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USAGES OF THE INTERNET AND e-TOURISM. TOWARDS A NEW ECONOMY OF TOURISM

Christian Longhi

University of Nice Sophia Antipolis and Gredeg, CNRS
250 rue A. Einstein
Sophia Antipolis
06560 Valbonne, France

longhi@gredeg.cnrs.fr

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Abstract: This paper analyses the impact of internet on the organization of industry and the market dynamics in the tourism activities, focusing in the European scene. Tourism incorporates many features of the contemporaneous information and communication economy. Even if e-tourism still stands for a small share of the whole tourism activity, the paper establishes that the internet basically explains the organization of the activities and markets that emerge today. A relevant analytical framework able to apprehend these dynamics is first defined. The concept of sectoral system of production and innovation is shown to provide a relevant analytical framework to grasp the basic changes of the tourism industry. The paper enlightens on this basis the evolution resulting from the emergence of e-tourism and the uses of internet, their impacts on the coordination of the activities and the markets, with a special focus on the European case.

Keywords: Organization of the Industry and Markets, Sectoral Systems of Production and Innovation, ICT, Virtual Communities, GDS.

1. INTRODUCTION

This paper aims to apprehend the impact of internet on tourism, with a special focus on the evolving European landscape. Tourism is particularly adapted to highlight the nature of the upheavals implied by the development of Information and Communication Technologies (ICT) in service activities. With roughly 11 % of the world total employment or gdp, tourism is often presented as the first worldwide industry. Europe is by far the first tourist continent. This economic strength of tourism, associated to a strong potential of growth, has induced deep competitive processes and significant industrial reorganization.

The entry of new actors, sometimes qualified of 'barbarians' in the literature (Wade, 2000), as they enter with self-defined new rules, is a constant characteristic of the recent period. The entrants have in fact exploited unused growth potentials and recombined the markets, or developed basic organizational innovations usually based on opportunities given by the new technologies of communication. ICT have indeed considerably impacted tourism (Buhalis, 1998; Wade, Raffour, 2000). Tourism appears as the most important economic sector of the e-

commerce activity. e-tourism amounts to 30 % of the activity in tourism in the USA, 7 % in France, where up to 50 % of the transactions made in e-commerce have been related to tourism. Moreover, the share of e-tourism is growing massively and steadily (up to 50%), in contrast with the highly fluctuating activity of tourism, deeply sensitive to the contemporaneous political or health hazards. In Europe, the annual growth of e-tourism has reached 50 % in 2003 and 2004, and 40 % are expected in 2005. The development of Internet goes with the main trends of the contemporaneous consumer society, unforeseen purchases dedicated to leisure are increasing, as travel has become commonplace... But internet allows also to document in depth projects dedicated to precise and planned destinations. In fact, most of the firms of the sector have shown important rate of growth of the activity, internet is no more only a source of information; it is also an important vector of transactions. Nevertheless, information and exchanges of information allowed by the web are as such important elements of changes in the organization of the industry.

The paper does not pretend to exhaustiveness regarding the multiple aspects and dimensions of the tourism activities; it will focus mainly on travel and tourist product distribution activities. The share of e-tourism in Europe is still small in the whole activity, but internet will be shown to underlie the contemporaneous logics of reorganization of activities and markets, or of the strategies of the actors. Internet is particularly adapted to this dimension of tourism as information plays a basic role. On the demand side, it allows to reduce the uncertainty related to the products via forums, or to exert an instantaneous control on the quality of information or products supplied. On the supply side, it allows to modify and diffuse easily a catalogue and to react to unforeseen events, to sell online... But far beyond the eases or improvements of the working of the existing operations or activities, the internet has basically induced an in depth renewal of the industry.

The paper aims at the definition of a relevant analytical framework to apprehend the basic effect of internet. Elements of the literature show that the main effects are not linked to the working of existing markets, but to the revolution of the organization of the industry. The architecture of the markets is totally changed by the reconfigurations of the activity. The analyses in terms of systems of production and innovation provide a relevant analytical framework to apprehend the different dimensions of the changes at work in the tourism industry. The paper builds on the seminal works of Leiper (1979) and Tremblay (1999), restricting to travel and distribution activities referred as a sectoral system. The evolutions implied by the development of e-tourism and the uses of the internet, their impact on the coordination of the activities and on markets, have resulted in a new economy of tourism, i.e. recombination through a upheaval of existing interactions and interdependences. Knowledge bases, the backbones of the processes of change and innovation, govern the evolution of the boundaries of the system and the nature of the new entrants.

2. USAGES OF THE INTERNET AND e-TOURISM

The tourism does not follow the usual rules of economic theory, or of any other theory; besides, many authors are used to make reference about the “indiscipline of tourism” (Leiper, 2000, Tribe, 1997, Tremblay, 1999). Indeed, tourism gathers all the activities dedicated to the satisfaction of the needs of the tourists, and borrows to a multitude of other activities. The tourist products are complex and heterogeneous products, combination of elements separated in time and space (Cacomo and Solonandrasana, 2001), often pre-defined packages assembling interrelated products and services (transport, accommodation services, leisure services...). This notion of packaging, of bundling, is the core of the activity. Contrary to the traditional good sectors, where resources are transformed to be delivered to the customers, the tourists have to go to the

resources: whatever their intrinsic qualities, the resources acquire an economic value only with the organization of the traveling of the tourists and development of the activity (Spizzichino, 1991). Tourist products and services are often experience goods, the quality or utility are not known *ex ante* by the consumers; a system of advices and critics is thus necessary to the formalization of choices (Gensollen, 2003).

2.1. *Misconceptions and relevant effects of internet*

What are the basic influences of the uses of internet on the tourism industry? The literature has mainly considered the working of given markets. Internet provides a great deal of information directly accessible at low costs on prices, products and gain opportunities. The efficiency of internet has been increased by the multiplication of infomediaries offering easier access to the information, the creation of shopbots comparing prices or selecting sites according different choice criteria. A simple assessment of the effects of the uses of internet would lead to conclude to the reduction of information asymmetries on market and to the emergence of markets of pure and perfect competition. Online prices should be less than classical prices for the same products. The decrease of search costs and of frictions on markets should promote internet as the “The Great Equalizer?”; obviously, things are different (Brynjolfsson, Smith, 2001).

An important work has been done by Clemons *et al.* (2001) on the airline ticket offerings of online travel agents (OTAs). They find that different OTAs offer tickets with substantially different prices and characteristics when given the same customer request. After accounting for differences in ticket quality, ticket prices vary by as much as 18% across OTAs. In the sample of Clemons *et al.* (2001), two OTAs *i* and *j* are own by the same firm and offer online services with different interfaces and different prices: *i* offers the cheapest tickets with the poor convenience of an archaic front end, and *j* the most expensive tickets with the best convenience. The ‘internet savvy’, ready to dedicate time to learn the inconvenient interfaces, as well as the hurried customers, will be satisfied, but at very different prices. ‘Sister OTAs’ are thus created to capture different customer segments simply using different interface qualities.

Price discrimination is apparently based on the same mechanisms applied in traditional markets, but internet and the information it provides has offered a widening of the strategic choices of the firms (Klein, Loebbecke, 2003). The formula ‘Goodbye to fixed pricing’ (Cortese, Stepanck, 1998) illustrates the generalization of dynamic pricing, yield management techniques developed by the firms to adjust prices to the evolution of the markets. Price customization is the outcome of online price discrimination; customers can pay higher or lower prices buying the very same item from the very same site at the same time (Turow, Feldman, Meltzer, 2005, Ramasastry, 2005). Cookies allow online agencies to trace the preferences, habits, resources... of the customers and to post the results of the queries accordingly. This process is at odds with the traditional pricing in tourism, based on fixed commissions charged on prices given by the suppliers. The basic issue regarding the effects to the internet is thus not limited to problems of decreasing asymmetries or prices, to pure market effects. The changes going through the whole organization of the industry and of the markets have to be tackle to understand the existence and viability of such customization.

How does internet change the travel and tourism activities? These changes have rightly been assimilated to an “Industrial Revolution”. They do not regard the improvement or the extension of established things than the emergence of the new. So in airlines and transportation services, it is not the emergence of perfect market, but the one of the low costs — major organizational innovation for which the internet has been a necessary condition — which is the basic consequence of the revolution.

Southwest Airlines has been, in the USA, the first of these new “low cost” companies, basing its strategy on the idea that consumers of travels are more sensitive to prices than to superfluous additional services. But above all, the charges linked to distribution stands as the second item of expense in the traditional airlines, and the management of large networks of flights with more or less profitable branches is a constraint on their return. Point to point and online booking have been the solutions found by the low costs. The two elements are perfectly complementary, point to point allows the implementation of simple, efficient, and rapid sites where the consumers immediately find the requested service, and the very low prices compared to the standard ones inclines to the adoption of this new service.

This model has been implemented with success in Europe after 1995 by easyJet, Ryan Air, Go Fly, Buzz, Virgin Express. Rapidly, these new entrants have radically changed the intra-European air travel market. The quasi-totality of the low cost tickets is today sold online. In Europe, these companies have played a major role to promote the uses of internet in transactions and to trigger the take off of e-commerce. Internet has been for these innovators a dynamic device to access directly to the consumers: it underlies the processes of disintermediation and deconstruction of the traditional value chains in tourism. The low costs have thus inaugurated e-commerce, and basically the processes of reorganization of the industry, of changes in the division of labor, which have rapidly impacted on all the actors of the industry, and which are the main consequence of the uses of internet (Porter, 2001). Markets are no more cleared the way they used to be. But how to apprehend and arrange the changes induced by internet in service activities?

2.2. *Analytical framework*

The relevant elements appearing in first analysis – new entrants, new market architecture, new interactions, organizational and technological innovations – impose the concept of system, more precisely of system of production and innovation, as the analytical framework to cope with changes at work in tourism. Since the works of Freeman (1987), the concepts of “system of innovation” or “system of production and innovation” have rapidly resulted in a growing literature, highlighting the fact that firms do not normally produce or innovate in isolation, but in collaboration and interdependence with other organizations. They have been declined according different dimensions, geographical (at the national, regional, local levels, Longhi and Quere, 1993, Garnsey and Longhi, 1999), technological (Carlsson, 2002). The sectoral dimension, relevant for the representation of the tourist industry, owes mainly to the works of Leiper (1979) and Malerba (2001, 2002).

Tourism can be considered as a sectoral system because it involves directly or indirectly numerous actors or group of actors interrelated by a complex set of market and non market relations (Leiper, 1979). The behavior of these actors or group of actors is shaped by institutions, such as laws, rules, norms. More than the elements of the system as such, the basic phenomenon to grasp are the nature of the systemic relations and interactions and the dynamics they involve. Differences in initial conditions or institutional environments of sectoral systems can result in specific behaviors and trends. Diversity is a basic characteristic of systems. Nature of markets, competition or cooperation between actors, are emergent properties of the system, attributes of the interdependences of the parts. But still the sectoral system has to be analytically built.

A sectoral system of production and innovation (SSPI) will be defined after Malerba (2001) as “a set of new and established products for specific uses and the set of agents carrying out market and non-market interactions for the creation, production and sale of those products. The agents are individuals and organizations at various levels of aggregation with specific learning

processes, competences, organizational structure, beliefs, objectives and behaviors. They interact through processes of communication, exchange, cooperation, competition and command, and their interactions are shaped by institutions (rules and regulations). Over time, a sectoral system undergoes processes of change and transformation through the coevolution of its various elements”.

The application of the concept of SSPI to services has been done by Andersen *et al.* (2001) or Tether and Metcalfe (2003). The authors emphasize the specificity of services, which in contrast with manufacturing tend to be defined in terms of their processes (e.g. retailing, transportation, financial intermediation) rather than their products. Services are essentially relational; they are involved in multiple transformations that transcend any simple definition of a sector (Tether and Metcalfe, 2003). This specificity of the sectoral dimension of services is particularly keen in tourism, which cannot be reduced to a simple product. The sectoral system of tourism differs from the traditional notion of sector usually found in the nomenclatures of activities (Leiper, 1979, Wilson, 1998). Consequently, the definition of the production side has always been a problem in tourism (Longhi, 2003). According Leiper (1979), the tourism industry should gather the firms which purposely undertake the joint coordination of their activities for the purpose of servicing the tourists. The coordination of the activities is the basic issue, the analysis of the actors and their interactions have thus to be prioritized. The definition of the sector does not result from the criterion of technological substitutability usually used in the definition of the sectoral nomenclatures, but from the organizational complementarity and interdependence between actors and group of actors sharing the responsibility and planning tourists flows (Tremblay, 1998).

The SSPI approach allows to organize the analysis of the interactions and feedback effects between the different actors involved in the industry, and to apprehend the evolution of the activity. Changes in one of the element of the system can lead to important reconfiguration of interactions or coordination processes. The multiplicity of the recent interdependent evolutions — new technologies, new products, new markets, new rules — has triggered changes that inclines to privilege such an approach of the industry as the relevant space of the coordination of the activities. SSPI are also open systems, allowing to apprehend the interactions and interdependences with other systems; travel and tourism industry rests on different and changing knowledge bases. The emergence of new knowledge bases is usually followed by the emergence of new actors, new relations or markets, by the transformation of existing markets. The basic role played by the internet in tourism represents an important source of changes. The boundaries of the systems are not predefined, but change over time with the evolution of the knowledge bases.

2.3. *Tourism as a SSPI: from linear to complex interactions and interdependences*

Tourism products are bundling a large range of products and services; they are heterogeneous and complex goods, produced and consumed sequentially. Consequently, the industry links vertically firms which associate their specific competences to design a coherent product through the synchronization of their activities in time and space (Tremblay, 1999; Werthner and Klein, 1999). Basically, this value chain of the travel and tourism industry could traditionally be decomposed in five main types of actors (Figure 1a) :

- Suppliers and service providers; they are the transport companies — airlines, railways, shipping lines, rental cars —, and the accommodation service providers.
- Global distribution systems (GDS), have been originally created by the airlines companies to keep track of flight schedules, availability and prices, and to transform their reservation and distribution systems from cost to profit centers. The GDS have made available their proprietary

internal reservation systems to the travel agencies worldwide— their privileged customers – to offer direct access to the airlines flights and fares, but progressively to hotel reservation, rental cars, ferries, and the multiple services linked to tourism. They are virtual travel market places linking sellers (airlines, hotel, etc) and buyers (travel agents, for the final customers), where the coordination of the activity is implemented.

- Tour operators, whose specific role in the traditional division of labor is to bundle the tourism products. Often, the tour operators partly book amounts of elementary products necessary for bundles to the suppliers, at preferential terms.

- Travel agencies, which distribute the different products (from services providers and tour operators) to the consumer. In the traditional system, they are the quasi-exclusive contact with the tourists ("order takers"), and they claim a role of main adviser directing the choices of the consumers. A very important share of their turnover results from the sales of tickets.

- Consumers (leisure or business tourism) at the end of the value chain.

This traditional architecture of tourism — the couple tour operator-agency which assembles and distributes packages in close cooperation with suppliers and GDS, with a well-established system of fixed commission rates and strict regulations — is to be turned upside down by new entrants and the new developments boosted by internet. New actors, new strategies, and institutional re-arrangements of the markets and the organization of the industry are the main feature of the recent period in tourism. It will be impossible to provide in depth analysis of each of the different elements of the value chain we have described. The focus of the analysis will be placed on the dynamics which disrupt the architecture of the industry and recombine the interactions of the elements, because they command the understanding of the whole evolution, from the elements themselves to the markets and the industry. The SSPI will provide an analytical framework to organize information on changes, and to evidence the way the interactions and interdependences between the agents evolve over time. They allow the identification of the dynamic processes that feed the transformation of the traditional architecture of tourism.

According Malerba (2001) or Metcalfe (2001), the SSPI can be characterized by a set of attributes or building blocks, which evolve over time, and specify the components of the system as well as their modes of interactions. These attributes are : the knowledge bases and learning processes, the organizations (firms and non-firms, networks), the institutions, the demand and the geographical boundaries. The importance of the knowledge bases, and singularly of the uses of internet on the dynamics of the system has been underlined. The role of demand is not often acknowledged in the SSPI approach. Nevertheless in tourism, the evolutions of demand do explain lot of reconfigurations of the system. They will be analyzed first as they feed, through the uses of the internet, the engines of change. The re-organization of the supply side, and then of the markets, will be analyzed after. A system implies not just interaction, but also interdependency (Tether and Metcalfe, 2003). The SSPI approach will thus enlighten how the organization of the markets can evolve, how new markets can emerge in tourism, and how finally the whole economic organization of the industry will be reconfigured with the diffusion of internet.

2.4. *Demand and reorganization of markets.*

Internet and e-tourism, even when representing relatively small market shares, underlie major reorganization of markets and industry in tourism. The important rate of growth of e-tourism expresses the rapid evolution of the behavior of the agents. The markets are recomposed in line with the involvement of internet in transactions. But these changes are not determined by the technologies. On the contrary, they are organized by socio-economic conducts. In this new

economy of tourism, demand basically underlies the logic of reorganization of the industry. The uses of internet do not only amount to the renewal of the relations between supply and demand, they allow above all the emergence of new relations *between* consumers and *between* suppliers (Gensollen, 2001a). Specially, the process of formation and expression of demand have been radically transformed, as the markets in which they work.

Tourism products are essentially experience goods, whose utility, quality, are uncertain and are only known *ex post*. The implementation of systems of information and signaling (critics, advices, brands, reputation...) is necessary to the working of the market. The unique mode of information of the consumers has been for a long time the top down model of information, from the suppliers to the consumers. With internet, new modes of formation of the demand have rapidly emerged though infomediation, i.e. exchanges of information *between* consumers on forums, personal sites, pages dedicated to critics and advices on professional tourist sites, portals... The mediated communities that have grown have developed appropriate procedures allowing the *ex ante* evaluation of the utility the experience goods could provide. The importance of the phenomenon (Kozinets, 1999; Kim *et al.*, 2004, Wang *et al.*, 2002) attests the emergence of a rationality which prioritizes cooperation and reciprocity through the usages of internet. The benefits acquired from the critics, advices, sharing of experience, can be very high.

Different conditions have to be met to set up communities of experience. The constitution of the communities must allow the consumers to be confident in the advices and opinions posted, to have the possibility to estimate the proximity of their tastes and preferences with the ones of the experts or critics to rationalize their choices (Gensollen, 2003). A large amount of information is necessary, on the tourist products, but on the experts themselves, to appraise their system of preferences and evaluate an expected utility. The quantity of the advices and opinions posted, their renewal, the size of the community, must be important enough to feed a dynamic process of exchanges. The virtual communities of experience have rapidly questioned the top down model of information; they constitute meta markets, systems of exchange of information necessary to the working of the markets (Gensollen, 2003, Charbit and Fernandez, 2003). They have proved their effectiveness to the benefit of the consumers (Kozinets, 1999 Wang *et al.*, 2002, Wang and Fesenmaier, 2003). The communities of experience do not follow a voluntarist or institutionalized approach. They are the result of self organized exchanges on sites without direct commercial aim, often on personal pages which have triggered the process of growth of the community (Kim *et al.*, 2003). For instance, Debbie Carribean.com, created as a simple page on the Dominican Republic, has growth as a site of information and advice quasi-exhaustive on the Caribbean, or VirtualTourist.com, developed by two young Germans, which has become internationally known and used after its transfer in California.

But the community of experience are not the only intervention of consumers in domains they had traditionally no access. A logic from meta markets to markets has in some sense been established; after the production of information allowing the formation of choices, the consumers have entered directly in the production of the tourist products themselves. They stand as a full-fledged actor of the industry: they can buy online air or train tickets directly to suppliers, but also build themselves their packages adding online the purchases of accommodation, on site transport, leisure... The consumers exchange and capitalize their experiences, they have a direct access to the quasi-totality of the services supplied, to the prices posted by the different suppliers, they can fulfill the transactions online. They can thus execute the tasks of research and bundling previously exclusively assigned to agencies and tour operators, through direct relations with services providers and suppliers. According Raffour (2002), the consumers are now 'consum-actors' actively involved in the different fields of usages of the internet, sources of information or support of commercial transactions. The SSPI characterizing tourism is indeed facing deep recombination; the access to this enterprising consumer previously tacitly monopolized by the

travel agencies is becoming the matter of competition for all the actors involved in the sectoral system. Contrarily to commonsense, with internet the access – market and non market – to the consumers is now more complex and costly than traditionally. But it is a necessary condition for future profits, for the viability of the activity of the firms. The consumers drive thus directly and indirectly the dynamics working in the sectoral system

2.5. *Reconfiguration of the industry*

With the development of e-tourism, changes are not limited to the entry of new actors, but refer to the transformation of the role of all the actors of the system in the division of labor.

New interactions and new interdependences have emerged. The consequences of the uses of internet are not limited to the digitization of the existing relations, virtual agencies doing on line the same operations than the traditional agencies for instance. They recover indeed a deep transformation of the system which affects at once its components, relations and attributes. So far competition has arisen from all the components of the sectoral system for the agencies, often from their usual special partners (Longhi, 2003). Why indeed to pay important commissions when it is a *priori* possible to access directly the consumers, out of scope before internet? The issue is thus to build a web visibility and to secure a direct access to the potential demand. Size seems to be the evident answer to secure the enlargement of the access to demand. For many indeed tourism is an activity where only the importance of the size still matters; e-tourism has not inverted this rule, on the contrary.

From the years 2000, the evolution of the organization of the whole industry is driven by online activities in a context of deep international competition. The US leaders of e-tourism, Cendant, Expedia or Travelocity, have invested the European market. Indeed, Europe is still the main market in tourism; the share of e-tourism in the European activity is far below the US standards, but the forecast rates of growth are quite high. As in all other sectors of activities, globalization has induced in e-tourism important processes of concentration. These processes are perhaps more complex, as other interdependent processes are at work. Convergence, competition and cooperation evolve with the usages of the internet, resulting in the re-organization of the markets and the industry.

Convergence is a key factor of the contemporaneous recombination. It is a multidimensional process. It refers first to the tools and technologies; the same database can be used on different media, desktops, laptops, mobile phones, television..., which bears consequences on the coordination of the activities and the organizational architecture of the industry. But the convergence does not restrict to a process of standardization. It involves especially the activities of the components of the sectoral system – airlines or hotels, agencies, TO or even GDS - as they are more and more often competing on the same fields.

The access to information on the preferences of the consumers is fundamental: it is a condition to identify the different segments of the demand, differentiate the products and implement efficient dynamic pricing. This process of convergence is governing the evolution of the relations BtoB. The internet technologies allow to handle and exchange information which required recently closed proprietary technologies. The easy exchanges of large quantities of data at low cost allowed by internet have deeply transformed the inter-firms relations underlying the existing value chains. The travel agencies can now directly log on to the availabilities of the suppliers to sell in real time products including at least two different services. The integration of the accounting systems of the travel agencies and tour operators allow a unique capture of the data for the transactions, reduce the administrative tasks, and cancel the traditional transfers of client files through the dematerialization of the operations (Treboul, Viceriat, 2003). But these innovations are not neutral; the travel agencies have now to share with the tour operators their

database clients, previously strictly monopolized, when the strategy of the tour operators is to access directly the customers; it constitutes a new rationale towards concentration.

The multidimensional process of convergence has resulted in the creation of the dynamic packaging, an important innovation implemented by the online travel agencies. Dynamic packaging is the key for the future of intermediaries, as consumers buy more and more simple products online to the primary suppliers. It is defined as the combination of different travel components, bundled and priced in real time, in response to the requests of the consumer or booking agent. It allows consumers to buy different services at once but still have the 'pay-one-price' convenience.

2.6. *Organizations : cooperation, concurrence and evolving boundaries.*

After the development of the uses of internet and the increased importance of the access to the client, the chain linking vertically service providers and suppliers, GDS, tour operators, travel agencies, is totally broken. The web sites of the airlines or of the hotels are competing directly with the tour operators or the travel agencies (traditional or online), all the actors are on the same field and question the traditional prerogatives. This complex and unstable situation is the result of the in depth reorganization of the industry and of the markets. Competition and cooperation coexist among the different agents. Classically according Gensollen (2001b), cooperative strategies will emerge in the upstream production phase with high economy of scale, in the phase involving important investments in R&D, and competitive strategies will emerge in the downstream phase of production, regarding marketing, bundling, adaptation to the demand. The nature of the uncertainty (R&D oriented vs. market oriented) designs thus the boundaries between competition and cooperation.

The main characteristic of the contemporaneous economy is that these boundaries are moving rapidly. Rather than investigating only the often prioritized issue of hierarchies and markets (Malone *et al.*, 1997), the focus on these boundaries will allow to understand the rationale of the changes in the regulation as well as in the organization of the industry and markets. The ICT and internet are one of the main engines of change; technological changes, innovation, evolving knowledge bases have often quasi immediate market implications. The dislocation of the traditional value chain in the tourism sector follows these moving boundaries, shapes the acquisitions and restructuring processes of the industry. Far from extending and improving classic markets, the internet has produced in tourism an economic organization which appears completely new and which is still currently continuously renewed; it even transgresses current regulation (Mc Affee, Hendricks, 2003).

In Europe, the best empirical illustration of the dynamics of the SSPI, though not exhaustive, can be given by the analysis of the GDS. The case of the European Amadeus is particularly interesting and deserves attention; its recent evolution will allow tracing the dynamics of the architecture of the tourism industry in Europe. Amadeus has grown as a leading global distribution system (GDS) and technology provider, mainly its reservation system and proprietary technologies. It stands as a market place where the coordination of the activity is solved, and serves the marketing, sales and distribution needs of the world's travel and tourism industries. Its data network serves over 67.000 travel agency locations worldwide. Through Amadeus travel agencies can make bookings with some 500 airlines. The reservation system also provides access to some 56.000 hotels, as well as serving newer provider groups, including ferry, rail, cruise, insurance, car rental companies and tour operators.

After the reservation systems, the GDS has developed solutions for passenger management systems; British Airways has transferred its whole reservation and passenger management system into the internal system of Amadeus. Qantas and Finnair have also adopted the Amadeus

customer management solutions to run their activities. Importantly, the rationalization of the Air France and KLM systems after the merging will be made through their transfer to Amadeus, which plans also to operate South Africa Airways and most of the Sky Team alliance partners.

Then Amadeus has rapidly developed a leadership in the technology internet dedicated to the travel and tourism industry. It has indeed invested all the activities of tourism, mainly through cooperation agreements, providing the development of the technological solutions. The GDS has thus worked as an enabler of e-commerce for the tourism industry. It has developed specific solutions for the travel agencies, the software Scribe with the French network of traditional travel agencies Sélectour for instance, which enables the corporate clients to select themselves their travel choices, to be then fulfilled by their corresponding agency. It has also settled different partnership with online agencies. It has at the same time implemented the technological development of the online agency Opodo.

Opodo has been created by nine of the main European airlines (Aer Lingus, Air France, Alitalia, Austrian Airlines, British Airways, Finnair, Iberia, KLM and Lufthansa); the airlines belong to competing business alliances (Skyteam, Oneworld...), but cooperate in the project, to develop a frontal attack against their traditional partners. The declared objective of Opodo was to capture the market share of the travel agencies, online or traditional, and to bypass the GDS..., which has provided the technological solutions to operate a highly efficient online interface. Opodo offers a competitively priced online travel service for world travel, and opens access to flights from over 400 airlines, 30,000 hotel properties and a worldwide fleet of hire cars, as well as travel insurance.

The contemporaneous context of increased international competition – the huge implication of the US agencies and GDS in Europe – and of deregulation implied by the consequence of the usages of internet has induced Amadeus to implement a new strategy. It has turned from a status of technology provider to an actor deeply involved in the final tourism products market, and competing directly its traditional clients. For this purpose, it has acquired e-Travel, now Amadeus's e-commerce business unit, and SMART, from which it has organized its new development.

Through e-Travel, Amadeus has concluded a joint venture with Groupe Galeries Lafayette which resulted end 2002 with the creation of Vivacances, a travel portal offering French domestic travel products online, which compete directly with the traditional partners of the GDS. Vivacances has rapidly grown as an important actor of the market, because of the brand reputation of its creators, but also of the loyalty program S'Miles. With Terra Lycos, a large Internet portal, Amadeus has created Rumbo, which offers online travel services in Spanish and Portuguese speaking regions. With Tele2 and SAS, a joint venture company, Travellink, which provides a full service online travel agency for small and medium-sized businesses in Scandinavia. Or Eviaggi in Italy. But mostly, Amadeus has also acquired Opodo, which amounts to 18 % of the online European market; though this acquisition, Amadeus has roughly changed its main activity, from technology services to online distribution services provider, i.e. adding BtoC to its traditional BtoB activities. In addition, it has acquired Optims, now the leading European supplier of IT services to the hospitality industry; Amadeus and Optims provide a complete suite of products and services for the distribution and management of hotel rooms, covering all processes from booking to check out. The set of subsidiaries run by Amadeus will allow the clients, for business or leisure, to create dynamic packages, custom-made bundles. The strategy of acquisition implemented is strengthened, through the recent acquisitions by Opodo of the UK travel agency Quest Travel, and of Karavel, a online tour operating company owner of Promovacances, a leading online travel company in France with core expertise in pre-packaged holidays. Packages are the fast growing sales in contemporaneous e-tourism. The development of an expertise in pre-packaged holidays as well as in dynamic packaging implemented by

Amadeus-Opodo designs a multi channel offer able to grasp the different segments of the market.

This strategy, leading from technology provider to virtual agency is not specific to Amadeus; on the contrary, the GDS has traced its US counterparts – and the model they have implemented – which are more and more investing the European market.

For instance the GDS Sabre. It has invented this model of ‘GDS-agency’ with the creation of the pioneer online agency Travelocity at the very emergence of e-commerce, to overthrow the traditional system. The agency makes airline, car and hotel booking efficiently online, or last minute travel through its subsidiary site59.com. Sabre has also acquired GetThere.com, a specialist in the online travel business. Sabre provides access to some 400 airlines, 60.000 hotels, 41 car rental companies, 35 rail companies or 9 ferries. The GDS has created a new site in Europe, Odysia, based on the dynamic package technology developed by Travelocity. This offer has been complemented in France by the creation of a call center and of brick-and-mortar agencies via the acquisition of the regional brand agencies Boomerang and Usit Voyages, to address the whole market’ needs. Through this multi-channel strategy, the GDS confronts directly its European competitor Amadeus, but, beyond, intends to gain in Europe the same leading position it holds in the US tourism activities. The recent acquisition of the discount travel site lastminute.com will definitively allow the GDS to fulfill this goal. Lastminute is one of the best established consumer brands in online travel, and will help Sabre and its subsidiaries to compensate their lack of notoriety in Europe; still they will operate through multiple brands on the market, on which degriftour.com, the pioneer of the discount travel site.

Or Cendant which after the acquisition of the GDS Galileo, has reinforced its position on the online travel market acquiring successively CheapTickets.com, the leading seller of discounted leisure travel products online, and especially Orbitz, the third US online travel agency after Travelocity and Expedia. Orbitz is the US equivalent of Opodo; it has been created by five airline – American, Continental, Delta, Northwest and United – which came together to bypass GDS and agencies. Moreover, Cendant has completed the purchase of HotelClub.com, a full service provider of online hotel reservation services, offering great service and discounted hotel rates. Indeed, as a subsidiary of Cendant, the world’s leader hotel franchisors or real estate brokerage franchisor, HotelClub.com can easily establish working arrangements to meet the accommodation needs of customers at the most competitive rates. Cendant offers the customers the whole dimensions associated to the conception of the tourist products. Last, Cendant has considerably expanded its presence in Europe through the acquisition of a leading European online travel group ebookers, which offers a wide range of discount and standard price travel products.

Or lastly InterActiveCorp which holds Expedia, the world’s leader online travel agency, and rests on the independent GDS Worldspan for flight and fare information. Expedia entered the French market through the creation of a joint venture with the SNCF, voyages-sncf.com, which has rapidly grown as the leader of the French e-tourism market. Expedia has provided its technology and complemented the rail side (80 % of the site turnover) by a thorough offer of tourism products. But Expedia has created its own site in 2004, expedia.fr, in direct competition with voyages-sncf.com (at the exception of the rail side), on which it still holds 49.9 %, and clearly also intends to achieve the French and European leaderships. It has acquired for this purpose Anyway.com, specialist of online leisure travel services, and Egencia, specialist of corporate travel management services. Expedia is a subsidiary of InterActiveCorp, as Hotels.com, a leading provider of lodging worldwide, and Hotwire.com, a discount site on airline tickets, hotel reservations, car rentals, vacation packages and cruises. Though Expedia, the group allows the online customers, corporate or individual, to produce dynamic packages whatever the destination and the range of products and services. Dynamic packaging is the strategy implemented by Expedia to dominate the European market. The last step towards this aim has

been the recent autonomy given to Expedia through its spin-off from IAC into a separate publicly traded firm. The explicit object of this decision is indeed to give Expedia the financial and organizational means to face successfully the competition in Europe.

2.7. *The new economy of tourism*

The dynamics of cooperation and competition which underlie the evolution of the GDS embody the market and industry dynamics in tourism. The GDS have moved from the status of technology providers of the travel agencies to the one of their direct competitors, selling directly or indirectly (through their own agencies) to the final customers. The emergence of these GDS-agencies expresses the recombination of the whole sectoral system. The internet, i.e. the uses of the internet, is the main rationale of this evolution.

In the traditional vertical system, the GDS were obliged partners for the airlines; indeed, the airlines could only reach the customers through the GDS proprietary technologies implemented in the affiliated travel agencies. The airlines had to subscribe to the different GDS to be accessible from the whole market, i.e. from all the travel agencies. In order to secure a fair competition between airlines, the regulation has imposed neutral screen displays and fix booking fees. In this setting, the travel agencies were the agents of the airlines, as their revenue derived mostly from the commissions paid by the suppliers, and not the agents of the consumers, on which they had a quasi-monopoly. The information of the consumers was very constraint as the costs of obtaining information out of the travel agency network were prohibitive. In the pre-internet age, the travel agencies were the only agents to have a ready access to flights and fares though their online proprietary GDS terminal, the customers would have to call each airline to complete a search. This system generates moral hazard problems, as the agencies could provide less than best advices on tourism services to consumers, and consumers would not be able to easily verify the quality of the advices (Mc Affee, Hendricks, 2003).

The uses of the internet have overthrown this system (Figure 1b); the whole flights and fares can *a priori* today be directly and easily seen and transactions done off travel agencies for the consumers, and off GDS for the agencies. The quality of the information can be controlled using different sources, including CtoC relations and virtual communities of experience. The access to the GDS is no more, as shown by the low costs, a necessary condition of the viability of the airlines activities, as well as of the suppliers and service providers in general. The internet sites have questioned the neutrality of the screen displays. Deregulation is a logical consequence of these different evolutions. Since 2004, the GDS are free to charge their fees, and the neutrality of screen display is removed in the USA; these measures should be effective in Europe in 2006. With the uses of the internet, the elimination of the non-discrimination rule raises no more a problem regarding free and fair competition. From agencies to GDS, the system of fix commission fees is disappearing. These different changes have triggered the contemporaneous strategies of the GDS. The ultimate target of the huge groups built by or around the GDS is from now on the consumers, directly reached through the different online agency subsidiaries. These GDS-agencies are mainly full service providers, of online leisure and business travel and hotel reservation services, but also of all other tourist services (car rentals, cruises, vacation packages and other travel). The dynamic packages are the privileged services they implement to increase their market shares.

The competition between the GDS-agencies is thus ruled by the surface of the online services available on their web sites. When, given the constraints of the previous regulation, Amadeus and Sabre were for instance offering to the travel agencies basically identical services regarding the airlines included in their proprietary reservation systems, Opodo (Amadeus) and

Travelocity (Sabre) could now have highly different contents to display to their customers. The market for the suppliers and service providers is indeed nowadays open, and the content of the different sites will be *a priori* the result of competitive processes.

The growing share of the GDS in the tourism industry is made to the detriment of the traditional intermediaries. The impact of this evolution on the corporate travel has been very important. Online corporate travel and self-booking tools, which allow the business travelers booking trips online and manage their whole expenses, are increasingly adopted by the large corporations. The groups built around the GDS capture most of this important activity. Added to the leisure travelers market, changes in this strategic corporate travel activity is to deepen the difficulties of the traditional sector, or even of independent online agencies or TO.

The traditional forms of intermediation have been continuously driven out of the market, but this does not mean that an absolute disintermediation process is working in the system. New forms of intermediation have emerged, and new markets for intermediaries have also been created in the tourism industry. Basically, the GDS have built so called online travel supermarkets, offering one-stop-shopping sites for travel, tourism, and leisure products, and highly efficient transaction mechanisms. The vertical and horizontal processes of concentration of the different activities of the online tourism industry have been hugely completed in these multinational groups, sometimes including service providers, to offer content and context, and to provide synergies between the growing activity of the online travel agents and the purchasing capacity and bargaining power of the GDS. The independent actors are constrained to focus on niches or specialized segments of the online market. The four main groups of e-tourism are engaged in a huge global competition, the new organization of the industry and the markets address however new important issues. The GDS deregulation and the related new strategies they have implemented clearly means that total content of the flights and fares is no longer assured in a single GDS, the travel agents or even the consumers must find new ways to aggregate disparate contents (multiple GDS, airlines, low costs...).

The GDS-agency groups are heavily dominating the e-tourism. The airlines have tried to challenge this leadership, and this re-intermediation process made quasi exclusively to the benefit of the GDS groups (Buhalis, Licata ,2002). Still, direct web marketing and ability to exchange directly with customers are constant aims of the supplier strategies (Buhalis, 2004). Orbitz or Opodo have been attempts in this direction, connecting directly with the airlines and bypassing the GDS. This strategy of disintermediation has been given up; as far as airlines do not commission anymore the agencies, and can maintain their own sites, the holding of these OTAs – involving still significant costs – was no more justified. The consequence has been their cession to the GDS. But still the airlines have to support the cost charged by the GDS, which amounts to roughly 20 % of their distribution costs. These costs are the new target of the airlines.

New entrants are emerging in the system, based on the last developments of the internet technology, whose object is to provide a real alternative to the GDS, as well as a solution to the aggregation and leadership issues. The first are the new generation of powerful meta air and hotel search engines, Kayak or Yahoo!FareChase among others, which compare prices combining a multitude of different sources, including low costs. The GDS are formally restricting access to their sites by these engines, which will certainly remain super shopbots. The second are again supported by the US airlines companies, which have always led the processes towards disintermediation attempts. The aim of the new actors – ITA Software, G2 Switchworks, Farelogix, qualified as Global New Entrants – is to guarantee the travel system a distribution service equivalent to the service provided by the GDS, but for roughly the tenth of the cost charged by these GDS. These low cost next generations of travel distribution solutions plan indeed to connect top travel agents and top airlines in order to develop a global, decentralized and open virtual market place linking directly suppliers and demands. Some seven major US airlines

have already committed distributing flights through this new system. The process of deregulation of the GDS will certainly lead to some new major reconfiguration of the sectoral system. For the airlines, the emergence of the 'electronic market hypothesis' (Malone et al., 1987), the internet led shift of the industry from hierarchies to market based forms, seems to be a first best, as they continuously adapt their strategy towards this aim. Nevertheless, the GDS-agencies have enough synergies in the tourism industry to resist against new entrants in their core activities, dropping for instance airlines from their online subsidiary agencies, which are also the largest ones. For instance, Amadeus has announced an agreement with the fifty top airlines companies, American and European, including low cost, to display their internet direct fares. Still, after the low cost airlines, the low cost GDS – a point to point solution applied to airlines–agencies links – could promise a new revolution in travel and tourism activities. Amadeus has also taken shares of ITA Software, because of its declared interest for the mathematical algorithms the GNE develops...

2.8. *Technologies, knowledge bases, and geography*

Ongoing technological innovations reinforce continually the underlined evolutions; in France, the development of broadband internet addressed to households has considerably extended the uses of e-commerce. Or the emergence of mobile technologies is to induce new designs for the boundaries of the system, with the entry of new actors and the creation of new markets in the tourism system. The reconfiguration of the system could be again very important. The potentialities of the mobile technologies in tourism are huge. Besides the domains classically dealt by the internet, they can cope with all the consumptions or uses (market or not) decided on site. The virtual shopping galleries, B2B2C like, are being developed for the new generations of mobile phone, and could capture a large share of e-commerce in the future.

As advocated at length in the paper, the competition for the access to the client and the organization of the market for information induced by the internet are key issues of the whole activity in tourism. The firms that will succeed – on the base of recurrent subscription – to capitalize the clients on their networks and on the main services provided online will have an obvious competitive advantage in terms of client access. These firms would have the capacity to become the key actors of a sectoral tourism system from now ruled by competition, basically competition for the access to the consumers, and could play a strategic role in the recombination of the system to come. The mobile phone operators, whose loyal customers amount to two-third in France for instance, should increase their investment in e-tourism; in some sense, m-tourism could be the future of e-tourism. The boundaries of the system are not fixed, and can change overtime as the knowledge base evolve and the related actors enter the system. These evolutions towards m-tourism are on the same wavelength that the process of dematerialization of the operations initiated by the airlines companies (e-ticketing for instance). These trends have already been embodied in Japan, where the first operator NTT DoCoMo – followed by its competitors – has developed solutions combining e-money and mobile phone (FaliCa technology) allowing to make online reservations, to pay online, to check in at the airport with their phone; the system is also adopted by the train companies, the metro, more and more shops, and besides transactions, the technology is also used as keys for the houses or pass key in the enterprises... These technologies are to be developed in Europe. If the new generation of mobile technologies and services is to be adopted on the same scope the mobile phone has been adopted, m-commerce and m-tourism is indeed to reconfigure the organization of the industry and the markets of the sectoral system.

3. CONCLUSION

The impact of the internet on the tourism industry has revolutionized the sectoral system of production and innovation. The knowledge bases on which the changes have been made are essential as they impact on the evolutions of the boundaries of the system. But the technologies as such are not the engine of the reconfiguration of the system. The dynamics of the system are in fact basically driven by the evolution of the interactions and interdependence prevailing in the industry, the evolution of the boundaries between cooperation and competition they induce. They are not pre determined by the technology but are the results of the economic processes they entail and the prevailing institutions. In turn, these institutions are not fixed; they change overtime to be coherent with the behavior of the agents. Regarding the GDS for instance, the changes in the regulation obeys the change in the nature of the competition, in the interactions and interdependence they are involved. The diversity of the solutions and of their implementation establishes that the SSPI are the “constructed and instituted outcomes of individual behaviors that are shaped by wider instituted processes” (Metcalf, 2000).

The SSPI allows highlighting the analytical level to address to understand market dynamics and changes in the organization of the industry in tourism. Indisputably, the internet deeply transforms market dynamics and the organization of the industry. But the issue does not regard the improvement of the working of existing markets towards perfect information and pure competition, it regards the emergence of new markets, new actors, new interactions and interdependences, and consequently new regulations and modes of price formation. In tourism as well as in other activities, markets do not pre exist; they are not external, given data, rather they are instituted in the competitive process and co-evolve in the competitive process. Thus market processes have to be instituted and in many cases it is the firms in the market that invest the resources to create the market. In the process, rules emerge that serve to institute the market's activity (Metcalf, 2000). The new economy of tourism is not the traditional industry using internet, not the “perfect” one that was dreamt up, but an entirely online oriented industry. The competitive value is in the information, and the movement of merger and acquisition at work deeply embody this element. It has resulted in a deep redefinition of the division of labor in the industry.

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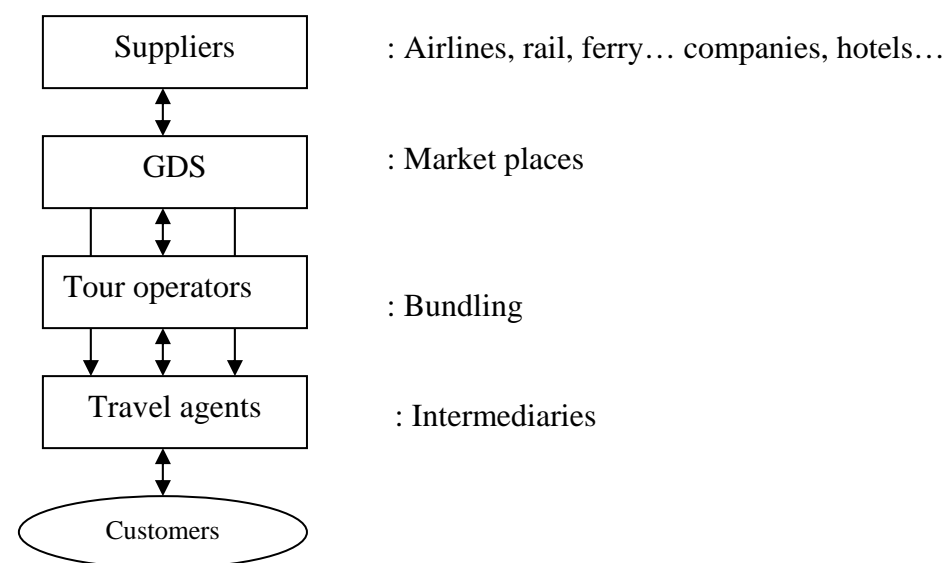
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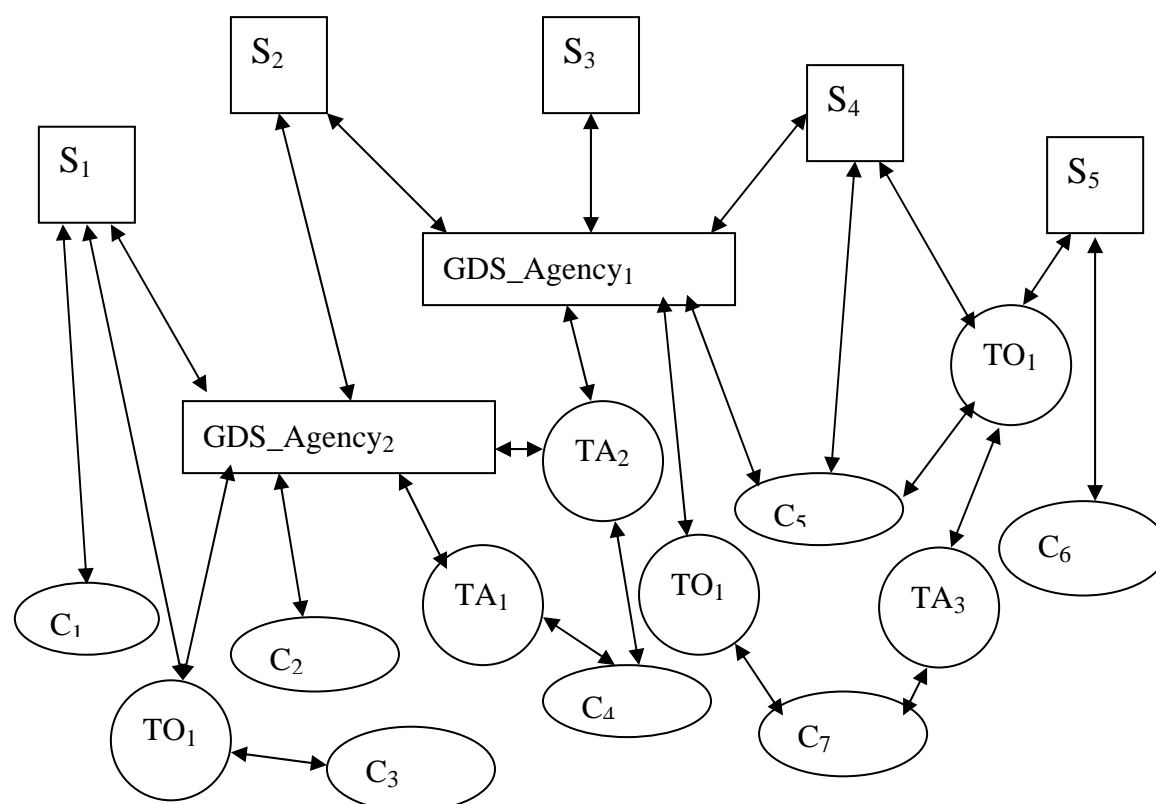
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Figure 1a. The traditional system in tourism.



The travel agencies stand as a necessary passage towards the customers, either for leisure or corporate activities. Each agency uses the proprietary system of one GDS, and have an information on flights and fares through online terminal. Consequently, airlines companies have to be connected to each GDS in order to be visible by the whole market. In this organization of the industry, the markets are totally regulated; the transactions between actors are ruled by a system of fix commission rates, the screen display in the agencies must be neutral, which allow to offer a guarantee of fair competition between the different airlines companies.

Figure 1b : The « new » model of the tourism sectoral system



S : Suppliers, services providers : transport companies (air, rail,...), hotels, rental cars...

GDS_Agency : the groups build on Amadeus_Opodo, Sabre_Travelocity, Expedia_Worldspan, Galileo_Orbitz

TO : Tours-operators

TA : Travel agents

C : Customers (leisure, business).

From the traditional model to the new model of the tourism industry, the nature of the interactions and interdependences has been turned upside down. The interactions were strictly ordered and quasi pre-determined in the traditional model, all the interactions are today *a priori* possible between the different elements of the SSPI, and the interdependences redesigned. With internet, the system has been horizontalized, the services providers and suppliers are immediately visible from the whole market from their own site; tour operators, agencies and customers are indeed almost at the same level regarding information, the suppliers have not to join all the GDS; the transactions are open to all the agents of the system. The system of fix commission has logically disappeared; the emergence of the effective interactions will be the result of market processes of competition, the services are now competitively charged by all the possible interlocutors of the customers, airlines, travel agents....

The GDS-agencies are the core of the whole process of coordination of the activity. They indeed draw different core competencies, as technological service providers, market places, and online agencies. The variety and the quantity of the contents and the contexts they provide regarding the different elements of the complex tourism products