2000; Lucking-Reiley and Spulber, 2001). Several propositions about the de-integration of industrial structures, caused by the digital networks, were formulated. Assumptions
trying to predict how value chain systems were likely to evolve have thus emerged. One of the first theories can be summarized as follows: if two economic agents that are far away from each other have an opportunity to transact directly at a low cost, they will bypass the intermediary. Given the fact that ICT reduce the cost of information production and distribution, the economies in terms of transaction costs should generate a “dis-intermediated” situation (Gates, 2000). The main argument is that using ICT allows firms to internalize tasks that have been traditionally performed by intermediaries. It points out that market structure will be modified in a way consisting in a gradual elimination of the different intermediaries that keep apart buyer and seller (Wigand, 1997). In the same stream of thought, Strader and Shaw (1997) considered traditional intermediaries as endangered species in the electronic market fauna.

In contrast, Chircu and Kauffmann (1999) tended to show that the reality seems to refute the view of a huge market where producers are directly linked with customers. Actually, the disintermediation hypothesis was not founded on market evidence. If it is true that digital networks have conducted to important changes inside some sectors, it is untrue to consider that traditional intermediaries have totally disappeared from the market. While it is not the purpose of the present paper to consider this phenomenon in any depth, it is important to note some of the reasons that can explain that the disintermediation hypothesis turned out to be inconclusive. Therefore, we refer to researchers who were among the first to provide some explanation. Sarkar, Butler and Steinfield (1995) argue that ICT do not reduce all transaction costs to zero (i.e. become
insignificant). As they put it: “[...] it is intuitively difficult to accept the idea that the costs of transferring goods from one party to another will drop so much for the majority of goods. [...] We see that relaxing assumption 1 [i.e. ICT will reduce all transaction costs to zero] allows us to derive a number of possible outcomes for structure of value systems in an electronic commerce environment” (Sarkar et al., 1995). As we will soon see, the intermediary's role goes beyond the matching of a buyer and a seller. A similar argument has been made by Brousseau (2002, p.355-356), who claims that digital networks do not automatically afford all the traditional services offered by a commercial intermediary. He also mentions the technical and strategic barriers to the complete disintermediation of transactions: some parts of an exchange are still performed through traditional channels either because it remains cheaper in terms of transaction costs or because transacting parties prefer acting as before.

At the same time that traditional market intermediaries remain active and essential to the market structure, various scholars have argued that the role of intermediaries would change and that new similar actors (i.e. cybermediaries) would emerge on the Internet (Bailey and Bakos, 1997; Brousseau, 2002). According to Brousseau (2002, p.368), cybermediaries exploit specific niches or take on a single intermediation role. A cybermediary has been recently defined by Barnes and Hinton (2007, p.64) as a “business organization that occupies an intermediary position in a supply chain between a buyer and a seller, and whose business is based on the use of Internet-based ICT”. Most of the time this entity takes the form of a website, either an electronic marketplace for buying and selling or just a virtual place bringing several consumers
and suppliers together. In a dynamic environment of online business negotiations, cybermediaries are regarded by Malucelli, Palzer and Oliveira (2006) as facilitator agents, i.e. entities that match the right agents and support the negotiation process. Emergence of cybermediaries is the starting point of the reintermediation hypothesis. Contrary to the predictions of disintermediation, the reintermediation hypothesis does not suppose the disappearance of traditional intermediaries. Cybermediaries and traditional actors coexist. Sometimes, both are represented by the same agent. The digital network is, in fact, an additional distribution channel that can also be used by traditional commercial intermediaries.

Thus, reintermediation presupposes an intensification of market rivalry due to the arrival of cybermediaries. However, this phenomenon should not be thought in terms of two independent market spheres, but well as interrelated places. As a result, a firm holding an intermediary position can decide to relocate some of its activities on a virtual platform in order to benefit from the digital network's advantages. Recent evolution in banking is a concrete illustration of the previous finding. On the one hand, new actors appeared with the Internet. Most of them were active as stockbroker or moneylender. On the other hand, several renowned bank institutions (traditional financial intermediaries) decided to launch banking services on their website, either on their own or by acquiring existing direct networks. A key implication that was brought up in electronic markets, was that the existence of professional intermediaries has an impact on the traditional process of intermediating transactions.
III. Intermediation tasks: Roles or Functions?

Although increased attention has recently been paid to electronic market intermediation roles, to date, few attempts have been made to integrate all of them in a common framework. At least two reasons underlie this observation as we will now try to demonstrate it. First, the fast moving development of electronic business represents with no doubts a serious difficulty. Indeed, the electronic business domain is clearly dynamic. For instance, the topical Web 2.0 wave opens a large scope of possibilities for new practices and also new forms of cybermediaries. These innovative actors generally develop business models as yet unexplored by the scientific community. Barnes and Hinton (2007, p.64) remind us of the many approaches, based on e-business models distinction, that have been developed in order to classify cybermediaries. They also conclude that modeling in this case is quite difficult. A second factor is certainly the absence of consensus on what constitutes a role for an intermediary. If the notion “market intermediary” is easily perceived as clear in the literature, the delineation of the term “role” is more confused. Sarkar, Butler and Steinfield (1995) do not present roles but “functions” fulfilled by intermediaries. They list ten different functions: 1. search and evaluation, 2. needs assessment and product matching, 3. customer risk management, 4. product distribution, 5. product information dissemination, 6. purchase influence, 7. provision of customer information, 8. producer risk management, 9. transaction economies of scale, 10. integration of customer and producer needs. One year later, Spulber (1996, p.136) writes “[...] the main function of market intermediaries is to figure out ways of clearing
the market: that is, pricing to match purchases to sales. [...] The purpose of this paper is to emphasize the important economic role played by firms as intermediaries”. He details further on four “broad categories of intermediation activities”: 1. price setting and market clearing, 2. providing liquidity and immediacy, 3. matching and searching, and 4. guaranteeing and monitoring. In 2002, Anderson and Anderson (2002, p.57) announce that intermediaries have nine “generic functions” ranked amongst three categories which are matching, requisitioning and problem solving. These nine functions are: 1. information about sellers, 2. information about buyers, 3. information about products, 4. economies of scope, 5. economies of scale, 6. time-and-place utility, 7. guarantee quality, 8. preserving anonymity, and 9. tailoring goods and services. The same year, while Giaglis, Klein and O'Keefe (2002) propose only three roles (matching, searching and price discovery), Brousseau (2002, p.357) identifies the role of commercial intermediaries in a market economy through a set composed of four “essential coordination difficulties”: 1. information management, 2. logistics management, 3. transaction securization and 4. insurance and liquidity. In 2007, Barnes and Hinton (2007, p.65) sum up the above literature within five roles: 1. informational, 2. transactional, 3. assurance, 4. logistical and 5. customization. One can note that the latter customization role is equal to the last function pointed out by Anderson and Anderson (2002, p.59), i.e. tailoring goods and services. Likewise and at the same time, del Águila-Obra et al. (2007, p.189) summarize things by quoting six functions: 1. aggregate supply and demand, 2. collect, organize and evaluate dispersed information, 3. facilitate market processes, 4. provide the infrastructure, 5. provide trust and 6. integrate the needs of buyers and sellers.
In sum, a large variety of intermediation roles and functions have been identified in the literature. Although these roles and functions are more or less shared by the scholars interested in electronic intermediation, one can note the ambiguity inherent to their definition. We argue that there is currently insufficient understanding or clarity around the roles or functions of market intermediaries. With scientific literature aside, one may simply look how a role is defined in the dictionary: besides the usual theater definition, we find that a role is also “the characteristic and expected social behavior of an individual”\(^1\). Moreover, the term “function” is proposed as a synonym and is defined as "the action for which one is particularly fitted or employed"\(^2\). Some questions arise from this review. In our specific context, may we really use role and function as synonyms? What are definitely the concrete actions performed by an intermediary? Are traditional intermediaries and cybermediaries concerned by the same roles?

We underline here the existence of an ontological problem. That is, even if several scholars are interested in the same reality of intermediation, they use their own concepts and characteristics to represent a given reality. As reminded by Malucelli, Palzer and Oliveira (2006, p.29), one of the problems of using different representations and terminologies is the absence of any formal mapping between high-level ontologies. In response to the latter limitation, we will now see that IS science can offer useful and solid tools for intermediation modeling.


\(^2\) Ibid.
We decide to refer to the Enterprise Ontology (EO) framework (Uschold et al., 1997) which provides adequate and reliable constructs for modeling enterprise and business relationships. According to the authors, the result of EO is sharing a common understanding of the various aspects of business. Actually, EO “includes a wide variety of carefully defined terms which are widely used for describing enterprises in general. [...] This can be used to resolve any misunderstandings where terms are used differently.” (Uschold et al., 1997, p.2). While the entire document is rather complex and goes beyond the current purpose, we prefer to select only a few definitions from the EO that will be required in our intermediation context:

- **Entity**: a fundamental thing in the domain being modeled.

- **Relationship**: the way that two or more entities can be associated with each other.

- **Role**: the way in which an entity participates in a relationship.

- **Attribute**: a relationship between two entities.

- **Actor role**: a kind of role in a relationship whereby the playing of the role entails some notion of doing (activity) or cognition.

- **Actor**: an entity that actually plays an actor role in a relationship.

- **Activity**: something done over a particular time interval.

- **Capability**: a relationship between an actor and an activity specification denoting the ability of the actor to perform the specified activities.
Thanks to this IS terminology, we are now able to apprehend intermediation realities through a clear reading grid. The intermediary, the seller and the buyer are our three entities. Moreover, the intermediary is the main actor within an intermediation relationship. He has various actor roles because it supposes several activities (e.g. informant is an actor role played by an intermediary -the actor- in an intermediation relationship). “Playing a role” means that the entity is participating actively to the relationship (Uschold et al., 1997, p.15). The intermediary is thus in a “have-capability” relationship with the actor role and all the ensuing activities (e.g. the intermediary -actor- has the ability to be an informant -actor role- and so, for instance, to perform the activity consisting in providing information about a product).

Before going further on those considerations, let us take one example to illustrate those helpful definitions. Consider the daily tasks -activities- of the chairman (or vice-chancellor) -actor- of a university -entity-. One may recognize three roles -actor roles- for the same person: chief (at the head of the university) -actor role #1-, professor (in front of the students during a class) -actor role #2- and father (at home) -actor role #3. For each actor role it is easy to find some activities. Related to actor role #1, activities may be: to give strategic directions, to appoint professors, to represent his institution outside, to take important decisions, etc. As for actor role #2, he teaches, transmitting his knowledge to the students, he supervises doctoral dissertations, he gives conferences in his field, etc. Finally, by being in a relationship with actor role #3 in his private life, our chairman assumes various activities like bringing up his children, driving them to school, etc.
Since the EO is aware of the existence of multiple terms employed to describe similar phenomena, the latter are specified as synonyms or borderline terms. Actually, we find the term “function” in the EO framework as a borderline term for the “attribute” definition, i.e. "an attribute is a function, though not all functions need to be attributes" (Uschold et al., 1997, p.18). Now that we have clarified our theoretical concepts, the role and the activities of an intermediary must be considered in more detail. This can be done by highlighting the various activities existing in the literature that we already have quoted.

In accordance with what precedes, we define an intermediation activity as a concrete action that is performed by an intermediary while he is playing a particular role during a transaction process. In order to identify these activities, we have selected five papers out of the literature review that attach great importance to the roles of intermediaries, whether the latter are traditional or electronic. The fact that we used theoretical material about online and offline intermediation must be seen more as an advantage than as a limitation. Indeed, this approach is likely to produce more activities that may be performed in a traditional context as well as in an electronic environment. Each time we found an intermediation activity, we noted it down and went further in the review. Once this second review completed, we associated each of the discovered activities with the paper that clearly formulated it. At several occasions, we observed that a specific activity was proposed by more than one single author. This was a logical expectation, given that the recent papers (Brousseau, 2002; Anderson and Anderson,
2002; Barnes and Hinton, 2007) are partly based on the older ones (Sarkar et al., 1995; Spulber, 1996). Finally, 25 activities resulted from our literature review.

At this stage, some important remarks have to be made. First, we do not believe that our review output is exhaustive. All of these activities can be investigated and lead to several derivative activities which would be more precise than the original ones. For instance, if we refer to the activity “providing information about the product”, we easily see that multiple ways exist to carry out this activity (e.g. providing product evaluations, technical reports, satisfaction statistics, description folder, product pictures, etc.). Second, one must pay attention to the formulation of the activity. Two activities, different in appearance, may actually be identical. Thus, we have noted that the activity “searching the right product” would be to some extent equal to “collecting information about the product”. Third, our review of activities has been made regardless of the “functions” or the “roles” put explicitly forwards by the authors. This choice enabled us to treat the five papers on a common methodological base, but also to fit to the EO definition by reducing toughly the potential bias.

IV. The DILT typology: a consolidated and open framework

Even if our list of activities may be criticized from various angles, it constitutes an interesting base considered as the first stage to understand better the structure of intermediation. Now that we have our activities, we must seek the corresponding roles. All of the activities have been characterized as activities undertaken in an
intermediation relationship. Those activities bear usefulness that will result in added value at the time of exchange. So, if we make the assumption that a single intermediary undertakes all of these activities, then we may believe that he acts under several faces. Our aim at this point is to find the common denominator of a maximum of activities. For each activity and in line with the EO definitions, we shall answer to the following question: "Under which actor role does the actor perform the activity?"

Relying on EO concepts and analyzing intermediation from an actor role perspective, we argue that an intermediary plays four actor roles, i.e. Dealer, Informant, Logistician and Trusted third party. These four actor roles compose our DILT typology, as shown by Figure 1.

Before describing each of the roles, we briefly justify the choice of building a typology. There exists no general classification of market intermediation roles since there is no widely agreed upon concept of what constitutes a role. To date, as far as we know, the need for a general classification framework for market intermediation tasks has still not been widely recognized by the concerned research community. Given the fact that market intermediation is multifaceted and reveals a lot of complex concepts, we believe that its understanding can be enhanced through the development of a general classification framework. As noted by Bailey (1994), a theory is not useful if it is based
on an inadequate system of classification. Usually, classification means that concepts or objects are ordered into groups or classes on the basis of their similarity. Two ways of scientific classification do exist, typology and taxonomy. These terms are often used interchangeably in the literature. However, as Lambert (2006) put it in her paper telling about a new schema for business model research: "Understanding the differences between taxonomic research and typological research is important because they serve different purposes and have their own limitations and strengths".

On that basis, we now justify that our classification among actor roles and activities of market intermediaries is a typology and not a taxonomy. Firstly, we note that our categories (i.e. the actor roles) are conceptually derived by exploring existing theory. We do not have used empirical material to discover our actor roles and we adopted a deductive approach rather than an inductive one. Secondly, by employing content analysis and by partitioning on an ad hoc manner based on concept similarity, we are closer to qualitative classification than a quantitative one. We now go into detail for each actor role.

*The Dealer*

Consider an intermediary that buys from suppliers and resells to buyers. The most common example of this kind of intermediation is the sector of retail and mass distribution where hypermarkets buy consumables from producers and sell them to end-users. Actually, distributing goods is a widespread activity in commercial intermediation. Moreover, as reminded by Spulber (1996, p.136), such an intermediary clears the market by pricing goods and by ensuring a constant high level of buyer and
seller presence. Cosimano (1996, p.141) defines a similar reason to have an intermediary: "The intermediary is more efficient in matching buyers and sellers because the intermediary is able to increase the probability of a successful match by posting a bid and ask price." This important notion of market clearing is widely used in the financial intermediation and more precisely in stock markets. Eldor et al. (2006, p.2026) demonstrated that in electronic stock markets, intermediaries (which they call "market makers") contribute to market liquidity by clearing the market. If the final buyer has occasional liquidity problems, the intermediary can lend him money to complete the transaction without waiting (Brousseau, 2002, p.357).

On every market, it is possible to be confronted with supply rationing and/or demand saturation phenomena. Those particular situations represent shortage risks for the concerned economic agents. The more a sector is characterized by important supply or demand fluctuations, the higher the shortage risks. By providing availability of goods, an intermediary reduces implicitly these risks (Clower and Leijonhufvud, 1975). Though he guarantees availability on the market, the intermediary does not necessarily provide liquidity. Let us try to clarify those terms. As noted above, an intermediary provides liquidity by clearing the market, but he provides availability by standing ready to sell at any time since he built inventories in the past. In fact, at the same time, it is possible to provide availability (important amount of stocks) and to observe poor liquidity on the market (low stock rotation).

Being in a central position, the intermediary may also integrate buyers' and sellers' needs and find the best way to match them (Sarkar et al., 1995). This can for instance
be done by composing a product and service mix which answers to a specific need expressed by the demand side (Anderson and Anderson, 2002, p.57). Another possibility is to allow product customization to achieve a higher level of satisfaction (Barnes and Hinton, 2007, p.66).

While all the above activities are mainly linked to transactional matters, we consider that the intermediary plays in these cases an actor role of dealer (or distributor), i.e. he directly acts to facilitate the commercialization of goods and services.

*The Informant*

We easily perceive the fundamental issue of information in intermediation. When a buyer searches for a product or a service, he has to incur a lot of costs resulting from this research of information. Gehrig (1993) and Yavas (1994) already demonstrated that an intermediary works in order to reduce these costs. Furthermore, several researches tend to prove that matching buyers and sellers is impossible without coordination of information (Bakos, 1997; Berthon et al., 2003). However, the contrary seems to be true: matching individuals through exclusive information coordination is feasible. Those who perform only this aspect of intermediation are better known as infomediaries. Aside from the explicit information, the transfer of information from the seller to the buyer (and vice versa) may also involve contextual knowledge, thus implicit information, which is more difficult to formulate and so, more costly.

Usually a buyer is confronted with many similar products, which only differ on some endogenous (price, color, options, etc.) or exogenous (distribution channel, proximity,
bundled offer, etc.) features. The buyer has first to collect information coming from various sources. Afterward, he has to sort and to compare this information and, finally, to make the choice that will maximize his welfare. The more the information is disparate, difficult to access, presented under a raw form, etc. the higher the costs related to the previous three activities. In this sense, an intermediary reduces research costs by making the information more relevant in the eyes of the buyer.

In addition, the intermediary builds knowledge of the market on which he interferes. According to Bailey and Bakos (1997, p.11), this particular knowledge allows him to locate supply and demand, hence his ability to match a buyer and a seller whose expectations coincide. So, an intermediary may be there to bring a buyer and a seller closer together if they share interests in a specific domain. This leads to the creation of a commercial network and by contributing to the growth of that network, the intermediary produces value and more precisely “embedded ties value”, as it is called by Curchod (2003, p.23) and other strategic network theoreticians. In fact, the abundance and the diversity of supply (created by the intermediary) attract the demand, which gives subsequently rise to the supply side. Therefrom, cross-network effects appear and induce positive externalities. The latter are internalized by the intermediary, so that he accumulates value.

Spulber (1996, p.145) notes that by informing both transaction parties, the intermediary decreases or removes the risk of making an unsatisfactory match. Several concrete information tools may also facilitate the commercial exchange. Those coordination services and information tools are necessary to perform an expensive
management of information flows, although the marginal cost of information dissemination is very low, as it is the case in an electronic market.

Finally, the buyer and the seller face experience or learning costs. That is, costs resulting from the effort that is needed to evaluate both the product and the commercial partner. Since it is the first time that buyer and seller meet, the uncertainty associated with making a satisfactory transaction is greater. This may be explained by a higher level of information asymmetry. Thanks to his market expertise (Biglaiser, 1993, p.212), the intermediary can help the agent to make the choice that will minimize his “unsatisfaction risk”. Indeed an intermediary may have tested and evaluated the product; he may dispose of free samples, demo versions or satisfaction statistics, etc. Thus, providing information may help actors to better determine their needs, as it may also influence their final decisions.

Because the different aforementioned activities are essentially linked to informational matters, we consider that the intermediary plays here an actor role of informant, i.e. he acts to facilitate the knowledge and awareness of goods, services and economic agents concerned by the transaction.

The Logistician

As early as in 1987, Rubinstein and Wolinsky (1987, p.592) have come to the conclusion that the work of an intermediary leads to a centralized offer on the market. Actually, in the absence of any intermediary agent, one considers that the supply is widespread just like its demand counterpart (atomicity of buyers). In the latter case,
the buyer must incur moving costs for each purchase. Since products are far from each other, the buyer will multiply the amount of moves. For instance, to do some shopping in a world where hypermarkets do not exist, a consumer has to buy each product from its producer, that is, the bread from the baker, the meat from the butcher, vegetables from the grocery store, etc. What is true for physical flows of goods is true for dematerialized flows of information: centralizing products or information on a single place decreases moving costs.

Holding inventories is a common activity for any commercial intermediary who is active in a physical environment (Spulber, 1996, p.142). It allows him to answer immediately to supply and demand fluctuations while those ones do not coincide. The management of inventories is by definition a matter of logistics, as far as we remain out of a virtual context.

Whether he is a cybermediary or not, an intermediary may provide a quality infrastructure outside the electronic network; for instance, to provide physical assistance to the buyer. There exists many valuable services that have logistical requirements: to open "brick and mortar" sales points, to print commercial supports, to package the products, and of course to transport the products and deliver them to the buyer.

Because the activities that have been quoted here are linked to logistical matters, we consider that the intermediary plays an actor role of logistician. In other words, he acts to facilitate the material effectiveness of the transaction.
The Trusted Third Party

During the research of information phase (first stage of a commercial transaction process), an intermediary may, beyond the actor role of informant, increase agents' confidence by putting forward a series of warranties. The latter usually take multiple forms: quality label in the food sector, identity certification in banking, safety guarantee in the car industry, etc. As we already pointed out, the intermediary corrects the asymmetric nature of information. Guaranteeing the quality of products and offering various warranties represent ways to reach that goal.

When a buyer and a seller negotiate and try to establish exchange terms (second stage of a commercial transaction), both agents may interact without any formal or legal frame, so that transaction rules do not exist or do not appear clearly. In that case, as highlighted by Foss and Koch (1996), the absence of a formal environment leads to a certain degree of risk related to the potential opportunistic behavior of each actor. The latter idea is supported by Biglaiser and Mezetti (1993) who precise that risks linked to moral hazard and adverse selection are inherent to transactions which are performed outside a well-defined normative context. From that point of view, the intermediary is an impartial actor appointed to defend buyers and sellers from mutual threats, as noted just above.

Finally, during the conclusion of the transaction (third stage of a commercial exchange), Bailey and Bakos (1997, p.8) remind the important role of the intermediary consisting in making sure that the commercial agreement will be respected by both transaction parties. Indeed, whether the contract is tacit or formal, it supposes the
respect of all its clauses. This is important given that the transaction will only be undertaken if the commercial partners have enough confidence on the ability of each one to assume its obligations. Regarding the buyer, this may be understood as paying the price in a defined period, as for the seller it may be the delivery of the goods or the services. More generally, intermediaries have high incentives to ensure that transactions are completed since they are constantly involved in the market.

By doing so, the intermediary is perceived as a market regulator or a risk manager. However, we will adopt a different term and consider that the intermediary plays in these cases an actor role of trusted third party since the current activities are mainly linked to trust matters.

As summarized in Table 1, we observe a relative good match between our four actor roles and the various activities that we derived from the literature.

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V. Discussion: the impact of ICT on actor roles

In order to discuss the impact of ICT on each actor role, we focus on electronic market intermediation. We want to answer the following question: "How can a virtual environment change the representations of the activities completed by an intermediary?"
Firstly, regarding the dealer role, the Internet has especially affected services and information goods markets. Since duplication and distribution costs have plummeted, the availability is in a certain way ensured. Moreover, the fact that the network does not have any real border makes the intermediary able to search information and to buy products beyond his traditional frontiers. Using electronic networks to enlarge its prospective scope is a key feature of intermediaries willing to make markets more efficient (Brousseau, 2002, p.367). By contrast, thanks to new web technologies, a seller is able to generate higher interaction (e.g. collaborative web; Web 2.0) with the buyer, and in consequence he contributes to market disintermediation. In a customer-oriented economy, more interaction with the market is valuable since it allows faster reactivity to buyers’ preferences (e.g. during the testing period of a new product). From that angle, an intermediary that is in a direct relationship with consumers may alert producers about the changes in terms of preferences and needs. This idea has been extended by other researchers, notably Giaglis, Klein and O’Keefe (2002) who state that by playing this role, intermediaries are participating to the elaboration and the design of the market supply. As an example, we may quote the case of Dell and its specific business model, under which customers specify what computer features they want and purchase online the customized product. The latter is then built to suit their personal tastes.

Secondly, the more the quantity of information increases, the lower is the transparency and its relevance. Several intermediaries respond to this limitation by treating information to make it more accessible. In such a situation, the literature
suggests the term “infomediary” while the role of the intermediary is exclusively related to information matters (Ordanini and Pol, 2001). Thanks to the Internet’s properties, this is facilitated by various cost savings. Berthon et al. (2003) explore the most important issues of how the Web reduces transaction costs. In their paper, the authors identify six types of transaction costs and give evidence of the Web impact on each of them. Those transaction costs are:

- Search costs (search engines reduce search costs);
- Information costs (getting product information is quite easy now);
- Bargaining costs (online bidding systems such as auctions on eBay);
- Decision costs (comparative websites are helpful when there is too much information available);
- Policing costs (online ordering and billing allows buyers to check accounts without waiting for paper statements);
- Enforcement costs (online means may make it easier to enforce contractual rights).

The cost reduction is translated into two options: a decrease of search costs, or a price reduction. Concerning search costs, the Internet allows free access to valuable information and useful tools like “shopbots” (i.e. price comparison websites) and aggregators (i.e. search engines) which provide research results in real time. However, the idea of constant reduction of search costs via the Web, as proposed by Bakos (1997) for the first time, may seem controversial and has been criticized since then.
Actually, extensive studies in this area revealed that the more intensive the virtual flow of information is, the higher are the search costs (Giaglis et al., 2002; Varian and Lyman, 2003). In other words, we are in the presence of the famous argument “too much information kills information”. One may consider that it is one of the main reasons for which an increasing number of infomediaries appeared on the Internet. Indeed, although cost savings can be large, processing through the Internet requires on the one hand serious efforts to standardize formats and on the other hand organizational commitment to fit the new information flows.

Thirdly, the actor role of logistician has also been affected by the Internet development. Rabinovich, Knemeyer and Mayer (2007) use a transaction costs approach to show that e-business firms establish relationships with logistics services providers because of low asset specificity. The authors also rely on strategic network theory to demonstrate that incorporating logistics services allows bundling complementary services that are valued by the buyer. Anyway, delivering the goods remains an obligation for the seller whether the goods have been bought on-line or off-line, i.e. inside or outside the Internet. So, although it is true that the network can reduce the cost of matching a buyer that is situated faraway from the seller, it does not solve the problem of the goods' physical transfer. For this reason, it is not surprising that a majority of e-business firms belongs to an economy of services (banking, data mining, lonely hearts web clubs, etc.) and digital information goods (songs, news articles, movies, etc.), that is, products affected by a dematerialization process. Logistical means in a virtual environment may also be seen as the entire
technical infrastructure that is needed to carry out online transactions, whereas advances in computer electronics help in responding to platform users' needs.

Finally, there is a large literature on the possible association between trust matters and electronic commerce. It leaves us to the sensible question, “How to trust each other and the information on the Web?” That is, within a virtual environment where rules seem unclear or missing. Actually, the success of a transaction that is performed online largely depends on the relationship between the network user and various notions related to confidentiality, payment security, vendor’s identity, etc. Although Web technologies are now widely adopted and reliable, intermediaries continue to play an important role in providing security infrastructure and an adequate legal framework.

The accumulating evidence in the re-intermediation process examined in the literature suggests that the intermediary:

- regarding his dealer role, is acting in a broader market - wider choice - (the marketplace is accessible from any point connected to the network), characterized by faster reactivity to supply and demand signals - customization -, and also by a higher interaction level - added convenience - (he communicates more easily with sellers, buyers and commercial partners than before);

- regarding his informant role, is able to save transaction costs (not only search costs) because of changes to the way information flows. Yet, his intervention on the Web becomes essential since it is more and more difficult to sort information, but also to
find reliable information. Finally, the benefit from the Internet shows up in enhanced variety of information sources, rather than in lower prices;

- regarding his logistician role, remains confronted with the obligation of delivering the goods. By nature, the Internet reveals limited advances in the matter of physical transfers. However, even for services and information goods, the network requires an infrastructure that may lead to logistical issues (an online platform without any technical support does not create value);

- regarding his trusted third party role, has to enforce a prevailing trust atmosphere on the Internet, which is not yet perceived as a regulated place with defined rules. This can be done, on the one hand, by traditional methods (legal policy, reputation, etc.) and, on the other hand, by technical means (cryptography, authentication, etc.). The reliability of the latter ones has considerably improved in the last years.

**Conclusion and research directions**

Making a clear difference between actor roles and activities provides a structure to the complex and multivalent reality of market intermediation. While it is understandable that an agent incurs a limited number of actor roles, it is difficult to believe that he performs a determinate number of activities whatever the sector and the situation. Finding a common base for intermediation is therefore easier in terms of roles than in terms of activities.
The actor roles have to be regarded as the different ways in which an intermediary participates to the transaction. In addition, those "ways" cover several activities. It is only through the fulfillment of those activities that one may consider that the intermediary plays really his role. Bailey and Bakos (1997, p.9) already perceived this important distinction and made the following remark: "These roles\(^3\) are only identified to describe certain trends in electronic intermediation. They are not intended to form a taxonomy of the functions [we would say "activities"] of an intermediary, and thus although they are distinct, they are not necessarily orthogonal or complete as a set."

Therefore, we prefer to keep our framework open to new activities that may arise in the future. New agent needs or recent technological developments would certainly lead to new opportunities for intermediaries to perform some activities (inexistent in the past or previously not experienced), providing additional value or relational rents.

In future research we might explicitly examine these actor roles in greater detail; certainly through concrete online reality with relevant examples of cybermediaries. Unexplored activities could emerge from a case study analysis. This would make our typology stronger. However, analysis on such empirical data could also lead to a different approach, i.e. developing a taxonomy of market intermediation roles. One the one hand, it would involve the identification of a large number of variables on which to gather data, and on the other hand, it would lead to categories derived in that case through cluster analysis (Lambert, 2006). Finally, comparison between the

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\(^3\) The authors refer to the following roles: aggregation, protection, facilitation and matching.
latter taxonomy and our current DILT typology would strengthen our understanding of the global matching role of an intermediary.

Another important avenue for future research would be to examine how intermediation rents are distributed among transaction partners. We think that beginning to identify where a particular intermediary is situated among the four actor roles is a first step in this direction. Since it allows evaluating the strength of an intermediary on each actor role, such an analysis would certainly lead to interesting conclusions in terms of activity delegation and value sharing.

In conclusion, we reemphasize the goal of this paper, which is to propose that relationships in terms of actor roles between an intermediary and transaction agents (buyer and seller) are an increasingly important unit of analysis for explaining the re-intermediation of transactions. The DILT typology offers a useful theoretical lens through which researchers can examine and explore new intermediation linkages between buyers and sellers or between organizations that interact in the presence of an intermediary.
References


Figure 1: The view of market intermediation through the EO prism
### Table 1: Intermediation activities in accordance with the DILT typology

<table>
<thead>
<tr>
<th>Activities/Roles</th>
<th>D.</th>
<th>I.</th>
<th>L.</th>
<th>T.</th>
</tr>
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<tbody>
<tr>
<td>Buying product from the seller</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Centralizing products</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Pricing (clearing the market)</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collecting info. about buyer &amp; seller</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collecting info. about the product</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Controlling product quality</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Delivering/Transporting product</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Guaranteeing the delivery of product</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Guaranteeing the payment to sellers</td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>Guaranteeing the purchase legitimacy</td>
<td></td>
<td></td>
<td>x</td>
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<tr>
<td>Helping buyer determine his needs</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Holding inventories (availability)</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>Influencing buyer choices</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Integrating buyer and seller needs</td>
<td>x</td>
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<tr>
<td>Lending money to the buyer</td>
<td></td>
<td></td>
<td>x</td>
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<tr>
<td>Offering product warranties</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>Offering product bundling</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Packaging the product</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>Preserving anonymity</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Providing market liquidity</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing info. about the buyer</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing info. about the product</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing info. about the seller</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selling product to the buyer</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tailoring product (customization)</td>
<td>x</td>
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