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THE MANAGEMENT OF UNCERTAINTY IN TOURISM: STRATEGIC PARADOXES AND COMMUNICATION

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The design of new tourism products necessarily enters into the realm of uncertainty. Such uncertainty concerns the product developed and its later use as much as the way the design project is conducted. It can be linked to events either within or outside the firm. It will be considered to be acceptable by the design team concerned as long as it remains within a field of tolerance (domain of performance, "margin for random effects", etc.), with the risk relating to how to egress from that domain. The first section addresses the issue of uncertainty in design and concerns the developed product and its later use just as the way the design project is pursued. The second section focuses on decision-making and how the various risks that can affect the firm and its environment are taken into account.

Keywords: *Tourism, Innovation, Conception, Uncertainty, Communication, Decision*

JEL Classification: *L83, M1, O1*

INTRODUCTION

Today innovation appears to be vital, both for consumers keen on new products, and investors ever ready to seek out opportunities and a commercial advantage. Innovation is multiform and can concern a product or a service just as the organisation offering it. This has been covered by many research works, especially addressing the issues of the innovative firm, the scientific controversy or the running of industrial projects. But works devoted to the emergence of innovation in the design

of new tourist-oriented products (Selmi, 2007, 255) are less common. In fact, design constitutes the real locus for the emergence of innovation in organizations.

It entails the firm must be able to predict changes in its environment, and schedule the actions to be conducted; the innovations considered lead to the limits of the current state of knowledge and moreover remain sensitive to an uncertain environment[2] that further exacerbates their complexity[3]. This difficult management in uncertainty[4] is generally conducted through various forms of feedback and learning from the past, rounded out by individual and/or collective thinking of the players concerned who harness their specific knowledge to a social construction of knowledge. This ever more sophisticated process implies mobilising a host of forms of knowledge and players, both inside and outside the firm, who must understand each other and interact to attain a goal of collective creation while ensuring control over the associated risks, whether they be of a technical (reliability, availability and safety) or programmatic (costs and lead-times) nature. Their cooperation proves to be all the more crucial in so far as the quantity of information and the amount of knowledge to be harnessed increase, the cognitive interdependences become frequent, and the organization of the activity becomes awkward or even impossible to determine a priori (De Terssac, 1996). This becomes all the more delicate a matter for designers in so far as risk is an eminently subjective notion that takes on board dimensions, which themselves are difficult to evaluate. The variegated perception of the players involved then has a biasing effect when it comes to taking action and tends to interfere with communication, both internally between

[2] Besides natural hazards (earthquake, solar eruptions, etc.), such systems are also exposed to risks of malice (intrusion, piracy, vandalism, terrorism, etc.) or malfunctions of outside resources (information technology systems, for example).

[3] Here we shall not develop the various economic, political or social pressures likely to weigh on design.

[4] Uncertainty can be defined as the impossibility of describing events that have not yet occurred or not accessible to measurement (which measurement is itself marred by uncertainty). It can equally concern imprecise knowledge of physical phenomena and the value of certain parameters, and contingencies, that is the occurrence and amplitude of random events whether of a predictable nature or not. It covers the risk that can be identifiable and open to evaluation, but also sometimes impossible to apprehend.

the experts and the decision-makers, and outside the firm when the latter attempts to explain and give formal proofs of the uncertain situation to its customers and partners in the field of tourism. As a result, the management of uncertainty and communication prove to be in dissociable.

The present contribution attempts to come to an understanding of both the multiple sides of uncertainty prevalent in the activity of tourism-products designers and the processes through which the corresponding risks are constructed, apprehended and integrated by the concerned players. We shall privilege references likely to nourish reflection as to communications related matters especially through confronting it with the results of a survey[5] conducted out in the field.

In our contribution, we shall, in the first section, address the issue of uncertainty in design, which concerns the developed product and its later use just as how the design project is pursued. In a second section, we shall focus on decision-making and how the various risks that can affect the firm and its environment are taken into account. We shall see to what extent the ubiquity of uncertainty, affecting the available knowledge and the methods for evaluation of phenomena, make learning from the past procedures for evaluation and decisions to be implemented a delicate issue, while also making communication (internally and externally) a difficult matter.

UNCERTAINTY IN TOURISM-ORIENTED DESIGN

By its very nature, design is characterized by uncertainty and this all the more so in so far as it is innovative. This uncertainty concerns both the product developed and its later use on the one hand and the implementation of the design project on the other and can be affected by events both inside and outside the firm involved. It is considered to be acceptable by the project team as long as it remains within a domain of tolerance (domain of performance, margin for contingencies, etc); here the notion of risk conflates with the possibility of egress from such a situation.

[5] We conducted a long-term survey into the communication process in how firms in the tourist sector structure their design processes. We favored a combinatory methodology (observation, interviews and study of documents) to give us a clearer picture of daily practices and better understand the representations of the players involved (designers, sales people, communication specialists, decision-makers, etc.).

Uncertainty as to the tourist product developed

A product is the response to a demand or expectation (that can be more or less clearly formulated). This need[6] of the end user may not or may no longer correspond to the designers' apperception of it on which product development is based. Indeed, the expression of a need is always subjective, above all when it is not directly formulated by the dictator of choice but just by an intermediate player (the travel agency, for example) reckoning on a clear intention to buy (interpreted in turn by the marketing or sales department). Between the decision to design and that to make the product available, the need can change and make the sales proposal obsolete, either due to a variation in the expectations of the market (change in the environment, fashion effect, emergence of new standards as with that relating to sustainable tourism, etc..), or due to the arrival of more effective competing products.

The product's ability to respond to the need constituted the first element of uncertainty encountered by the designers questioned. This can relate to functionalities and performances that are not commensurate with those expected in the planned conditions for use (including operational characteristics such as reliability and availability of hotel accommodation), damage to the environment, considered to be unacceptable (pollution, meteorological disturbance, etc.) caused by the use or malfunctions in the tourist-oriented product, or risks relating to the safety or security of people or goods. Failure to achieve the expected performances can lead to problems anticipating phenomena that escape prediction (tsunami, economic crisis, etc.) or those that are known but neglected due to reasons related to confining uncertainty within acceptable costs (as with insurance expenses).

This possible deviation between the tourist-oriented product and customer expectations[7] can also be due to unpredictable difficulties when it comes to implementation (as with national strikes as with those seen in Greece in December 2008) or the inadequate nature of validation procedures for results as compared with objectives (inadequate guarantees

[6] The term "need" as used here refers to an implicit or explicit demand from a client or principal to which the design activity attempts to provide a response. "Functional analysis of need" has the aim of finding a way of expressing that need (standard NF X 50 - 151).

[7] Cf. the debates that took place at the conference "National tourism : at the heart of our growth" Paris, 18-19 June 2008. http://www.assises-tourisme.fr/discours.html

from service providers, etc.). And even when all the obstacles have been overcome, outside changes, as with the appearance of new standards (cf. changes related to development and sustainable tourism) or new regulations that can lead to failure of certain suppliers, service providers or subcontractors, make some equipment obsolete (swimming pool, tennis court, hotels, etc.), and finally prevent fulfilment of the strategy.

The perceived difficulties are also related to an underestimation of the complexity and innovative character of the technologies implemented (information and communication technologies not effectively controlled for example). According to the players questioned, these are largely caused by a "lack of competence", zeal for "perfectionism" or "lack of alternative solutions". They can also be related to management problems due to a chronic lack of personnel, an element which leads to take into consideration the links between uncertainty and work on a daily basis.

Uncertainty during project roll-out

Beside the tourist product itself, this other type of uncertainty generates a certain number difficulties likely to affect forecasts for the future. Indeed, random factors in development lead to drifting of costs and design and development lead times. While it would be unrealistic to attempt here to account for all the possible sources of uncertainty that can affect a project, a brief presentation of those most often mentioned during our interviews will nevertheless provide a clear illustration of the importance of information related aspects in the emergence of a tourist product.

Project management mainly involves organising a process of acquisition of knowledge and decision-making while co-ordinating the activity of various specialists (Boutinet, 1998). Now, the acquisition of knowledge required for the project can be affected by a host of malfunctions, including especially patchy knowledge in the field of technology watch or capitalisation on know-how, too frequent rotation of personnel, an uneven representation of different skills, a dearth or conversely an excess of information available, the unreliable nature of that information or its non-synthetic nature. In this perspective, the quality of information exchanged becomes essential. This depends mainly on the "positive attitude" of the players whose behaviour can lead to a lack of transparency and mutual trust. Such behaviour patterns range from withholding information (seen as a way of holding power) to dissimulating errors that may have been committed (whence difficulties planning for the future on the basis of what has been learnt from the past),

and include the spreading of rumours or too much time spent in meetings. The relative performance of communication tools used and the possible existence of barriers between the various departments also play a major role in the circulation of information, as a number of research works have demonstrated (Lepine, 1999). This barrier between departments was systematically mentioned by the people we talked to, whatever their level in the hierarchy.

Furthermore, analysis of the situations by the various players concerned sometimes neglects certain aspects of the problems posed or remains restricted to the singular point of view of a particular speciality without seeking the best trade-off with other sectors. Now, globally optimising a tourist product rarely results from a sum of local optimisations. This quest for an optimum solution pre-supposes mutual understanding between players who are often highly specialised. Thus, to design a travel product to a new destination, a strategic player with an extensive range of knowledge needs to be appointed to conduct this barely perceived "work of articulation" that allows for "the collective efforts of the team to finally be greater than the chaotic efforts of the scattered fragments of work " (Strauss, 1992 : 26). But this key person, taken to be the manager, is too often assigned that role for reasons unrelated to their abilities in coordinating things or acting as a mediator.

The search for solutions and the corresponding choices can also lead to disappointing or even negative results, especially if the number of solutions open for consideration is limited ex ante. Now, the first solution found is often adopted and, where this is not the case, the optimum solution is not systematically taken up. Even if some working methods are an attempt to build on multiple criteria allowing a certain rationality to be devoted to procedures involving comparison between solutions, the approach finally adopted will nevertheless remain largely subjective.

The decision-making process can itself be affected by multiple malfunctions. A number of these were explained to us by the design people interviewed, such as stasis due to "weak-willed decision-makers", the absence of delegation, long decision-making circuits or the search for a compromise at all costs. Other malfunctions were recounted by the decision-makers themselves, as with the lack of consultation, failure to respect the decision-making process, conflicts of interest, resorting to "power games", the lack of coordination between departments, etc. The consensus is that the decisions themselves suffer from a failure to take all their consequences into account, from an inadequate follow-up for actions decided on, just as "a low level of commitment from general management". These difficulties are exacerbated by the fact that, often,

there is no structure for arbitration to settle conflicts, and choices are not covered by a validation procedure that may bring them into question (discussions, confrontations, comparisons, counter-evaluation, etc.). Our interviewees told us that such problems have become even more critical over the last few months. Is this an effect of the current economic crisis that has devastated leisure tourism?

In this context, tourism design largely reflects that "paradoxical management" described by Boutinet in his works on project structures (1990). It also tends to reconcile theory and practice, with individual logic and collective logic, but also innovation and the rush to ensure lead-times are respected while also limiting, in so far as it is possible, the consumption of resources. Above all, it involves managing uncertainty, so that it will remain within a range of acceptable tolerance for the firm, its customers and its environment. Furthermore, this strategic activity concerns above all risk and how it is to be brought under control. The following paragraphs will deal with this issue, with a focus on the role of communication in decision-making.

COMMUNICATION AND DECISION

Risks of a technical, economic, human, social, organisational or even communicational nature can affect the firm and its environment. The tourism organization seeks to hedge against this through a rational and sustained approach to identify risks and bring them under control. This method addresses the main issue of safety, reliability and availability of the product during its design and use, right through to its being relinquished[8]. As the risks also relate to budget overspends and associated shifts in scheduling, the methods used are mainly based on feedback and the use of generic risk check lists (default of a service provider, a partner not having the necessary authorizations, etc.).

But "The difficulties of transferring knowledge within the firm have been sighted both in theory and in practice" (Szulanski, 2003 and Rolland, Stanley, Perrin, 2007, 553). Moreover, communication on these risks is a delicate issue and corporate communication itself constitutes a risk for the organization.

[8] Cf. the "Principle of precaution" and injunctions related to sustainable development.

Perception and decision

The technically oriented approach based on feedback (involving boosting the amount of information stored) is often privileged in tourism organisations as it appears relatively simple and gives a certain illusion of comprehensiveness. But how to ensure that such information is both relevant and available?

The formalization of various forms of knowledge in an appropriate language constitutes the essential condition for the success of any attempt to capitalize on and profit from prior experience. Now, a large number of players, whose levels of motivation may vary, are concerned by the chain of acquisition, capitalization and profiting from experience, that requires from everyone a minimum of effort (entering data, formulation, indexing documents, etc.) or even changes in habits (appropriation, consultation, taking such aspects into account in action, etc).

Some of them can prove to be all the less inclined to bring up their experience in the matter in so far as such information relating to crises, incidents or even accidents in the past brings back unhappy memories. In addition, the ex post facto perception of such unfortunate events fluctuates according to the period (cf. current debates as to the role of tourism in exhausting natural resources or its effects on local populations, for example), the specific cultural features of the players concerned, and their possible role at that particular time.

What is more, the perception of risk is by nature subjective and often not commensurate with its true scale. It depends on the knowledge, fears and habits of all concerned or the possible sense of a challenge that risk-taking represents for the individual. Thus, car drivers would seem to be unmoved by the many daily accidents caused by their usual means of transport whereas they are shocked by coach, train or plane accidents, however safer these latter are statistically. The perception of danger can arouse irrational fears and anxieties (Theys, 1991; Peretti-Watel, 2000; Zografos and Deffner, 2009), especially when it comes to events that are often amplified by the media effect or, conversely, the sense of thrill for the consequent risks (those induced by speed or the practice of sports in extreme conditions, for example). This perception of risk is all the more subjective in so far as the said risk combines two very different dimensions, the probability of the event's occurrences and its seriousness. Now, frequent incidents with little serious effect are sometimes less well tolerated (cf. bad weather causing delays or disruption to public services as occurred in France in January 2008) than much more serious though exceptional accidents. This perception is culturally defined and depends

on social position as well as individuals' systems of values. The works of Douglas and Calvez (1990) have explained, for example, some of the difficulties encountered by AIDS prevention campaigns, by the beliefs and ways of thinking of the groups targeted (representations of health, sickness and sexuality, etc.).

Thus, as a result of the sometimes considerable gap between the perception of risk and its true scale, the real issue for the organization may well be more in correctly managing the perception of risk than the risk itself; with the risk only becoming "acceptable" if, in a certain way, it has been "accepted" (Godard, 1999). Unfortunately, few studies address the perception of risk in the tourist industry. However, recent studies on other fields of activity illustrate this difficulty. Here we could cite the context of the recent decision taken in Sweden: "Medical studies have shown that long-lasting exposure to electromagnetic fields generated by high voltage power lines very slightly increased the risk of leukemia observed in children. Although these results are subject to debate, it has been decided to bury these lines in the suburbs of Stockholm in order to eliminate this possible cause of illness. The cost of burying the lines has been estimated to come to 750 million US dollars per case of leukemia avoided. Compared with this, the risks related to smoking are well known and the effect of an anti-smoking campaign is reckoned to come to less than 500 dollars per case of cancer avoided." (Sjöberg, 2001: 117).

Thus, prevention policies are sometimes relatively ineffective as compared with the means implemented. (Duclos, 1996; Lascoumes, 1996; Azim, 2010). Let us take another example. In 1988, the principles for sustainable tourism were decided on by the WTO, defining it as a way of managing "all the resources allowing economic, aesthetic and social needs to be satisfied, and to preserve cultural integrity, ecosystems, biodiversity and life sustaining systems". This form of tourism, that aims to take populations into account, fosters cultural diversity, seeks to support the local economy, and defends the idea that tourism is for all. Individuals, organizations and governments have devoted considerable efforts to identify the components of sustainable tourism and instigate methods to set up and evaluate such components over the last decade. But the actual results are meager; setting up this type of tourism remains an awkward matter often coming into conflict with the wishes of the local players or with the desires of organizations and governments.

Another example is the determination to rapidly publicize the results of a policy to tackle oil slick problems led by the authorities keen to again welcome tourists where they used highly toxic dispersants that are more harmful to the environment than hydrocarbons. The current behavior of

the politicians when it comes to safety problems contrasts starkly with a certain reluctance or even failure to react that was observed in the past (Beck, 1993). But beside the determination to show an ability to ensure control over any type of situation, the behavior of decision-makers can also be explained by the overriding concern not to worry people to no purpose (Roqueplo, 1997; Duclos, 1996). "For a long time, a sense of balance prevailed: those able to make decisions benefited from a real credit rating in the view of other social groups. But, in modern society, the confidence granted to "experts cum decision-makers" has gradually been undermined." (Hyard, 2000: 189).

Moreover, the image of scientific experts in France has been sullied by a series of affairs relating to public health (contaminated donor blood, asbestos, the Chernobyl contamination in France wrongly denied, management of climatic catastrophes, etc.) and it has now become extremely awkward to communicate around the theme of risk. "However, it is not so much a reflex based on phobia and the ritualizing of ancestral fears that is involved, but rather everything that citizenship implies in terms of intervention, delegation and, division of political work that is now brought into question faced with the complexity of the technological world and decision-making processes. " (Duclos, 1996: 336).

The underlying expertise (Trepos, 1996) also has its limits that are all the more readily reached in so far as the problems involved are of a complex nature. Now, the generally maintained illusion of being capable of effectively handling all possible risks fosters the emergence of an increasing complexity of products. This explains why greater knowledge can paradoxically lead to greater system vulnerability (Ewald, 1996) as with ABS braking that while it allows drivers to get in dangerously close to the theoretical limits of mechanics, with a feeling of complete confidence, has the perverse effect of statistically increasing the number and seriousness of car accidents. What then are the limits not to be exceeded in designing systems for tourism? On this question N. Luhmann (1991) evokes the concept of "riskiness" that tends to increase with knowledge. Maintaining the illusion that risks can be fully eliminated proves to be the source of many misunderstandings since zero risk is inexistent.

Furthermore, to be able to accept a risk, the individuals still need to have the minimum amount of knowledge to understand the situations and the alternatives that can be considered for a real dialogue to emerge between the experts, the decision-makers (including the State) and citizens, either directly or through their associations (Renn, 2001). This shared culture of risk would require a major effort to train and explain

matters simply and this represents a real communication issue. For it concerns the organization not just of relations with the environment but also, and above all, in internal operation, as uncertainty (and how it is managed) constitutes the main element in analysis and decision within design project structures. This involves multiple exchanges between the various players in the firm for a common understanding of the problems encountered, and that we shall attempt to understand. But can this shared culture of risk be contemplated when it comes to a tourist oriented product whose image is tied up with the idea of holidays, sunshine, rest and generally being cosseted?

On the difficulty of handling risks

Identification and evaluation of risk in the firm comes under the competence of assessors or experts, while decision-making remains the manager's prerogative. But are the assessors always "reliable" and do they know how to communicate the issues and results of their expertise to the decision-maker? How does the latter grasp the data from risk analyses as a decision-making aid, knowing that due to the necessarily limited financial resources available, only risks considered to be really unacceptable can be effectively addressed?

Even assuming that all risks have been identified by the assessors, their evaluation in terms of seriousness and probability is often a delicate matter. Indeed, the events corresponding to the most critical risks are generally infrequent and rarely lead to statistically representative data. Furthermore, such data, when they exist, are to be handled with care and discernment (Villemeur, 1988) as they are likely to lead to an "informational binge" (Dubois, 1999; Dodds and Butler, 2010). But does this mean we should push aside any penchant for quantification? Figures often have a pernicious effect, above all when they are based on statistics that need to be considered with some precaution, and can often either reassure or give rise to excessive worry. But the 'absence of quantification can be more dangerous still by leading to an unbalanced distribution of effort. Thus, quantitative evaluation of risks is the approach most often used to compare choices or establish a ranking of decisions.

In addition, the firm is also led to communicate on risk beyond the confine of its own structure. Recent legislation[9] imposes on organizations obligations relating to safety, including especially that of informing the authorities and the public (Viney, 2000; Libaert, 2006). Firms are then confronted by various dilemmas: How to communicate? How far to go in explaining things? Can information backed up by weighty documentation on uncertainties be disseminated without fear of having a perversely negative effect?

The ″transparency″ of an organization can be defined as the quality that makes its operation decipherable and comprehensible for individuals outside it. This assumes a variety of facets including traceability that allows changes in a product to be monitored or its constituent parts to be followed from their origin. This traceability of products is an essential element, where a problem arises, in identifying suspect products or batches or in evaluating their effects. The recent crisis relating to the outbreak of foot and mouth disease showed, for example, the disastrous effects of a lack of traceability in the propagation of diseases, especially in Great Britain.

Transparency also involves other aspects answering to new social demands, in particular respect for a certain ethical code. This concerns for example working conditions in organizations, respect for human rights (Burma) or the preservation of the environment. It can lead to a significant degradation in the firm's image, or even to its products being boycotted where failings are clearly seen. Thus, firms were forced to quit South Africa at the time of apartheid and others were long-lastingly affected by accidental pollution, as with Union Carbide after the Bhopal disaster.

Firms are also clearly divested of the right to refuse this obligation to provide information in so far as they have availed themselves of the opportunity to speak out, firstly through advertizing for their products, then within the scope of institutional publicity laying claim to certain values (Libaert, 2006). Some organizations however adopt a minimal notion of transparency (cf. the low number of activity reports taking up precisely the issue of sustainable tourism) that involves respecting the straightforward provision of information to the "public". This reduced

[9]In France, these requirements are covered by legislation brought in by Barnier under law No. 95-101 of 2 February 1995 relating to reinforced protection of the environment, Bachelot No. 2003-699 of 30 July 2003 relating to technological and natural risks and reparation for damages, and the various specific regulations relating to the sector concerned.

interpretation of transparency can be understood as a deliberate strategy to hide certain items of information (Beck U., 1993) or even to do nothing about matters (cf. corporate social responsibility or CSR, that is not covered in the activity reports of the main tourist businesses), and thus seriously impairs the emergence of relations of mutual confidence.

Conversely, a more developed conception of transparency may involve providing the targeted sections of the public and the consumers concerned all the elements for appreciation liable to allow them to forge their own opinions, as with qualitative and quantitative indicators, environmental impact studies, const-benefit analyses, etc. (Libaert, 2006). But this form of transparency is not without its drawbacks. Indeed, the recipients do not always have the ability to weigh up the elements of 'information provided and, where the competition is keen, it can seek to seek to use such information to its advantage to practice industrial espionage or arouse people's suspicions (Viney, 2000). This is all the truer in so far as the innovative design of a tourist product is relatively easy to copy.

CONCLUSION

Nowadays, in a knowledge-based economy, innovation is considered to be indispensable for differentiation. This innovation is generally implemented within a design team covering various structures and professions within and outside the organization. The communicational aspect appears essential to the effective roll-out of the project, both in terms of acquisition and sharing of knowledge, emergence of new ideas and coordination of the activities of all those involved.

In parallel, tourism organizations are becoming ever more complex, both as far as their products are concerned and in the way they operate, above all when innovation leads it to the limits of knowledge. This complexity increases uncertainty and engenders new risks, further exacerbated by a major economic crisis. In addition, the business needs to implement continuous evaluation processes to offer satisfactory tourist products, ensure the availability of services rendered and the safety and security of people and property, in a legislative context that is ever more restrictive. It also seeks to ensure planning for the future from feedback on previous activity to learn from the past. But each project is specific and previously acquired experience can rarely be applied directly to the next project: products evolve, technologies and partners change, customer expectations fluctuate, and operating conditions vary.

This management in uncertainty proves to be all the more delicate a matter for the designers of tourism products in so far as risk is an eminently subjective notion that aggregates dimensions that are themselves difficult to evaluate (cf. management of the current crisis). Furthermore, the diversified perception of the players involved skews action and scrambles communication, both in-house between the designers and decision-makers, and outside the firm when it attempts to explain and justify uncertainty to its customers, partners and neighbors. Management of uncertainty on the one hand and communication on the other prove to be inseparable.

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