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Sund, Kristian J. (2008) Perceived trends and uncertainty in the hotel industry: an exploratory investigation. *Asia Pacific Management Review*, 13 (4) . pp. 747-761. ISSN 1029-3132 [Article]

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## Perceived Trends and Uncertainty in the Hotel Industry: An Exploratory Investigation

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Accepted 4 June 2008

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### Abstract

This paper describes the outcome of an exploratory study conducted on how organizations perceive environmental changes. Based on the notion of the separation of task and general environments, we proposed a conceptual framework to a convenience group of hotel managers which they used to identify changes in the external environment of their organizations. We found that organizations place a greater importance on changes in their task environment than in the more general environment. There was less agreement on the interpretation of particular trends than on the trends' existence. Next we surveyed a second group of managers on the uncertainty linked to these trends, dividing this uncertainty into state, effect and response uncertainty. We tested a number of hypotheses about the relationship between the three types of uncertainty. The results showed that these managers generally felt less state uncertainty than effect uncertainty, and less effect uncertainty than response uncertainty. In general our results lend support to the contention that the interpretative process of environmental change can be broken down into three steps, each leading to a specific and differentiable type of perceived environmental uncertainty.

*Keywords:* Strategic management, perceived environment uncertainty, organizational interpretation, task environment

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### 1. Introduction

In the past, strategic management and organization research has continually emphasized the importance of the alignment of the firm's strategy to environmental conditions. This alignment, or fit, is seen not just as a necessity for the economic performance of the firm, but perhaps also for its very survival (Miles and Snow, 1978). Fit can be the result of the organization's efforts to adapt to the changing environment (Aldrich and Martinez, 2001). It can also be the result of the environment changing in such a way that the fit between organization and environment is enhanced. The latter is referred to as environmental selection in the organizational ecology literature (Hannan and Freeman, 1977). Venkatraman (1989) provides a good overview and criticism of the concept of fit.

In order to retain its competitive advantage, the firm must constantly seek to adapt its competitive strategy to the environment (Porter, 1980), by effectively coordinating and redeploying its resources in response to environmental signals. Such adaptations require that management correctly perceive and interpret the changes taking place in the external environment of their firm. Furthermore, it requires that managers cope with uncertainty (Thompson, 1967). Environmental uncertainty has been widely discussed in the literature, yet

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relatively little research has investigated the process of environmental change identification by organizations (Milliken, 1990; Daft and Weick, 1984) and the measurement of environmental uncertainty has been the quite heterogeneous. As a result, empirical results are often difficult to compare. Whereas some individual measures have been criticized in the past (Tosi et al., 1973; Downey et al., 1975; Buchko, 1994), there have been few attempts to compare several different measures in one study.

In an exploratory effort to understand how organizations perceive environmental changes, we tested a framework of environmental trends analysis on a convenience group of ten hotel managers of four and five star hotels from five European countries. We then had a second group of fifteen managers determine the ten greatest trends in their industry and assign uncertainties to these trends. As a result of our investigation we were able to draw some indicative conclusions about environmental perception. Furthermore, in an attempt to capture the multi-dimensionality of perceived uncertainty (Milliken, 1987; Boyd and Fulk, 1996), we were able to examine the differences between three different types of uncertainty: state, effect and response uncertainty (Milliken, 1987) and to comment on the relationship between these three types of perceived environmental uncertainty.

## **2. Strategy and the environment**

From a prescriptive point of view the aim of strategic management is to deliberately choose sets of activities which will serve to create and sustain a competitive advantage (Porter, 1996). The strategic intent of the firm can be divided into two categories, or decision types (Bourgeois, 1980). The first is the domain selection, or primary strategy. The firm selects the domain in which it will compete. This choice is usually the result of a process of exploration, whereby a firm seeks out profit opportunities. The particular business opportunity which the firm eventually pursues exists within a certain area of the firm's environment. Hence, the domain selection precedes the secondary strategy, or the domain navigation strategy. Domain selection and navigation can be likened to a choice between exploration or exploitation (March, 1991), if we define the former as referring to the risk-taking involved in making adaptive strategic decisions and investments and the latter as the act of optimizing choices within the selected domain. March (1991) argues that maintaining an appropriate balance between investing scarce resources in exploration and exploitation is a vital component of a firm's performance and survival, although a consensus has not been reached among scholars over the exact nature of this balance (Cupta et al., 2006). Thus, the firm must devote the right amount of resources to both domain selection and domain navigation, to exploration and exploitation.

Conversely to these two strategic types, there can be argued to be two environments facing the firm. The first is the task environment (Dill, 1958) within which the firm navigates; the second is the more general environment within which the firm must choose a domain. In its pursuit of sustainable competitive advantage, it is imperative for the firm to constantly adapt to environmental changes. The effectiveness of the adaptive response of the firm is dependent on aligning this response with the environment (Strandholm et al., 2004). This adaptation is all the more important in a dynamic environment, since a more dynamic environment leads to more rapid environmental changes. The dynamism of the environment is one of the determinants of the level of uncertainty present (Duncan, 1972). In order to explore the dynamism of an industry, it is therefore of interest to measure perceived environmental uncertainty.

### **3. Perceived environmental uncertainty**

Measurement of environmental uncertainty has been carried out using either objective archival measures or subjective perceptual measures (Boyd et al., 1993). Whereas archival measures may eliminate some survey method problems such as non-response bias, these measures typically confront the researcher with other problems. As Boyd et al. (1993) noted, the use of historical time series tends to underweight recent changes, which would actually have the highest impact on management perceptions of the environment. Furthermore, if the researcher is interested in understanding how the manager perceives or reacts to environmental changes, then subjective perceived environmental uncertainty, rather than any objective measures may be needed (Penrose, 1959; Anderson and Paine, 1975; Hambrick and Snow, 1977; Bourgeois, 1980; Miller, 1988; Boyd et al., 1993).

Measurements of perceived environmental uncertainty have been carried out using a plethora of different instruments. Dev and Brown (1995), in their survey of the use of the uncertainty construct in marketing research studies, identified fifteen different operationalizations. The consequence of this large number of instruments is that empirical results may not be directly comparable. Furthermore, many authors have pointed out problems of both validity and reliability of the various instruments used to measure perceived environmental uncertainty constructs.

Lawrence and Lorsch (1967) used subscales to evaluate the degree of uncertainty in three different organizational areas: research, production and marketing. Tosi et al. (1973) in a separate survey found this instrument to be unreliable. A second major instrument was developed by Duncan (1972), who evaluated uncertainty along three internal and five external environmental components. These components were evaluated according to: (a) the lack of information regarding environmental factors, (b) the lack of understanding of decision outcomes and (c) the inability to assign probabilities to how environmental factors will influence performance (Duncan, 1972). He argued that there are two main dimensions to uncertainty: complexity, the number of environmental elements and the interdependence between these, and dynamism, or variability, the range of outcomes. Both the Lawrence and Lorsch (1967) and the Duncan (1972) scales have been found to lack reliability (Downey and Slocum, 1975).

Miles and Snow (1978) proposed an instrument with 22 items across six external environmental components: suppliers, competitors, customers, financial markets, government and unions. The various environmental components were equally weighted, a fact which has been criticized, since for any particular organization, at any particular point in time, the strategic importance of the various components are likely to be unequal (Daft et al., 1988). The risk is therefore that the researcher underestimates the environmental uncertainty.

More generally, the point has been made that perceived environmental uncertainty is not a uni-dimensional but a multi-dimensional construct. Thus uncertainty may not only be perceived in various sectors of the environment, but also along multiple dimensions. Milliken (1987, 1990) proposed to deconstruct environmental uncertainty into state uncertainty, effect uncertainty and response uncertainty. She suggested that what differentiates these types of uncertainty is the information perceived to be lacking for the organization's administrators. State uncertainty refers to a lack of predictability concerning environmental change. Effect uncertainty refers to the inability to assess what the impact of a future state of the environment will be on the organization. Response uncertainty refers to a lack of knowledge of response alternatives or the effects of these (Milliken, 1987).

Although Milliken's (1987) specification of a three dimensional uncertainty construct has enjoyed much attention, relatively little research has focused on the possibility of interaction or interdependence of the three types of uncertainty. In other words, what is the relationship

between state, effect and response uncertainty? Milliken (1987) herself predicted that a high degree of certainty about the future state of the environment was likely to be associated with a high effect uncertainty. In later empirical work she found a significant positive correlation between the two measures but concluded that “variance in how environmental changes are interpreted cannot be wholly attributed to differences in environmental perception” (Milliken, 1990). In the same work she found that there was no significant relationship between state and response, and between effect and response uncertainty, yet concluded that the more certain managers are that they are facing a threat; the less certain they are of how they should respond.

Gerloff et al. (1991) were able to provide relatively inconclusive evidence on the exact relationship between the three measures of uncertainty. Firstly, their measurement instrument for effect uncertainty presented a reliability problem with a Cronbach’s alpha (1951) of .16. After adapting the instrument by dropping a problematic item, this was improved to .25, which remained unsatisfactory. With the original instrument they found significant positive relationships between effect and response uncertainty, and between state and response uncertainty. After adaptation, only the positive relationship between state and response uncertainty remained significant. These results contradict somewhat with Milliken’s (1990) results.

Other studies are difficult to use for comparison purposes either because the measurement method has diverged significantly from the aforementioned studies, or because the relationships between state, effect and response uncertainty was not clearly reported. For instance, Miller and Shamsie (1999) used time series data rather than survey items to measure the three types of uncertainty, and further suggested and subsequently measured two dimensions for each measure, thus complicating any comparisons.

Doty et al.’s (2006) recent study on the differences between archival and perceived measures of the environment, provides evidence for a significant positive relationship between both state and response uncertainty as well as between effect and response uncertainty. They did not find any significant relationship between state and effect uncertainty.

Ondersteijn et al. (2006) did not report the correlations between the three measures. They did however report that they found that in the case of environmental changes in the task environment, effect uncertainty was smaller than response uncertainty. For the macro environment, this relationship was reversed. Overall perceived environmental uncertainty was found to be lower for the task environment than the macro environment. Their measurement instruments are reported to have had satisfactory reliabilities when assessed using Cronbach’s Alpha.

A clue to building a viable theory about the relationship between the three types of uncertainty may lie in the evolutionary nature of uncertainty and of the manager’s perception of environmental change. According to Daft and Weick (1984) the organization engages in three stages of environmental interaction, which are the scanning stage, the interpretation stage and the action taking stage. Gerloff et al. (1991) suggested a parallel between these stages of the interpretative process and the three types of uncertainty of Milliken (1987). According to them, managers in different contexts and situations are likely to be in different stages of the interpretative process. A manager will first scan the environment for information about a change. Once he has collected the necessary data he will analyze and interpret the information, before learning from his analysis or formulating a plan of action. During the course of his interpretation he will likely be affected by the different types of uncertainty.

Studies within several different strands have concluded that more research needs to be done to understand how organizations interpret environmental changes. For instance, the resource-based view (RBV) has been a dominant view within the strategic management literature for some time. According to the RBV, valuable and rare resources provide the basis for value creation within the organization. When these resources are inimitable and lack

substitutes, the organization is in a position to build sustainable competitive advantages (Barney, 1991). Interestingly, there has been very limited theory-building on the process of such resource accumulation and combination, or on how managers identify such resources in the environment (Priem and Butler, 2001). Furthermore, the RBV has recently come under criticism for ignoring the influence on resource management of environmental conditions and contingencies, such as dynamism (Sirmon et al., 2007). We suggest that such criticism underlines the lack of understanding and theory-building on the link between environment and interpretation.

#### 4. Hypotheses

In our study, we wished to explore a number of questions concerning environmental perception. We chose to focus our attention on one industry in one geographical area, Europe, and in what could be considered as one strategic group, the upper category 4\* and 5\*, in order to avoid too much noise in our results. As Miller (1993) noted, if the researcher is to make meaningful interpretations about the nature of environmental perception, objective environmental conditions should be held constant, so as to isolate variance in interpretation, rather than variance in environmental dimensions. Furthermore, it has been noted that it may be best to examine uncertainty in relation to specific components of the environment (Song and Montoya-Weiss, 2001). Furthermore, for our purpose, we believed it to be advantageous to limit our sample to one industry, thereby eliminating variance due to industry differences (Hrebiniak and Snow, 1980), or what some authors have referred to as context (Johns, 2006).

Although the nature of our research is exploratory, we wished to test a number of hypotheses using our data. The first hypothesis concerned in which environmental components organizations perceive the most important environmental changes to take place. As we have already noted, there has been criticism of measurement instruments of perceived environmental uncertainty that weight various environmental components equally. It seems quite natural that organizations would perceive heterogeneity in the relative importance of these components. In fact, we would expect that organizations put greater weight on changes taking place in the environmental components closer to their daily activities. This leads us to formulate a first hypothesis:

*Hypothesis 1: Organizations will tend to perceive changes in their task environment as more important than changes in the more general environment.*

A consequence of the greater focus on the task environment is that organizations are likely to feel lesser uncertainty related to changes in the task environment than to changes in the general or macro environment. We would expect this because the focus on the task environment should result in more scanning activity there, which in turn should lower the perceived uncertainty. This leads us to the second hypothesis:

*Hypothesis 2: Organizations will tend to feel lesser uncertainty regarding changes in their task environment than regarding changes in the more general environment.*

In order to gain further insight into the nature and interdependence of the various kinds of uncertainty suggested by Milliken (1987), we wanted to measure these. Milliken (1990) provided some evidence that the three types of uncertainty are differentiable. Ashill and Jobber (2001) likewise concluded that uncertainty perceptions are associated with all three types of uncertainty. This does not necessarily mean, however, that the three types may not be correlated. It does suggest that one should possibly avoid aggregating them into one perceived environmental uncertainty measure (Ashill and Jobber, 2001).

Due to the general lack of theory building already discussed, we deliberately chose not to formulate hypotheses for the relationship between the three types of uncertainty, but rather to

view our data as exploratory. Nevertheless, in the next paragraph we can formulate what we might expect to see.

We follow Gerloff et al. (1991) in their suggestion that the three types of uncertainty may vary in importance according to the particular interpretative stage in which the manager finds himself. As the manager is confronted for the first time with a given environmental change, he will feel highly uncertain about both the nature, and existence, of the particular change, as well as about the possible effects the change could have on his business. Likewise, he will not yet have established possible response opportunities. State, effect and response uncertainty will all be high. The next step for the manager will be to scan the environment for data. This will gradually lower his state uncertainty. Once enough data has been collected, the manager will interpret this data and analyze the possible effects the change will have on his business, which in turn will lower the effect uncertainty he perceives. Finally, the manager will seek possible courses of action, which will tend to lower his response uncertainty. Of course, the process may not be strictly linear, with the manager for instance engaging in more scanning as he tries to interpret his data and as he seeks a course of action. Hence there is a feedback loop involved in the process (Daft and Weick, 1984). However, this explanation of the relationship between the three types of uncertainty does seem plausible to us.

Without explicitly creating or testing a model of how organizations interpret change and the specific effects of the three types of uncertainty on this process, we can state that we believe that at any given time, and for any given environmental change, state uncertainty will be lower than or equal to effect uncertainty, which in turn will be lower than or equal to response uncertainty. Once the process of interpretation of a given environmental change has commenced, the ongoing effect will be that of gradually lowering the over-all uncertainty felt by the manager. We would expect that although the main effect of environmental scanning will be to lower state uncertainty, the interpretative process will commence almost at once, as will the learning process. Therefore we would expect there to be an effect already early in the interpretative process on all three types of uncertainty. This should lead to a positive correlation between the three types of uncertainty.

The more certain a manager feels about the changes taking place in the environment, the more likely he will feel confident about the effects as well. As he grows more certain about the effects, and progresses in his interpretation of the environmental changes he perceives, the more certain he will grow about his responses.

## **5. Method**

Using a group of managers we wished to create a three-stage process. The first stage involved identifying important environmental changes or trends for the industry in which the organizations represented were active, for every area of the environment. The second stage was to let the managers decide which trends were perceived as most important. The third stage was to evaluate state, effect and response uncertainties linked to the trends.

Several frameworks have emerged with which to analyze the firm's environment. Dill (1958) proposed to examine the four environmental components of the customers, the suppliers, the competitors and the regulators. The most common adaptation on that framework is probably Porter's (1980) five forces model, which proposes that the five forces of potential entrants, suppliers, buyers, substitutes and industry competitors shape the firm's environment and thereby the firm's adaptive responses to environmental changes. Whereas Porter's model has proved very popular with academics and practitioners alike, to some extent it lacks direct applicability for identifying environmental changes. We therefore chose to confront managers with a framework adapted from Bourgeois (1980), and largely inspired by Daft (2006). The framework, presented in figure 1, illustrates the environment of the firm as consisting of a

company-internal environment, a direct competitive environment, and a general environment. The general environment in turn consists of an industry-specific environment, and a global environment. The general environment is affected by changes related to the economy, to society, to technology, to demography, and to policy.

In a workshop setting we confronted a convenience group of ten middle and upper echelon managers from the European hospitality industry with the environmental framework discussed above and asked the managers to discuss the changes taking place at the various levels of environment. The managers all worked for the same international hotel group, a market leader, but for different brands and in various countries. The 56 trends identified by these managers as being of importance for the future survival of their respective hotels were then summarized, without trying to rank these. We ensured that each sector of the environment was represented by the trends.

Subsequently, on a separate occasion, we confronted a second, similar convenience group of 15 managers with two rounds of questionnaires. The first round served to rank the 56 environmental trends in terms of perceived importance to their businesses.

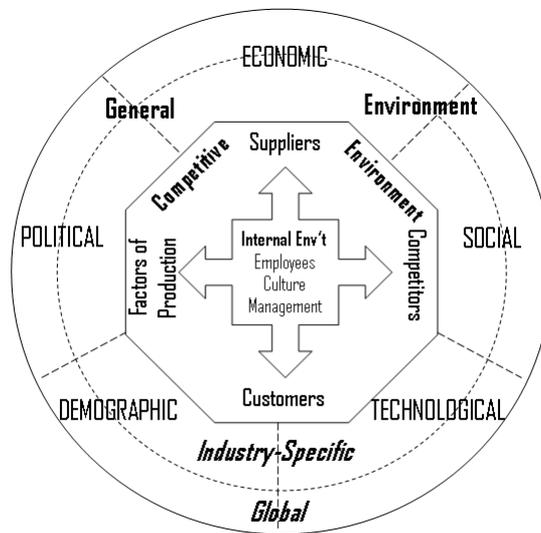


Figure 1. Environmental framework

In a second round, the 15 managers were asked to rate the uncertainty they felt concerning the ten top-ranked trends, both in terms of the trend actually taking place (state uncertainty), in terms of the effect of the trend on the respective manager's hotel (effect uncertainty), and of the way the manager should respond to the trend (response uncertainty). Whilst this method may introduce a certainty bias, since the respondents were aware that these ten trends had been identified as important by a previous group of respondents, the strength of our method lies in the fact that uncertainty was measured in relation to very specific changes and components of the environment (Song and Montoya-Weiss, 2001). The method further allows us to categorize the uncertainty by measuring the uncertainty linked to specific variables in the general environment, industry environment and task environment, as proposed by Miller (1992, 1993).

We were able to measure for ten different environmental changes, or trends, the relationship between the three types of uncertainty, giving us a total of 147 observations after elimination of three missing data points. We would expect that for each trend, the responses would vary due to individual organizational or personal characteristics, or possibly due to the manager's particular job responsibilities, but we minimized variance due to other factors, as

already noted. Thus we would expect a normal distribution around each type of uncertainty for each particular trend. A simple correlation analysis and two-sided t-tests should therefore suffice to analyze our hypotheses.

## **6. Results**

The initial workshop resulted in the identification of 56 trends covering all parts of the external environment. Two notes must be made concerning these trends. Firstly the trends are of a very general nature and whereas they do represent a consensus, during the discussions there was not a true consensus within the group of managers over what the particular strategic implications were of these trends. This suggested to us that the cognitive interpretation of a given environmental change, or trend, varies from manager to manager (Milliken, 1990). This does not mean that the strategic response would necessarily differ, nor the uncertainty, but the perception of what a particular trend will mean for the organization does.

A second important note is that the trends identified are of course perceived trends that may differ from what is actually taking place in the objective environment. This differentiation is important. Every firm has an objective external environment (as illustrated in figure 1), that places constraints and holds opportunities for the firm (Bourgeois, 1980). By using a method of interrogation of managers in the industry, what we have identified are not objective trends, but rather the perceived trends, which are manager- or organization- specific. They are, however, also the inputs of the strategic process of the hotels to which belong the interrogated managers. Therefore, as already mentioned, the perceived environmental changes as opposed to objective environmental trends are actually very relevant to the strategic process (Thompson, 1967).

In the second phase, a group of 15 managers were asked to "evaluate how important each of the trends mentioned are to your business", using a five-point Lickert scale. We subsequently ranked the trends according to the mean perceived importance, keeping the top ten trends, as listed in random order in table 1.

We found that perceived trends taking place within the task environment were viewed as more important than trends taking place in the general environment. The mean score for task environment trends was 3.8, with a standard deviation of 0.34 ( $n = 32$ ) and for general environment was 3.575 with a standard deviation of 0.48 ( $n = 24$ ). The difference was significant to the 95% level. This result is consistent with hypothesis 1. Ebrahimi (2000) found similar results in a study involving 55 Hong Kong managers from various industries.

The final exercise conducted with the group of 15 was to evaluate the uncertainty felt about the ten trends. We wished to evaluate this uncertainty in terms of state, effect and response (Milliken, 1987), and again used a five-point Lickert scale, with 1 indicating high certainty and 5 high uncertainty. We used a similar measurement method to that of Ondersteijn et al. (2006), asking the managers to estimate how certain they were of the particular trend taking place, how certain they were about how the trend would affect their business, and about how certain they were about how to respond to the particular trend. The items were presented to the respondents in a random order, not reflecting the actual ranking. This allowed us to gather a total of 147 observations, or combinations of the three types of uncertainty, after the elimination of incomplete responses.

Table 1. Top 10 trends

	Uncertainty			n
	State	Effect	Response	
<b>Competitive (task) environment</b>				
Activities are being centralized (call centers, reservations, sales, marketing, etc.)	1.8	2.2	2.4	15
Customers are more demanding and have higher expectation	2.1	2.3	2.9	
Customers are more experienced	2.0	2.4	2.5	14
Private properties join consortia, brands or chains	2.1	2.5	2.4	15
Online revenues are growing faster than offline revenues	1.8	2.1	2.2	15
RevPAR (revenue per available room) is increasing	2.4	2.6	2.5	15
<b>Industry-specific (general) environment</b>				
Increasing number of basic services are expected to be free of charge (e.g. Internet access)	1.9	2.1	2.4	14
Much higher price transparency, partly due to web technologies and better distribution channels	1.8	1.9	2.4	15
Property prices are increasing	2.2	2.5	2.5	15
<b>Global general environment</b>				
General commoditization leading to increased need for product differentiation	2.2	2.3	2.3	15

The results of the estimation of perceived uncertainty linked to the ten trends are summarized in table 1. The measures are the arithmetic means of the scores of each respondent. Due to the small sample of organizations, any interpretation of the results must be made with some caution. A first very general remark is that all responses were on the more certain side of the scale. Hence, the uncertainty felt concerning these trends was fairly low. A second remark is that the spread of responses was quite low as well. The mean state uncertainty for the ten trends was 2, with a standard deviation of 0.21, the mean effect uncertainty was 2.3 with a standard deviation of 0.21 and the mean response uncertainty was 2.4 with a standard deviation of 0.19. This could be indicative of a bias introduced by the methodology. The combination of the initial workshop and the subsequent ranking may have served to only keep those trends for which the managers felt some degree of state certainty. The very process itself could have further reduced any uncertainty felt by the managers. On the other hand, by focusing on one industry we deliberately tried to reduce any variance introduced by fundamental differences in the task environment, and may have succeeded in doing so.

An inspection of the mean uncertainties reported in table 1 does not lend any support to hypothesis 2, concerning the differences in perceived uncertainty between changes in the task and general environments. The failure of our study to gain evidence in support of hypothesis 2 is likely due to our method. As we only have uncertainty measures for the top ten trends, of which only four are taking place in the general environment, it is difficult to make any

definitive statements for or against hypothesis 2. We would have had to measure uncertainty for all the original 56 trends.

A further exploratory effort concerns the relationship between the three types of uncertainty. An initial inspection of the results in table 1 indicate that as we expected, for all trends managers perceived state uncertainty to be lower than effect uncertainty, which again was lower than response uncertainty. In order to determine if the differences are significant we used a simple two-sided t-test. In view of the small sample size we chose not to do this test for each trend individually but to do so for the complete sample of 147 observations. The results are indicated in table 2, and show that the difference between effect and state uncertainty and between response and effect uncertainty are both significantly and positively different than zero.

Table 2. Differences between means

	Test value = 0					
	t	df	Sig. (2-tailed)	Mean difference	95% confidence interval of the difference	
					Lower	Upper
Difference effect and state	3.789	146	.000	.24830	.1188	.3778
Difference response and effect	2.162	146	.032	.15646	.0134	.2995

We further examined the correlations between the three measures of uncertainty. As we have already mentioned, our literature research indicated somewhat conflicting results and interpretations in earlier studies. According to our logic we should however find positive correlations between the various uncertainties.

We first calculated the correlations between the three types of correlation for each of the ten trends, and then again for the total sample of 147 observations. The results for each individual trend are summarized in table 3, and for all observation in table 4. All three types of uncertainty were positively correlated.

Table 3. Correlations ten trends

	Correlations		
	State-effect	State-response	Effect-response
Trend 1	.768 <sup>(**)</sup>	.705 <sup>(**)</sup>	.819 <sup>(**)</sup>
Trend 2	.291	.509	.267
Trend 3	.803 <sup>(**)</sup>	.132	.252
Trend 4	.627 <sup>(*)</sup>	.228	-.009
Trend 5	.553 <sup>(*)</sup>	.713 <sup>(*)</sup>	.895 <sup>(**)</sup>
Trend 6	.788 <sup>(**)</sup>	.587 <sup>(*)</sup>	.464
Trend 7	.859 <sup>(**)</sup>	.798 <sup>(**)</sup>	.828 <sup>(**)</sup>
Trend 8	.742 <sup>(**)</sup>	.762 <sup>(**)</sup>	.939 <sup>(**)</sup>
Trend 9	.43	.566 <sup>(*)</sup>	.511
Trend 10	.731 <sup>(**)</sup>	.731 <sup>(**)</sup>	.486

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

In the case of the individual trends we found a significant correlation between state uncertainty and effect uncertainty in eight of the ten trends. State uncertainty was significantly positively correlated with response uncertainty for seven out of ten trends. Finally, effect and response uncertainties were correlated significantly for four out of ten trends.

Table 4. Correlations all observations

		State uncertainty	Effect uncertainty	Response uncertainty
State uncertainty	Pearson correlation	1	.648**	.571**
	Sig. (2-tailed)		.000	.000
	N	147	147	147
Effect uncertainty	Person correlation	.648**	1	.534**
	Sig. (2-tailed)	.000		.000
	N	147	147	147
Response uncertainty	Person correlation	.571**	.534**	1
	Sig. (2-tailed)	.000	.000	
	N	147	147	147

\*\* Correlation is significant at the 0.001 level (2-tailed)

When all observations were aggregated into one sample we found significant positive correlations between all three types of uncertainty.

Our results seem to confirm earlier results of for example Gerloff et al. (1991) or Doty et al.'s (2006) in terms of the positive correlations between the various types of uncertainty.

## 7. Discussion

The study undertaken was essentially exploratory in nature. The quantitative results presented in this paper, particularly in view of the small sample size and non-random sampling should be viewed with some caution. Furthermore, the conditions under which our study was made were very controlled, with the aim to limit the variance in the measurement of our variables. An undesired effect of our method may have been to artificially increase the certainty that the managers felt concerning the various environmental changes. Nevertheless, the findings did serve to elucidate how organizations perceive environmental change and the relationship between three types of uncertainty linked to perceived changes.

A first finding of this study was that the trends conceivably taking place within the task environment were generally ranked as more important than those in the general environment, thereby supporting what we had expected. We believe this could be the result of several situations.

The first is that objectively the task environment is truly more unstable or the trends taking place there are more significant for the businesses in this industry, than anything taking place in the general environment. We consider this possibility unlikely since the tourism and hospitality industries are in general very vulnerable to developments outside the industry, such as the general economic cycle, terrorism, travel market liberalization and so forth. We therefore tend to believe that more generally organizations focus their attention on the task environment, which they have a greater chance of influencing.

Another plausible explanation is that the hotel industry may be simply a relatively stable one. Under this situation, it could be that in this industry, organizations focus more attention on exploitation, or seeking to optimize, rather than exploration, or seeking to innovate (Strandholm et al., 2004). This focus of resources would quite naturally lead these organizations to spend more time scanning their task environments for opportunities for improvement, rather than search for external information. This would be consistent with the findings of for instance Anderson and Paine (1975). We would have had to examine the individual strategies of the organizations represented in our study in order to definitively confirm this.

A third possible interpretation of our results would be that since the managers used in this study were except for one individual, not the general managers of their respective organizations, but represented middle and top management in general, the fact that these managers are lower in their organization than CEO level could naturally lead to a more inward focus of their attention, with the external focus being the role of the CEO or general manager alone. This explanation is however shaky at best, and would go against the findings of Ireland, Hitt et al. (1987), who showed that perceived environmental uncertainty does not differ significantly between top and middle managers, only between top and lower managerial levels (Miller, 1993).

An interesting implication of our findings for researchers is that when estimating perceived environmental uncertainty using scales such as that proposed by Duncan (1972) or Miles and Snow (1978), and very commonly used in the literature, one runs the risk of underestimating uncertainty. These scales typically measure uncertainty for various sectors of the environment and weight these equally. What our findings may suggest is that various sectors of the environment may be the source of varied uncertainty and strategic importance. This confirms the remarks made by Boyd et al. (1993) and gives credibility to the measure developed by Daft et al. (1988), who chose to construct a weighted index score of the perceived strategic importance of environmental sectors.

A further important result was that the three types of uncertainty were significantly different. For all trends, the effect and response uncertainty was higher than the state uncertainty. This confirmed what we saw during workshop discussions with the first group of ten managers, where agreement was by and large reached on what was going on in the environment, but not on what the effects would be of the ongoing trends. The relatively low state uncertainty could be indicative of the environment of this industry being quite simple and stable (Milliken, 1987). Effect uncertainty was higher than state uncertainty for all trends. This should not be surprising since being certain of an environmental change taking place does not automatically lead to certainty about what the effects of the change will be. Indeed, as we hypothesized, the process of interpreting environmental change is one with different phases, each phase being affected by a different type of uncertainty (Daft and Weick, 1984; Gerloff et al., 1991). As organizations gather data about a given environmental change, the state uncertainty will lower. The interpretation of data will have the effect of lowering effect uncertainty and will lead to response strategies being formulated which will lower response uncertainty.

The positive correlations found between state, effect and response uncertainty is a further indication that the three types of perceived uncertainty are indeed related through a process of interpretation and learning. This could explain earlier findings of Milliken (1990), who in a study of 210 college administrators found a positive correlation between state and effect uncertainty. It also confirms Milliken's (1987) earlier suggestion that when there is high certainty about what the future state of the environment will be, there is likely to be higher uncertainty about what the effect will be.

Finally, our research indicates a possible implication for practitioners. Many managers may be focusing most of their attention on changes taking place in the task environment. Although this may be useful for the day-to-day running of their business, truly groundbreaking environmental changes, and longer term threats and opportunities will typically arise in the more distant general environment. It can therefore be stressed that scanning the environment in general, and outside the task environment in particular, may be wise to do.

## **8. Conclusion**

The aim of this study was to explore how organizations perceive the external environment of their organization. We wished to understand where organizations place the emphasis of their scanning activity and how they evaluate the uncertainty linked to the changes taking place in the environment.

We were able to propose a framework to aid organizations to analyze the diverse environmental changes, or trends, taking place at a number of different environmental levels. Using this framework in a workshop with ten hotel managers, we identified some of the major perceived trends in that industry. We were however not able to reach a consensus in the group concerning the implications of the perceived trends, nor were we able to necessarily evaluate the comparative importance of these. A second group of managers were asked to evaluate the 56 trends identified by the first group, and to report on the uncertainty they felt concerning these trends. We used the notion of state, effect and response uncertainty of Milliken (1987) and hypothesized on the relationship between these types of uncertainty, based on the notion that each type of uncertainty would apply more or less directly to different phases of the interpretative process of Daft and Weick (1984).

The results of our study lent support to most of our hypotheses, although the results must be viewed with some caution given the small sample size. A further limitation of the study was that the very process we used to get the data may have influenced the uncertainties reported by the participants.

Despite this study's limitations we were able to draw some conclusions about organizations' perceptions of their environment. In particular, we found that organizations tend to focus on changes taking place in their task environment, rating these to be of most importance. Furthermore, we gathered evidence that the uncertainty linked to environmental change can be separated into three types of uncertainty. These uncertainty types will take on different values with state uncertainty typically being lower than effect uncertainty, which in turn is lower than response uncertainty.

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