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Destination Management Systems -Electronic Distribution Effectiveness amongst Small and Medium-sized Enterprises in the Hotel sector

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Problem Definition

Tourism is a very information intensive activity. In few other areas of activity are the generation, gathering, processing, application and communication of information as important for day-to-day operations as they are for the tourism industry (Buhalis 1994). This information must be timely, accurate and relevant to the customer's needs. In tourism, the product is largely intangible, perishable, heterogeneous and volatile, and as such, it is the information provided to the potential tourist which is recognised as being the product (Bennett and Radburn 1991). The better the quality of this information the more likely the potential tourist will formulate a more realistic impression of the tourism product that will help to close the gap between the actual visit and the perceived visit (Horan and MacDonaill 1996). Consequently, potential tourists rely on a wealth of information before making a decision (Horan and MacDonaill 1996). Therefore, the effective marketing of tourism is becoming increasingly dependent on IT (Horan and MacDonaill 1996).

Despite the importance of the tourism industry to the global economy it is still very dispersed in its structure, comprising of many isolated groups and services. In fact, tourism is probably the ultimate dispersed industry (Archdale 1993), Tourism's relatively low degree of integration, further reinforces the fragmented nature of the tourism industry (Go 1992). The vast majority of accommodation providers worldwide are small or medium sized enterprises (SMEs). SMEs in the hospitality industry offer by definition less than 50 rooms, employ fewer than 10 people, operate in lower reaches of the market and are often situated in tertiary locations (Buhalis and Main 1998). The European hotel sector is dominated by small, family type, operations, with nearly 95% being classified as SMEs (WTO 1997). Only 30% of European hotels are affiliated to a chain, as against approximately 70% in the United States (Muqbil 1998). The importance of SMEs to the European economy can not be over emphasised.

The manner in which hospitality companies bring their product to market remains a cornerstone of any competitive strategy (Castleberry, Hempell et al. 1998). Effective distribution is especially important in the hotel sector, as accommodation is a perishable product (O'Connor 2001). A distribution channel is defined as a mechanism that provides sufficient information to the right people at the right time and in the right place to allow a purchase decision to be made and to provide a mechanism where the consumer can make a reservation and pay for the required

product (Go and Pine 1995). A distribution channel facilitates the sales of a good or service by connecting the provider to a consumer. Intermediaries may be used to facilitate this process. Simply making information available about the product is no longer enough – customers increasingly want to be able to complete the booking in a single seamless process (O'Connor and Horan 1999). In the case of the hotel product, this means finding an appropriate property, checking availability, reviewing the rates offered, completing the booking and receiving a confirmation number, all in a single session (Pusateri 1997). To achieve this, hotels use a variety of different distribution channels to sell their product, and also manipulate price in response to demand using sophisticated yield management systems in an attempt to maximise revenues.

The importance of electronic distribution routes has grown significantly in recent years (O'Connor 2002). Used properly it increases occupancy rates, improves the bottom line, opens new markets, attracts more affluent customers and lessens the dependency on more traditional and expensive channels (Starkov 2002b). Electronic distribution does not change what happens it merely changes the way in which it happens (Horan 2001). Traditional distribution channels only provide potential tourists with short and often rather limited glimpses of tourism destinations which may be inadequate to enable them to make informed decisions (Horan and MacDonaill 1996). The information-based nature of this product means that the Internet, which offers global reach and multimedia capability, is an increasingly important means of promoting and distributing tourism services (Walle 1996).

The advent and development of the Internet as a universal and interactive means of communication have shifted the traditional way tourism and travel products are distributed (Werthner and Klein 1999). The number, variety and complexity of Web distribution channels are continuing to evolve, with most companies using multiple routes to get their product to the consumer (Castleberry, Hempell et al. 1998). Many hotel chains opt for as many routes as is feasible to try to reach as big an audience as possible. This approach is referred to as the "shelf-space" approach (Figure 1). As companies expand the number of distribution channels used, they add to the complexity of their system, raising the cost of overheads and the management and technological infrastructure required (Connolly, Olsen et al. 1998). However such an approach is unlikely to be successful in the long run due both to the recent exponential growth in the number of channels available and to the fact that the use of each channel has costs associated with its adoption, management and use (O'Connor 2001). This approach is impossible from an SME's perspective as many of distribution channels are unavailable to SMEs purely because of the affiliation costs or group costs or the nature of an SME (independent) (Starkov 2002a). Furthermore, it is far more important for SME to choose the right distribution channel as they do not have the resources to choose many distribution channels. Therefore, SMEs must take a more discriminating approach and understand the merits, booking potential, opportunities and costs associated with participation in each channel both from a supply and a demand perspective.

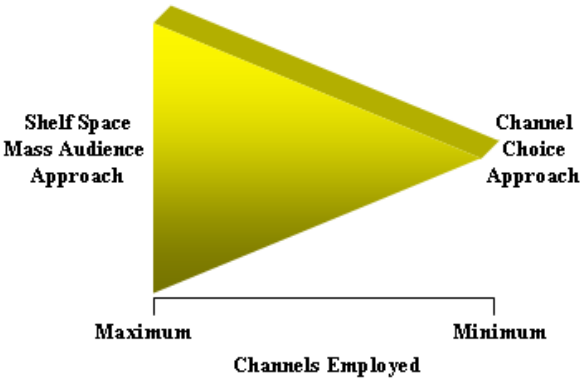


Figure 1 - Mass Audience vs. Channel Choice Approach.

Feasibility, higher flexibility, the fast diffusion of the internet as de facto standard, high acceptance and low entry costs are among the most pivotal incentives for destination agents to use the internet (Tschanz and Klein 1997). Research has shown that travel is already one of the most popular products sold over the Internet (O'Connor and Horan 1999). This year 8%-10% of all revenues in hospitality will be generated from the Internet. Four years from now the Internet will contribute 16%-18% of all hotel bookings. (Starkov 2002c). Yet, the prolific use of the Internet for tourism marketing is giving rise to many questions about its effectiveness (Sheldon 2000).

More than any other aspect of business, the Internet revolution is reshaping the concept of the value chain, and how goods and services are distributed to consumers. To grow and succeed, management at hospitality companies of any size must juggle multiple distribution channels, be they electronic or traditional, customer segments and intermediaries in their distribution of goods and services (Tschanz and Klein 1997). In addition, the high cost of distribution is now causing suppliers to reevaluate current distribution strategies (Castleberry, Hempell et al. 1998). The traditional value chain places the producer of goods at one end of the chain and the consumer on the other end, with packaging, shipping, storing and retail middlemen often connecting the two. The Internet, however, has redefined the traditional model and all of the relationships within this value chain (Figure 2). Regardless of whether the good is a product, a service or a combination of the two, the entire consumer purchasing process is undergoing re-evaluation with new business models poised to change or destroy the traditional methods of distribution (Moon and Hempell 2002). The decision as to which channel(s) to use has become increasingly complex, and hotel managers currently have few tools and little guidance to help them to determine which best match their needs (Weill 1991). This in itself is an important reason to evaluate the effectiveness of distribution channels for SMEs.

Figure 2 – "New" Model of Electronic Distribution.

Tourism suppliers, particularly SMEs, have taken advantage of the new opportunities that the web has to offer and developed Destination Management Systems (DMSs) to distribute their properties and to present the destination as a holistic entity (e.g. TISCover, VisitScotland, and Gulliver) (Buhalis and Licata 2002). These systems concentrate on the communication between local, regional and national tourist boards, exchanging product description, and marketing and statistical data (Werthner and Klein 1999). DMSs distribute a wide variety of tourism products, are generally government sponsored, and pay particular attention to representing small and independent tourism suppliers. However, with the exception of a small number of European countries the effect of DMSs has so far been minimal, as they have in general failed to evolve from their initial conception into profitable, self-sustaining commercial systems (O'Connor and Frew 2002).

However, DMS based channels are forecast to grow in importance (O'Connor 2001). The market is realising that, just as in the physical world, consumers do not want to deal with the problems of contacting multiple suppliers to compare and shop. Some, if not most, will want and will be prepared to pay for the level of service that comes from dealing with an intermediary, who will offer them advice and save them time and money (Bloch and Segev 1996).

Although there exists a common understanding about the importance of these new electronic distribution opportunities, shown by the fact that many destinations have placed their product catalogs on the internet, they still have major problems in closing the loop, beginning with the planning process and ending with the booking for private consumers (Werthner and Klein 1999). Conversion rates, or looker-to-booker ratios, in the tourism industry are generally low (O'Leary 2002). The average for the industry is about 2.7% (Graney 1999) compared to 8.4% for the whole Internet (O'Leary 2002). **The online travel industry needs to grow and mature in order to make inroads into the 97% of travel spending that is still spent in traditional channels (Levin 2002)**.

It is acknowledged that conversion rates serve as an important indicator of the travel website functionality and effectiveness (Starkov 2001). However, the importance of online travel distribution should not be evaluated based on monetary sales figures alone. The number of reservations actually originating on the Web may understate the importance of this channel. Connolly et al (1998) report on a Neilsen study that found

that while 53% of those surveyed used the Web to reach a purchase decision, only 15% of these completed the transaction online. Customers often use the web to research travel purchases, and then complete the purchase off-line (Levin, 2002). The reasons why consumers fail to complete the purchase online are complex – the complicated nature of many trips, worries about payment and security, and even the availability of appropriate facilities on travel sites to allow the customer to complete the transaction online all contribute to the attrition rate. However the power of Web distribution to influence the consumer must be considered in any assessment of its potential. For this reason, this research must evaluate the effectiveness of the DMS on SMEs both directly and indirectly from a marketing, financial, managerial, operational and technical perspective. This topic has not been researched from the perspective of the SME.

Attempting to evaluate hotel electronic channels of distribution is both complex and multifaceted. Channel management for hospitality managers requires more than simply understanding the value chain and managing the players (Castleberry, Hempell et al. 1998). Different types of hotels benefit in different ways from various distribution channels and not all systems work as effectively for all types of properties (Bush 2000). Hospitality managers, therefore, need to develop business measurements that effectively represent electronic distribution, determining the health and profitability of each available channel. With billions of euros being poured into Internet distribution each year, determining the effectiveness of a distribution channel makes clear business sense. Therefore, as with any other asset, investment in the use of a distribution channel must be justified (Griffin 1997). Each route to the customer must be assessed and evaluated as to its value to the company (Olsen and Zhoa 1997). In fact, such channel management is the backbone of distribution and that every organisation must take the time to evaluate their current systems and organise a cohesive plan for improvements (Lewis, Chambers et al. 1995). However, at present there is little agreement as to how such evaluations should be conducted and no commonly accepted range of techniques available to help SMEs with their channel evaluation and assessment decisions (O'Connor 2001). Evaluating a distribution channel can make the difference between the company being effective, in existence or extinct. Therefore, this research aims to deal with constructing a comprehensive set of criteria to evaluate the effectiveness of DMSs to SMEs in the hospitality industry.

Research Questions

The **Aims** of this research are:

- To evaluate electronic channel-choice strategies and outcomes amongst hotel SMEs,
- To construct a methodology and generate a set of metrics for evaluating the DMS electronic channel,
- To model and validate DMS metrics against peer systems and client assessment.

The **Objectives** of this research are:

- Identify both expert and (SME) client views on channel effectiveness criteria,
- Assess the DMS against these weighted criteria,
- Generate guest volume, value and transactional metrics through log file analysis of the DMS,

- Elicit SME data on guest volumes, values and sources,
- Derive a channel-assessment model relating server and client data,
- Validate this model through server and client iteration and through a parallel study in another destination.

Methodology

The methodology is essentially a multi-method approach comprising four inter-connected tiers (Figure 3). The difference between the qualitative and quantitative approaches lies in the nature of data collected and the way in which this data is analysis. It is now widely accepted that the two approaches complement one another (Veal 1997). Furthermore, it is quite common for large scale quantitative research to be planned on the basis of prior, exploratory, qualitative studies (Peterson 1994).

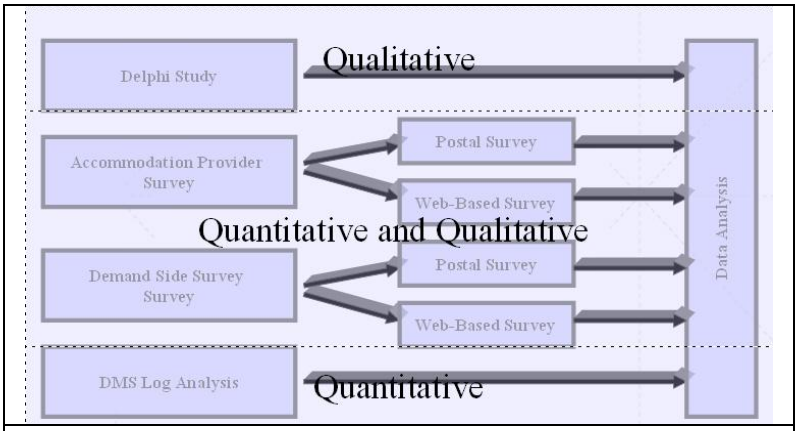


Figure 3 - Methodology.

The first tier is concerned with qualitative research conducted using a Delphi study alongside server and client survey work to generate, validate and prioritise a portfolio of weighted criteria that could be used to evaluate the general effectiveness of a DMS as a channel of distribution for hotel SMEs. This assessment looks at client and server perspectives but not consumer perspective on effectiveness – this is being studied elsewhere by the International Federation of IT in Travel and Tourism (IFITT) in association with the World Tourism Organisation (WTO). The data generated from the Delphi study will be analysed with the use of qualitative data analysis software tools. The results obtained from the first tier will be used in order to help in designing the questionnaire for the accommodation provider survey, tier two, and the demand side survey, tier three.

The second tier of the methodology will deal with a mainly quantitative survey which will be conducted amongst SMEs to assess agreement with the range of evaluation criteria generated from the initial qualitative work and to evaluate the effectiveness of a DMS from an accommodation provider's perspective.

The third tier deals with a demand side survey that is mainly quantitative in nature. This survey examines the effectiveness of the DMS from the customer's perspective. The results obtained from this tier must be extremely specific in nature in order to facilitate triangulation with the data elicited from the other tiers. The data capture during this phase two and three of the methodology will be analysed with the use of

SPSS, a quantitative analysis package. Taken together these stages offer a means of assessing both the perceived effectiveness from both client and server sides and thus provides the foundation for relating this to the quantitative data generated through the final tier.

The fourth, and final, tier will be based upon an in-depth examination of the DMS based website activity through consolidation and re-treatment of their server log files. The e-metric evaluation will deliver a multidimensional view of the key factors that shape destination website effectiveness. Web analytics investigates the entire population of a website (the total number of visitors) and their behaviour on that website and not just a limited sample of visitors. It's an unvarnished, unedited view of site traffic patterns. The web analytics involved in this stage of the process include an in-depth analysis of the website at both a macro and micro level. Macro level metrics provide us with information about what is happening on a website generally but micro levels metrics go far deeper and provide us with information that is more useful and actionable from a business' perspective. By using this technique, both businesses and stakeholders can utilise a common set of quantifiable metrics to understand how these dimensions contribute to the overall effectiveness of the website, ensure proper alignment with business objectives and continuously improve the effectiveness of the Internet channel. This analysis will be conducted using commercial tools, such as Webtrends – a log analysis package, and additional tools that will have to be developed to allow direct comparison of this log analysis data for each SME with the data extracted from the accommodation provider survey for that particular SME. The derived methodology and proposed metrics will be validated through the triangulation of the results from each of the four tiers of the process.

Completion Stages

The beginning of April 2004 heralded the commencement of the primary research. Prior to this the work concentrated primarily on secondary research that concerned itself with analysing the criteria involved in the evaluation of distribution channels, in general, and in DMSs, in particular, to try to reach a point from which to embark on the primary research. The project timeline for the research is illustrated in Figure 4. The primary research began by focusing on tier one, the Delphi study. The reason for this was simple because the results obtained from the first tier will be helpful in designing the questionnaires for the accommodation provider survey, tier two, and the demand side survey, tier three. The results of the Delphi study will also be absolutely imperative for weighting the criteria in the e-metric evaluation of the DMS, tier four. There are four phases to the Delphi study, outlined below, and at present the panel selection phase has been completed and the researcher is about to embark on construction and piloting of Round 1 of the Delphi study.

Panel Selection - Phase one has begun by identifying a panel of experts to include in the Delphi study. This panel comprises of people who have delivered three or more presentations at international conferences or written three or more papers in refereed journals (or a combination of both) on topics related to this research over a 48 month period (1st January 2001 – 31st December 2004).

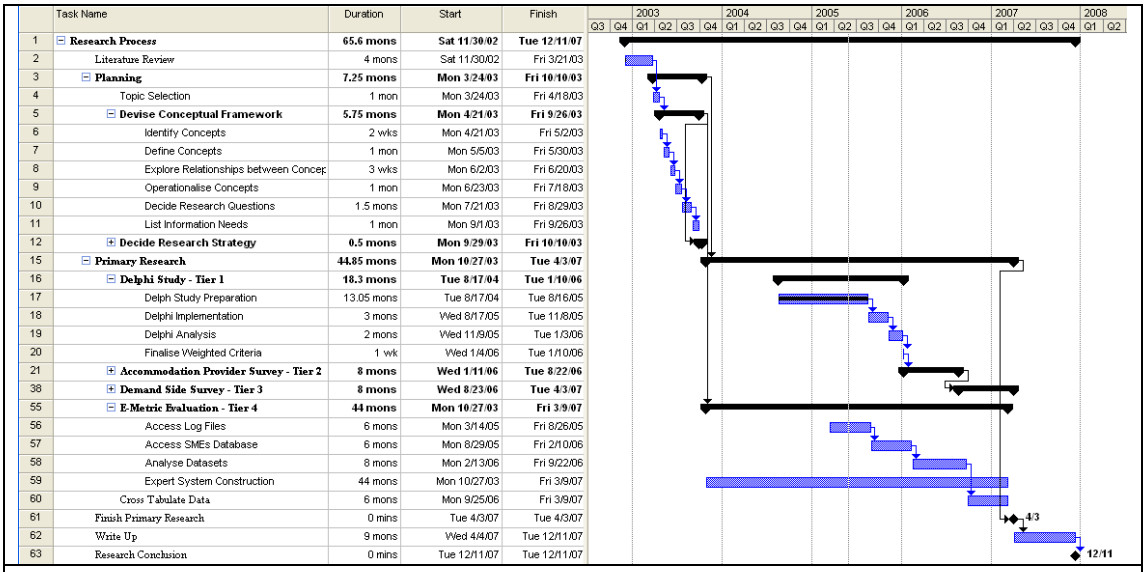
The Delphi Study - Round 1 - Ultimately, website effectiveness depends on how well your site performs with respect to your business goals. Measuring actual results

against those goals tells you how well your site is succeeding (Kyle 2003). It is that simple. **For this reason we are employing the Delphi study to attempt to identify the business goals of a DMS. How.** With raw click stream data (page hits, number of site visitors, or even numbers of page views), analytic efforts are directed at finding meaning in a wealth of pre-existing data. A business e-metrics approach turns this process on its head and instead requires efforts to be focused upfront, beginning with explicitly defining the business' key events and processes on the Web. Once these events and processes have been identified, appropriate measures are decided upon. These measures are then fed back to specifically address the original goals of the business. Thus, the focus of business e-metrics is on measuring the key events that define business goals. Therefore, defining the goals of the business is not only important they are imperative to the entire process. Furthermore, many of the problems that transpire when dealing with measurement systems and technologies are due to the lack of transparency in the measurement system used and the inconsistencies in the use of terminology employed (IIA 2002). Therefore, in an attempt to combat these issues the aims of the initial round of the Delphi study will be, firstly to set the parameters of the e-metric evaluation of destination websites and secondly, to come to a consensus with regards to appropriate definitions for the terms within this environment.

The Delphi Study - Round 2 - Measurement and analysis of on-line events and processes are critical to a business' success. You can not manage what you do not measure (Riggins, 2001). The corollary to this is: Don't blindly measure everything possible in hopes that you will find something in the mass of data that will prove to be valuable. Focusing on measuring what matters to your business is smart business and is cost effective. Furthermore, improving the effectiveness of a website not only lies with measuring the results themselves but in also measuring, understanding, and adjusting the events that lead to those results (Kyle 2003). For this reason it is vital to not only measure the macro events but also measure the micro events that come together to form those macro events. Improving effectiveness is not only about conversion or sales or return on investment, there are other factors to consider such as improving customer relationships, influencing off-line sales, brand building or company growth potential. Therefore, the second round of the Delphi study will deal with compiling a comprehensive set of criteria to measure DMS website effectiveness from an hotel SME's perspective.

The Delphi Study - Round 3 - Once the measurement criteria are identified during round two of the Delphi study the next logical stage is to weight these criteria. This will be attempted during the third round of the Delphi study. After spending a healthy amount of time identifying and weighting these criteria, the next logical step is to spend a healthier amount of time determining which metrics will measure these criteria effectively (Sterne 2003). Which metrics signal whether you are moving closer to your goals or further away? If the main goal is More Visitors, then a clear definition of how visitors are counted is necessary (cookies? logins? javascript?). If the main goal is revenue, then you'll need to identify the factors that make up the process of getting from awareness to interest to sale. If customer satisfaction is in the mix, then one must agree on the methods used to gather satisfaction data and how to weight it. These metrics can only be decided upon once the Delphi study has identified the measurement criteria and weighted them. The interesting part of the process only comes when an organisation realises that web analytics can actually

drive website effectiveness and not just monitor it. What is important at this stage is to remember that Web analytics has the potential to play a key role in improving the online customer experience - but only when the vast amounts of data they provide can be made truly actionable. The real question should not be "how did we do?" but instead "what does that mean to our business?" and "what do we do next?" (Burby 2004).



	Task Name	Duration	Start	Finish
1	**Research Process**	**65.6 mons**	**Sat 11/30/02**	**Tue 12/11/07**
2	Literature Review	4 mons	Sat 11/30/02	Fri 3/21/03
3	**Planning**	**7.25 mons**	**Mon 3/24/03**	**Fri 10/10/03**
4	Topic Selection	1 mon	Mon 3/24/03	Fri 4/18/03
5	**Devise Conceptual Framework**	**5.75 mons**	**Mon 4/21/03**	**Fri 9/26/03**
6	Identify Concepts	2 wks	Mon 4/21/03	Fri 5/2/03
7	Define Concepts	1 mon	Mon 5/5/03	Fri 5/30/03
8	Explore Relationships between Concep	3 wks	Mon 6/2/03	Fri 6/20/03
9	Operationalise Concepts	1 mon	Mon 6/23/03	Fri 7/18/03
10	Decide Research Questions	1.5 mons	Mon 7/21/03	Fri 8/29/03
11	List Information Needs	1 mon	Mon 9/1/03	Fri 9/26/03
12	**Decide Research Strategy**	**0.5 mons**	**Mon 9/29/03**	**Fri 10/10/03**
15	**Primary Research**	**44.85 mons**	**Mon 10/27/03**	**Tue 4/3/07**
16	**Delphi Study - Tier 1**	**18.3 mons**	**Tue 8/17/04**	**Tue 1/10/06**
17	Delph Study Preparation	13.05 mons	Tue 8/17/04	Tue 8/16/05
18	Delphi Implementation	3 mons	Wed 8/17/05	Tue 11/8/05
19	Delphi Analysis	2 mons	Wed 11/9/05	Tue 1/3/06
20	Finalise Weighted Criteria	1 wk	Wed 1/4/06	Tue 1/10/06
21	**Accommodation Provider Survey - Tier 2**	**8 mons**	**Wed 1/11/06**	**Tue 8/22/06**
38	**Demand Side Survey - Tier 3**	**8 mons**	**Wed 8/23/06**	**Tue 4/3/07**
55	**E-Metric Evaluation - Tier 4**	**44 mons**	**Mon 10/27/03**	**Fri 3/9/07**
56	Access Log Files	6 mons	Mon 3/14/05	Fri 8/26/05
57	Access SMEs Database	6 mons	Mon 8/29/05	Fri 2/10/06
58	Analyse Datasets	8 mons	Mon 2/13/06	Fri 9/22/06
59	Expert System Construction	44 mons	Mon 10/27/03	Fri 3/9/07
60	Cross Tabulate Data	6 mons	Mon 9/25/06	Fri 3/9/07
61	Finish Primary Research	0 mins	Tue 4/3/07	Tue 4/3/07
62	Write Up	9 mons	Wed 4/4/07	Tue 12/11/07
63	Research Conclusion	0 mins	Tue 12/11/07	Tue 12/11/07

Figure 4 – Project Timeline - Gantt Chart.

In addition to the work being conducted on tier one, the research team has been concentrating on obtaining access to the data required for the remaining three tiers. As a consequence of some prior research conducted with VisitScotland, and using the contacts made during this research phase, attempts were made to gain commitment from the Scottish Tourism Board (STB) and VisitScotland.com to have access to the required resources to conduct a high level e-metric evaluation of their DMS, VisitScotland.com. Resulting from several meetings held with VisitScotland.com in January and February 2005 access has been provisionally granted to the required resources to enable our research to progress using VisitScotland.com pending the signing of a confidentiality agreement.

Finally, work is being conducted on a continuous basis since September 2003 to construct the expert system that contains the individual e-metrics to measure the effectiveness of the DMS. This work constitutes compiling a comprehensive set of actionable metrics into a framework that can be adapted later depending on the outcomes of the other three tiers.

Anticipated Results

The intention of this research is to provide:

- An in-depth analysis of the effectiveness of two core DMS based websites to their perspective areas and the calculation of the indirect conversion ratio once the corresponding server log file activity are analysed.
- A robust and tested methodology for both Indirect and Direct conversion ratios.

- A comprehensive weighted set of criteria for evaluating the effectiveness of a DMS.
- An expert system that will help SMEs in the evaluation and management of their distribution channels and DMS in particular.
- Recommendations on how to improve the effectiveness of a DMS.

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