

Title: Performance Measures of Net-Enabled Hypercompetitive Industries: The Case of Tourism

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Abstract: This paper investigates the theory and practise of e-metrics. It examines the tourism sector as one of the most successful sectors on-line and identifies best practice in the industry. Qualitative research with top e-Marketing executives demonstrates the usage and satisfaction levels from current e-metrics deployment, selection of e-metrics for ROI calculation as well as intention of new e-metrics implementation and future trends and developments. This paper concludes that tourism organizations gradually realise the value of e-measurement and are willing to implement e-metrics to enable them evaluate the effectiveness of their planning processes and assess their results against their short and the long term objectives.

Keywords: Web Analytics; e-Metrics, ROI, Tourism, performance measurement.

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1. Introduction

As the entire business world is moving to on-line solutions and e-commerce there is a growing interest in web analytics and e-metrics [3]. E-metrics represent a suite of instruments that powerfully transform data delivered by IT departments into intelligence providing a range of benefits for organizations [21]. According to a 2007 Forrester research, companies tend to allocate greater percentage of their budgets on e-metrics every year, indicating users intention to maximize value from existing tools and move up the maturity continuum [15]^[13].

E-metrics deployment can optimize on-line performance and also indicate further investment opportunities providing a more precise estimation of a company's Return On Investment (**ROI**). Hence, ROI is better calculated and predicted whilst unprofitable elements of on-line business can be identified and addressed accordingly. The feedback and insights gained regarding on-line campaigns, enable organizations to compare and integrate on- and off- line marketing results, and make decisions upon the desirable marketing mix that maximizes revenue for the company [55]. Finally, the refresh rate of on-line content can be determined, minimizing websites maintenance cost in terms of time and money.

E-metrics also assist organizations around the world to fine-tune their traditional business models. E-metrics can identify which channels and business partners generate traffic and profitability. Partners that add value to the distribution chain can be supported and sustained, while others can be managed or eliminated. In this sense e-metrics support Business Process Reengineering (BPR) by enabling organizations to redesign their processes to be able to fit into the new customer-centric era and to achieve the required level of personalization and customization profitably. By doing so they are supporting them to gain and maintain competitive advantage and survive in the on-line realm [52]. Additionally, e-metrics are also perceived as a useful forecasting tool. The organizational and technical infrastructure of the company can be modified and improved, as potential demands can be predicted in advance, ensuring scalability. By tracking on-line customer life cycle, organizations can turn prospects into converted customers and forecast their lifetime value.

The tourism industry has long utilized electronic distribution systems to provide relevant information to the customer to facilitate a purchase decision, and is heavily affected by the development of electronic commerce; particularly in the way it distributes tourism products in the marketplace [49]. Tourism organizations, including tour operators, hotels and airlines, are between the pioneers in Internet adoption and e-commerce activity [12]. This paper explores the e-metrics evolution and elaborates their deployment within the context of the tourism industry, as one of the fastest growing sectors on-line [43]. It also aims to identify which e-metrics are used for ROI calculation, examine the level of satisfaction from current e-metrics practices as well as investigate future intentions regarding e-metrics deployment.

2. Theoretical Background

2.1 The Area of Performance Measurement

The utilisation of relevant metrics is considered key for accurate performance measurement [33]. Measuring performance assists organizations to improve tactical and strategic decision making, as it demonstrates the effectiveness of planning and

operational strategies and processes. Therefore, measuring performance enables organizations to evaluate results according to company's short term objectives as well as the long term strategic goals [28].

Metrics are used for both individual and comparative performance measurement. Companies need to assess their own performance in order to assure that the results comply with both short term objectives and long term goals. This way the overall business strategy can be evaluated, validated or redesigned in case there is no alignment between results and objectives. Therefore, specific metrics are utilised in order to measure effectiveness of results in relation to the goals set initially. Comparative assessment utilises metrics that relate to industry benchmarks in order to indicate a company's relative position and competitiveness [29] within its respective industry.

Performance measurement today becomes more complicated because business processes and activities for e-commerce are dramatically different from the traditional brick- and mortars due to the characteristic infrastructure of the internet economy [61]. Hence, performance measurement frameworks vary considerably among "brick and mortars", "net-enhanced" and "net-enabled" organisations [60]. Net-enabled businesses in particular, need to enhance the traditional performance measurement frameworks with additional metrics in order to capture and reflect the context of the on-line environment where business is conducted [60]. The remaining question then becomes what specific constructs and metrics are suitable to explain and effectively measure performance in the net environment? [61]

There have been some attempts to measure on-line performance by applying frameworks from disciplines like Marketing and Management [5, 22, 31] and Management Information System (MIS) [25, 34, 40, 42, 46, 47, 48]. Still, it is only recently that more comprehensive and holistic performance measurement frameworks, which specifically take into account and address on-line activities, have evolved.

One of the earlier frameworks to measure on-line performance was the DeLone and McLean [24] model, which had a strong IS focus. This framework was revisited by the authors 12 years later in 2004 to update and enhance one of the constructs (net benefits) and also to add "service quality" as a critical parameter for performance measurement. Thus, the new framework had gained a marketing perspective and was also more tailored towards the e-business environment.

NEBIC theory also examines how net-enabled organisations add value to the customer [69]. This theory assumes that emerging technologies, economic opportunities, business innovation need to be coordinated and optimised to deliver value to the customer. It is claimed that in order to perform a comprehensive assessment a combination of financial, perceptual and behavioural measures is required.

Performance measurement in e-business environment has also been viewed under the Balanced Scorecard prism when taking into account external factors within the e-business context. [11]. Clearly influenced by the NEBIC theory, this framework points out that constant change in e-business environment means continually evolving strategies new products and new technologies to adopt. It is also indicated that in collaborative environments an important component of an information system is the reporting of performance metrics.

Performance measurement has also been studied within the context of website usability and design [50]. Considering Marketing, IS and Media literature, the construct of website

success appears to consist of three variables, namely: frequency of use, likelihood of return, and user satisfaction. What becomes evident is that the set of metrics that derived from that piece of research will probably not be sufficient for any type of website, hence new metrics and evaluation frameworks need to be developed.

A brief review of the literature results in a twofold outcome. First, there is a convergence of various domain theories but primarily between IS and Marketing literature. Constructs from both areas are considered essential in order to better conceptualise performance measurement of net-enabled businesses. Secondly, the exploitation of many bodies of literature from the relatively limited research efforts that have taken place in this area, indicate that there is no dominating performance framework. Hence, the performance measurement framework used in the net environment is highly variant and dependant on the type of organisation and industry.

For instance, hypercompetitive industries are characterised by fast technological changes, relative ease of entry and exit by rivals, unclear consumer demands and brief periods of competitive advantage [9]. The intensity of competition in such industries requires the fast and timely delivery of innovative solutions and digital networks can cater for, enable and enhance this process. Tourism as a hypercompetitive industry was one of the first adopters of the Internet revolution, and today the vast majority of tourism enterprises have highly digitalised their business processes. This paper investigates the performance measurement frameworks and the relative e-metrics deployed within a hypercompetitive and highly digitalised industry; Tourism.

2.2 The Evolution of e-Metrics

Metrics are dynamic as they change overtime according to the business environment they are meant to serve. For instance, in the early days, it was production efficiency metrics required from manufacturers [72], while a few decades later it was satisfaction metrics required from service economies [60]. With the development of e-commerce a new suite of e-metrics emerged as an evolution of traditional metrics to measure on-line performance and assist the management of organizations [48].

E-metrics are occasionally referenced in academic literature and there is a large number of businesses actively involved, but still there is no widely accepted definition established. Although organizations such as the Joined Industry Committee for Web Standards in the UK and Ireland (JICWEBS), the ABC ELECTRONIC (auditor), the American National Information Standards Organization (NISO), and the Web Analytics Association, have attempted to define the concept they have failed to provide widely agreed definition [1, 2, 62, 66]. From the many different definitions existing on the web, authors regard that the one that better encapsulates the essence of e-metrics is the following: “E-metrics are performance criteria which measure what the success of internet sites (internal and external) and e-business and e-commerce in practical sense is. There are marketing, financial and technical criteria or variables. These three can be interconnected.”[30]. Hence, e-metrics and web analytics are standards of measurement and have effectively the same meaning. The only differentiation is that the different terms are most often used by the academia and the industry respectively [8]. For the purpose of this paper the terms e-metrics and web analytics will be used interchangeably.

Traditionally, performance metrics have been associated with financial metrics such as Monetary Value, Net Profit and Return on Investment (ROI). However, with the

increased focus on capturing the on-line market, converting lookers into buyers and other non-financial metrics are now perceived as equally or even more important. This is confirmed by the considerable increase in their deployment [35]. For instance, customer lifecycle metrics have been found to be leading indicators of customer purchase behaviour [36] though very few companies collect and measure such information systematically [28]. As several indicators such as “downtime” is critical organizations on-line, performance evaluation also needs to be undertaken more often and in shorter periods of time, and therefore the need for real time data is immense [65].

The basic web metrics utilised at the initial stages of internet adoption, such as hits, visitors and page views were soon found to be inaccurate and inadequate performance measures [13, 38, 57]. Traffic measures are not exceptionally important in the overall on-line performance measurement framework. The focus has gradually moved from traffic to other measures such as customer lifecycle and consumer behaviour e-metrics. This enabled organizations to measure the actual value of the customer to the organization. They also examine behavioural patterns that can be indicative of purchasing habits, and in this context e-metrics have been developed based on customers rather on organizations [53]. E-metrics measure performance against the tactical, operational and strategic goals of the company, and optimise it when combinations of multiple e-metrics are deployed [26, 68]. The information provided by off-line and e-metrics can lead to an optimised framework to accurately evaluate the organizational overall performance and to focus and improve critical success factors.

However, the range of available metrics that can be applied on the digital era is vast. A 2005 study reviewing past twelve years of literature on web metrics resulted in a classification of 385 theoretically and / or empirically validated e-metrics [16].

2.3 Research Framework

E-metrics being a set of “technology tools” that assist performance measurement, they can be considered as a new technology. To understand this phenomenon within the specific context of the hypercompetitive tourism industry, it is essential to examine the factors affecting its use and acceptance, as well as to predict future behaviour. Satisfaction theory and intentional models like TRA and TAM from IS literature are deployed to provide the essential constructs whose elaboration will provide an overall picture of the situation in the area. In particular:

Responsibility and accountability for monitoring emerging technologies is considered important because it clarifies the boundaries of departmental tasks to avoid confusion [69]. It is common practice in the industry that IT departments use e-metrics to deliver the measurement data, while the marketing departments turn the data into meaningful information. However, there is often a miscommunication between departments and that is due to lack of concise responsibility and accountability for the operational use and management of the resulting information [20]. In this research the aim is to identify the responsible department within tourism organisations that uses e-metrics and handles the performance data.

Return on investment (ROI) is a traditional financial metric used for many years that now can also assist in assessing the value of e-businesses [7]. Many organizations have been investing heavily on building their e-commerce applications and technology [41].

However, after the economic meltdown that followed the internet “bubble burst” in 2000, organisations seemed unwilling to re-invest in technology [21]. Although IT investments per se, cannot provide a sustainable competitive advantage [18, 54, 56] they are regarded as a strategic necessity [6, 19]. The focus of this paper is to examine the e-metrics used by tourism companies to calculate their ROI.

Satisfaction is an often used construct in the IS literature to measure system success [23, 25, 27, 45, 50, 59]. Lately research is increasingly focusing on satisfaction from web portals [70], and commercial websites [73]. Organisations can be regarded as consumers of e-metrics and customer attitudes are important for e-commerce success [44]. In this paper the satisfaction of tourism organisations from including and using e-metrics in their performance measurement framework is examined.

Intention to implement new / different sets of e-metrics is also investigated in this paper. Intention to use new technology has been extensively investigated in the IS literature under the Technology Acceptance Model (TAM) and its variations [39, 63, 64], which in fact derives from a psychology literature framework, the Theory of Reasoned Action (TRA) [4]. Evidence from the industry indicates that some organisations using e-metrics solutions are dissatisfied and are willing to make significant changes [14]. In this paper this behavioural construct is examined in terms of tourism organisations changing the e-metrics they currently use, to implement new/different e-metrics to optimise their performance measurement framework.

4. Research Methodology

This study focused on an investigation of issues relative to current practices regarding e-metrics within the specific context of the tourism industry. In particular, it aims to identify:

- Which department is responsible for on- line measurement (i.e. IT department, Marketing Department, etc.) and level of familiarity with e-metrics terminology
- The levels of usage of e-metrics and their perceived importance
- Which e-metrics are used in the calculation process of online ROI
- Managers’ overall satisfaction with the currently used metrics and reasons behind it
- Intentions for further improvements of e-metrics implementation and usage
- Future trends and developments

This study is an exploratory investigation, as there is no sufficient knowledge on the specific area. The qualitative approach provided the essential information to analyse how e-businesses utilise e-metrics and why [32]. The tourism industry was selected as one of the pioneers in deploying and developing e-commerce applications. In order to satisfy the objectives of this research, a number of telephone interviews with the tourism industry as well as e-metrics vendors and consultants took place, in one month’s timeframe from June to July 2002, in Europe. To refine the interview framework, vendors and consultants were contacted initially to clarify e-metrics concepts. This enabled the researchers to acquire access to considerable expertise and formulate a semi-structured questionnaire, entailing the main points of discussion for the interviews.

Qualitative data was gathered through sixteen in-depth telephone interviews conducted with top level performance measurement experts, travel professionals and e-business managers. As illustrated in Table 1, the initial targeted sample size was 51, which included 21 measurement companies, 10 specialist e-metric consultancies and 20 major

tourism companies with well established e-commerce departments. Consultancies and measurement companies were included in the target sample due to their knowledge and expertise in the field of e-performance measurement. With respect to the tourism target sample, 5 companies were chosen from four tourism sectors namely: hotels, airlines, car-rentals, and e-mediaries. The selection criteria were to operate e-commerce platforms and established brands that handle big volumes of traffic and transactions. The final responses consisted of 16 e-business managers (9 from tourism organizations and 7 from e-measurement and consulting companies) providing a response rate of 31.3%, as illustrated on table 1.

Table 1: Number of In-depth Interviews by Category of Participants

The study utilised a pilot questionnaire that was finalised only after executives from measurement companies, as experts in the field, were interviewed [51]. The pilot study in this case aimed to refine and establish an interview framework by validating e-metrics definitions and providing the set of e-metrics that are most commonly used by their clients, the tourism industry [17, 71].

As noted in the literature, for a holistic performance measurement framework the simultaneous use of financial, behavioural and perceptual measures is required. A combination of these indicators is essential because financial indicators provide useful information regarding the past, but cannot predict customer actions or explain the thought processes involved. Behavioural measures project the decision processes behind current actions and indicate what customers actually value or use. Perceptual measures can assess customer's beliefs, attitudes and intentions and therefore provide insights into future behaviour. The value of perceptual measures is also reflected in the much referenced Balanced Scorecard approach [37]. With this in mind, the final version of the questionnaire was developed containing twenty five (25) e-metrics divided into three slightly altered categories to better reflect the industry needs; namely: Customer Life Cycle (CLC), Consumer Behaviour (CONB) and Marketing as demonstrated in table 2. It needs to be noted though that the three categories contain financial, marketing and technical variables as stated in the e-metrics definition.

Table 2: e-Metrics Definitions by Category

A draft semi-structured questionnaire was sent to the interviewees via e-mail in advance. Interviews were conducted over the phone to maximise number of responses in a limited time period. All conversations were recorded in order assist the note taking process. Content analysis was used as the most appropriate technique for coding the discussion and comments made [10,67].

Tourism respondents were asked to elaborate of e-metrics usage and importance, and their satisfaction levels with their current use of e-metrics. Interviewees were encouraged to discuss their answers and to provide justification for their choices. The interviewees focused on whether and how they apply e-metrics in correlation to on-line ROI, which department bears the responsibility of e-performance measurement, as well as their perceptions for future improvements. Respondents revealed their expectations of e-metrics and the perceived limitations and concerns they had.

4. Findings

Usage Levels Perceived Importance

Overview

All interviewees emphasised the importance and illustrated the usage of e-metrics. They explained that as e-commerce is increasingly becoming mainstream, decision makers need to have substantial tools to assess the effectiveness of technological solutions and to evaluate marketing initiatives, presentations and campaign objectives. Table 3 illustrates the usage levels per category when calculating the three e-metric groups as one variable.

Table 3: Comparative Usage by Metrics Category

A significant difference in the customer life cycle ($p=0.032$) and in the marketing group ($p=0.007$) is noted. According to the three e-metrics categories, most of customer life cycle and marketing e-metrics are being used extensively, while customer behaviour e-metrics are less popular. The reason for this lies within the fact that customer life cycle and marketing e-metrics are similar in the offline world, so marketers are keen to use the tools that are more acquainted with. However, this is not the case with customer behaviour e-metrics as not only they do not appear in the off-line world but they are also more advanced in terms of measuring individual customer behaviour. Interviewees suggested that only basic e-metrics are being utilised. Figure 1 demonstrates the perceived importance of e-metrics categories on a one to five measurement scale.

Figure 1: Importance of E-Metrics Categories

It is interesting that the CLC e-metrics category that is the least used one (Table3) is rated as most important (Fig.1). Consumer behaviour category remains moderate and marketing category e-metrics seem to be less valued but mostly used.

In detail

While the examination of usage and perceived importance of the three e-metrics categories provide an overview at an aggregate level, the Table 4 provides the usage of each one of the e-metrics

Table 4: Usage of E-Metrics

Tourism respondents seemed quite familiar with some of the CLC e-metrics because they are not purely Internet related. In particular, the top 5 places in usage are occupied by metrics that have been used for long as off-line metrics. The more sophisticated and web focused the e-metrics become, the more unaware and reserved tourism companies turn out to be. With regards to the User Behaviour category, RFM analysis is extensively employed because it is also an off-line media metric. Duration is also used widely as it is a basic e-metric that does not involve any great concept or calculation method. Tourism respondents explained that the longer someone stays on a website, the more likely is to see something that will make him purchase something. However, high scores for visitor duration can also result from inefficient and ineffective design [26]. For the rest of e-metrics that are more advanced, opinions and usage vary (Table 4). Tourism companies seem unaware of the potential benefits the employment of these e-metrics; and therefore do not use them yet. Within the marketing category, finance measures overwhelm the technical measures that are at the bottom of the list. Cost of conversion and cost of acquisition are both extensively used as they are key to successful business models. Interviewees suggested that they constantly monitor those e-metrics as they are critical for their growth and success. What is remarkable is that from the more sophisticated e-metrics, only OSP is popular among the tourism sector group.

The importance interviewees place on each e-metric specifically, is demonstrated in figures 2, 3 and 4

Figure 2: Importance of CLC E-Metrics

Figure 3: Importance of User Behaviour E-Metrics

Figure 4: Importance of Marketing E-Metrics

Within the CLC category, conversion from lookers to bookers was naturally the most significant measure. This category as tourism organisations are primarily preoccupied by cashing on people who access their website. They are keen to ensure that more people of those entering their “virtual door” transact on their website rather than just using their on-line resources for shopping around. Of significance also are retention and loyalty as the majority of the interviewees explained that is much more expensive and difficult to recruit new customers than maintain and support existing ones. They illustrated that if consumers have one or two successful purchases on a site they are very likely to remain loyal, rather than search for another website to satisfy their needs.

With respect to the User Behaviour, monetary value was found to be of major importance. This was mainly due to the fact that with this e-metric more efficient segmentation can take place. By clustering the customers according to their value, profiles can be produced and alternative approaching methods are developed. Then the rival amongst the tourism industry is very intense, so frequency of visit is also perceived as an additional opportunity for the companies to “bait” the user. Finally, as duration can be influenced by many external parameters that cannot be determined, for example the user is not in front of the pc the whole recorded time but is watching TV; it was not regarded as a particularly useful e-metric.

With regards to the marketing category, CPC is definitely the e-metric that gets managers attention. It is highly rated because it can quantify the actual spending required in order to turn a looker into booker. With profits shrinking in the tourism sector because of fierce on-line competition, minimising cost of conversion is vital. Tourism interviewees also mentioned that OSP is a valuable tool for them because it is easy to track and it assists in creating user patterns. By studying these patterns they can identify statistically users’ intentions and requirements, and help them navigate easier through the web pages to accomplish their respective goals. Finally, net yield is critical for evaluating promotional efforts; as the efficiency is usually assessed by trial and error, the actual effectiveness and profitability is identified by net yield.

4.1 Organizational responsibility for on-line performance measurement

e-Marketing and e-commerce are gradually becoming a responsibility of the marketing departments. The vast majority of the tourism companies declared that the department responsible for online measurement was their marketing department, with only one company giving this responsibility to their IT department. As interviewees stated, the main reason for this is because traditionally marketing departments have the knowledge to interpret the results of campaigns and to interrogate data towards better segmentation and targeting. This however, involves a high risk of misinterpretation of the data and drawing inaccurate conclusions, while making decisions upon unreliable data can prove catastrophic. It was stated by several interviewees that measurements should be carried out by knowledgeable personnel, which is not always the case with traditional marketers. As one of the interviewees pointed out:

“Unfortunately, there is a vast category of marketers, and organizations not held accountable by their management for real site performance. These people today get by with “feel-good” pretty-pictures reported by inexpensive products and ASP services – that actually cloud the value of e-measurement”

Most interviewees suggested that a close relationship between IT and eCommerce/Marketing should be formulated in order to adapt both the on-line presence and measurements speedily when required. Some companies have already created new departments whose main responsibility has been to report on the activity of Internet as a distribution channel. These “e-Operations” or “Distribution and e-Commerce” departments are hybrids between IT, Marketing and Sales and specialise in capitalising on the growing e-commerce through partnerships with intermediaries and other electronic players in the marketplace. As one interviewee suggested:

“Gradually on-line measurement goes away from IT departments towards Marketing, since e-commerce is becoming mainstream for most mature markets”.

Therefore, to effectively initiate a close collaboration between IT and Marketing departments can provide the tourism industry a safety net for informed decision making.

4.3 ROI Calculation

ROI is considered to be one of the most important economic indicators, together with Internal Rate of Return and Return on Capital as they evaluate the effectiveness of investments. E-metrics offer an estimation of ROI on ICT investment or marketing campaigns. Based on the 25 e-metrics of table 1, the answers tourism companies provided, regarding which e-metrics are used in order to determine return on investment, varied. This variation was mainly due to the different levels of familiarity and awareness of the organizations with e-metrics and their potential. While the more knowledgeable organizations focused on an assortment of metrics including customer behaviour e-metrics, less informed organizations focused on customer life cycle and marketing e-metrics. Interviewees explained that in order to make decisions and take actions that will increase revenue, it is critical to know the Total Cost and Total ROI based on each marketing activity. This enables them to better integrate on- and off-line campaigns and to assess best value for money for their marketing expenditure. They stated that e-metrics used depends on each company, because e-metrics are very dependent on the goals of the website and the understanding of the individual decision makers on the power of the tool. One respondent explained that:

“If a company does not have set objectives, they should establish a set of business goals, so as to know what they do, why they are doing it, what is their target audience, and what they hope to achieve out of it. This will determine the e-metrics that should be employed to determine their ROI.”

Still, their main focus is on customer attraction, enrolment on a server list, and finally conversion to bookings. The most commonly used e-metrics to calculate ROI (by category) appeared on Table 5:

Table 5: Currently Used E-Metrics for ROI Calculation

The e-metrics tourism interviewees mostly mentioned were Cost per Acquisition, Cost per Conversion and Net Yield as direct indicators of expenditure. One interview suggested that:

“If a company had to estimate ROI using only one e-metric that would be “Net Yield”. The reason we do this is because at the end of the day, you have to know the value of your business”.

However, some tourism interviewees suggested some e-metrics for ROI calculation that do not appear on table 1. These e-metrics refer to:

$Cost\ per\ contact = \frac{eMarketing\ spending\ in\ a\ period}{Visitors\ in\ a\ period}$, and

$Cost\ per\ purchase = \frac{eMarketing\ spending\ in\ a\ period}{Number\ of\ sales\ in\ a\ period}$

Whilst the tourism industry is moving to capitalise on the e-commerce activity, still, some tourism companies mentioned as e-metrics, concepts that fail to provide clear indicators such as: Unique visitors, Price and Booking size. Although these are not e-metrics, they are key parameters that have to be considered in order to estimate online performance and plan online marketing projects.

4.4 Satisfaction from current e-metrics deployment

With regards to the level of satisfaction from the current use of e-metrics, most of tourism companies claimed that they were not satisfied with their current usage of e-metrics. The level of satisfaction is still limited as the vast majority of the interviewees explained that they only do ROI analysis on the top level – total costs vs. total results. Occasionally, some more complicated measurements are being used, but there is an effort to keep online measurements as simple as possible, because on-line sales represent an important part but not their core business. According to a hotel sector interviewee:

“On-line sales do not exceed 20% of the total sales in high season periods. On-line measurement is important but paying too much attention to it would be a waste of resources.”

They also claimed that *overload of information, lack of qualified personnel and lack of resources* to act on results, played a significant role in their inability to fully benefit from the e-metrics used. *Lack of time* also prevents them from fully capitalising on the benefits and from developing their own indicators that can assist them to perform their business objectives. Many tourism companies are overloaded with information and are reluctant to reinvest in technology due to the *cost* implied. Therefore, the deployment or application of new web analytics is postponed until it becomes a priority for their business procedures. One interviewee from the consultants category confirmed that:

“The vast majority of tourism clients are operations oriented and seem to constantly fire-fight. Marketers that will be taking advantage of are thinking practitioners who approach their business with a strategic focus.”

All tourism interviewees intend to make some changes in their measurement practices, as they want to increase their functionality and increase their relevance to strategic objectives.

4.5 Intention of implementing new e-metrics

E-metrics were widely considered essential in order to value the customer, understand the purchase processes, find the optimal site path and measure the effectiveness of online campaigns. E-metrics demonstrate how resources should be used, avoiding the overload of information and leading to a better architecture of the site. Since the online market place is changing rapidly, there is a need to set up specific business goals and use e-metrics to measure against those. As targets will change, the measurements should be dynamic and adaptable. However, tourism interviewees explained that they should make alterations in their current measurements in order to refocus their attention to the new ways that generate business. Such critical areas include competition issues, a change in the way customers behave, or even the reengineering arena of the marketplace. The new measurement and analysis methodology requires a better understanding of the customer side measurements in order to grasp the true customer experience and improve their service. Tourism companies are considering implementing more tracking tools, such as advanced web analytics and e-metrics software, as they need usability information in order to understand how to improve their websites. They also intend to implement e-metrics to support their online campaigns by using direct marketing techniques and tracking online advertising more effectively. Interviewees suggested that a partial integration of the marketing team with the sales department will potentially enable them to monitor the success of certain promotions and combine more detailed web analysis with actual sales results.

Interviewees explained that what is often found ineffective is the efficiency and accuracy of search engines within the websites. Therefore, there should be tracking tools activated, showing what content was the user was looking for and what was actually retrieved. Then conversion rate to bookings is critical, as it can bring together user needs and requirements with real purchases, assisting organizations to provide the right content in their marketing. By developing better search engines that deliver the desired content more effectively, abandonment can be reduced and customer satisfaction can increase. Interviewees claimed that with advanced web analytics, on- and off-line tracking integration can bring a new insight into CRM procedures, as for example it can lead to further user profiling integration. This way customer lifetime will be expanded, as the data regarding past behaviour can be enhanced with real time data, providing a unique opportunity for the company to exploit seducible moments. An increasing interest in integrating the web with other business functions to develop more effective personalization techniques was also required by a number of interviewees. They claimed that there is a need for streamlining the process of identifying frequent visitors by more than a cookie. For instance, as a travel agency respondent suggested:

“We are in favour of occasion-based segmentation and personalization, because in that case the site can adapt to user behaviour within that visit, as opposed to historic information. This way websites will be able to allow interaction based upon the customer’s needs in the specific occasion.”

4.6 Future Trends and Developments of e-Metrics

Most of the respondents stated awareness of e-metrics developments when asked during the interviews. The first basic e-metrics were perceived to include more operational e-metrics, such as hits and click-throughs depending mostly on log file analysis, missing

around 40% of web traffic. It is estimated that this method of measurement will extinguish or it will only be used to provide basic statistics. The “second generation” was considered to provide enhanced web services and interactivity, referring to web pages that contained pixel size images and javascripts and gathered data from the client side. This type of measurement may be also used in the future, due to its user centric approach. The “third generation” operates and gathers information end from the customer end, enabling more personalized services. Client side tracking based on user classification, is regarded as one of the most accurate systems for measurement that can lead to higher levels of personalization. It is estimated that the more sophisticated third generation of e-metrics is also going to be the future trend.

Some of the tourism companies were satisfied with the e-metrics they already employ as they only use the basic measurements and figures and do not seek for sophisticated measurements. However, interviewees suggested that increasingly different people in their organization were becoming interested in different aspects of measurement. For instance, marketing executives were increasingly interested in returning customers and ways of turning lookers into bookers, while financial management executives were interested in ROI of technology or marketing campaigns. The majority of the tourism interviewees claimed that the e-metrics that will prevail in the future will be the ones that are directly related to transactional profitability rather than those that are related to penetration and retention. E-metrics related to marketing spent and cost per transaction were regarded as most important. In general, respondents suggested that in the travel sector where competition is so intense and margins are shrinking, cost per sale and lifetime value of the customer will also continue to be very important. Customer related e-metrics would ideally be interacting with CRM systems to better select target audiences and optimize campaigns.

Therefore, tourism interviewees regarded that e-metrics identified in Table 6 that will prevail in the future:

Table 6: Future E-Metrics – Tourism Perspective

Some tourism interviewees with years of expertise in e-metrics claimed that apart from Cost per Booking, Cost per Sales (CPS) and ROI related e-metrics, usability oriented and customer behaviour e-metrics should also be deployed and measured on the customer side. Moreover, operational e-metrics (availability, speed, systems used by client) should also be used to guarantee site efficiency. However, they warned that as though e-metrics can indicate quickly what is going wrong online, they often fail to provide the explanation why this is happening. Consequently, assumptions must be made as to what would have been the cause. One interviewee suggested that:

“the best solution to any on line problem is asking customer feedback on the call centre”

This was considered an effective way to gain insights, to interpret e-metrics and to collect qualitative data to achieve personalization.

5. Discussion

The importance of online measurement for business is assessed differently according to type of business and understanding of decision makers. For e-metrics to deliver substantial benefits, there are two basic prerequisites: 1) it is crucial that organisations make the right selection of e-metrics that correspond to the KPIs set initially, and 2) that

e-metrics are used in conjunction with off-line performance measures to complement a comprehensive performance measurement framework.

E-metrics offer better understanding at the market, assesses the response to campaigns assists to evaluate site traffic, but still do not contribute to strategy. The importance of on-line measurements lie mainly upon their ability to supply the basis upon online services can be evaluated, altered and improved. They also assess the website's navigability and design, identifying what is productive and what needs changes. Furthermore, marketing campaigns can be evaluated through e-metrics to provide a general overview of the success of certain advertising campaigns. This can be achieved by monitoring the website entry point or types of products sold. Finally, e-metrics are also an essential tool for ROI calculation and an excellent solution for identification of partners that bring traffic to the site, especially if working on a Cost Per Thousand Impressions (CPM) basis. With the rapid emergence of the on-line advertising and meta search engines such as Kelkoo, Traveljungle, Travelzoo and others, executives require e-metrics to assess the value of each of these channels and to identify the right mix for their business.

This paper contributes to the body of literature by providing definitions and clarifying the very concept of on-line performance measures; e-metrics. Then, by exploring the application patterns within a hypercompetitive industry (the tourism one in particular), a framework developed, that includes the mostly used and valued measures and contextualises the value of these measures within the overall organisational performance measurement. It also provides significant insights to practitioners in the industry. It demonstrates the significance of a set of e-performance measures, and therefore enables managers to decide the appropriate and relevant ones for their own business.

However, as every exploratory research, it bears some inherent limitations. First, the generalisability of the findings needs to be as well validated by further research in other industries and application domains. Second, this research focused on organisations with heavily active e-commerce departments, overlooking a range of commercial entities with simple on-line presence. Further research could also examine potential differences in the selection process and the resulting subsets of e-metrics utilised by revenue-driven and community-driven organisations.

6. Conclusion

The intensive growth of e-commerce forced organizations to invest in technology to survive competition and exploit the potential benefits of this channel. Still, investment requires return and therefore organizations are urged to measure their on-line performance to evaluate the return. E-metrics bridge Marketing and IS approaches and provide tools for online performance measurement.

This research demonstrated how the tourism industry responds to the e-performance measurements and e-metrics deployment. It was found that a small range of e-metrics is utilised to calculate on-line ROI, and this is due to low levels of familiarity with the e-metrics terminology and functionalities. In addition, the operational focus of the industry prevents the strategic focus and the employment of advanced marketing. Gradually, however, this is changing and is supported by the fact that in most companies the department responsible for on-line performance measurement is primarily the Marketing one. Very few companies were found to start integrating IT and Marketing departments to develop a more sophisticated and specialised measurement department that will benefit

from the combined expertise of the two respected approaches. With regards to levels of satisfaction from current e-metrics deployment, the majority of tourism organizations believe that there is space for improvement. Hence, their intention is to upgrade their e-metrics solutions. However, there are reasons like increased cost and lack of time that hinder them from realising this intention.

By implementing a wide range of e-metrics, organizations can evaluate the effectiveness of their planning processes and assess their results against their short and the long term objectives. Accurate on-line data can therefore be integrated with off-line data to provide a clear picture of the company's on-line performance and to establish essential information for a better formulation of the company's overall future strategy.

Table 1: Number of In-depth Interviews by Category of Participants

Type of Company or Organization	Targeted	Achieved	Percentage
Tourism Companies	20	9	45%
E-metrics Vendors	21	5	23%
Consultants	10	2	20%
Total Response Rate	51	16	31%

Table 2: e-Metrics Definitions by Category

E-METRICS		
Customer Life Cycle	User Behaviour	Marketing
<ul style="list-style-type: none"> Reach <p>Reach is the metric that refers to capturing the attention of the target audience</p> $Reach = \frac{Nr\ of\ unique\ users\ in\ T}{Total\ nr\ of\ unique\ users}$	<ul style="list-style-type: none"> Recency <p>Recency is the duration between visits and describes how long it has been since the last customer event on the site</p>	<ul style="list-style-type: none"> Optimal Site Path <p>Site path analysis shows the route the users follow from the moment they enter the site till the time they exit the site. It demonstrates which pages the customer visited and in what sequence. It is important to track the path users follow in order to create patterns</p> <p>The OSP reveals buyers' viewing habits.</p>
<ul style="list-style-type: none"> Acquisition <p>Acquisition is the point in the customer life cycle, where the actual participation of the customer is required</p>	<ul style="list-style-type: none"> Frequency <p>Frequency is the metric that shows how often a user visits the site</p> <p>Error! Bookmark not defined.</p> $Frequency = \frac{Nr\ of\ visits\ in\ time\ period\ T}{Nr\ of\ unique\ users\ in\ T}$	<ul style="list-style-type: none"> Cost per Acquisition $Acquisition\ cost = \frac{Advertising\ and\ promotion\ costs}{Nr\ of\ click-throughs}$
<ul style="list-style-type: none"> Conversion <p>Conversion is defined as the percentage of visitors who accomplish a specific goal of the site</p>	<ul style="list-style-type: none"> Monetary Value <p>Monetary value describes the amount of money spent by a customer</p>	<ul style="list-style-type: none"> Cost per Conversion $cost\ per\ conversion = \frac{Advertising\ and\ promotion\ costs}{Nr\ of\ sales}$
<ul style="list-style-type: none"> Retention <p>Retention refers to maintaining existing customers</p>	<ul style="list-style-type: none"> Duration <p>Duration is the e-metric that shows how long a user stays on the site</p> $Duration = \frac{Total\ amount\ of\ time\ spent\ viewing}{Nr\ of\ visits\ in\ time\ T}$	<ul style="list-style-type: none"> Yield <p>Yield is the measurement of how well your site is reaching its first-level goals</p>
<ul style="list-style-type: none"> Loyalty <p>Evaluating loyalty involves many parameters that have to be taken under consideration and therefore can only compare to industry- or even site-specific benchmarks</p>	<ul style="list-style-type: none"> Stickiness <p>Stickiness = frequency X duration X total site reach</p>	<ul style="list-style-type: none"> Net Yield $Net\ yield = \frac{Total\ promotional\ cost}{Total\ promotion\ results}$
<ul style="list-style-type: none"> Abandonment 	<ul style="list-style-type: none"> Slipperiness 	<ul style="list-style-type: none"> Connect Rate

Abandonment occurs when the conversion procedure is not completed, but interrupted and abandoned in some stage	<i>Slipperiness</i> is the opposite of stickiness. While some sites may want to be “sticky”, some particular sections or pages are preferred to be “slippery”.	The connect rate is the e-metric that demonstrates the actual number of people that visited a page, in contrast to those that clicked but did not reach the page $Connect\ rate = \frac{Pr\ omotional\ page\ views}{Pr\ omotion\ click - throughs}$
<ul style="list-style-type: none"> Attrition <p>The attrition is significant as it demonstrates the developed preference of your ex-customers over your competitors. Attrition occurs after a predetermined period of time has passed and the customer has not performed any action, in contrast to past behaviour</p>	<ul style="list-style-type: none"> Focus $Focus = \frac{Average\ nr\ of\ pages\ visited\ in\ a\ given\ section}{Total\ nr\ of\ pages\ in\ the\ section}$	<ul style="list-style-type: none"> Personalization Index $PI = \frac{Total\ nr\ of\ profile\ elements\ used\ in\ customer\ interaction}{Total\ nr\ of\ pages\ in\ the\ section}$
<ul style="list-style-type: none"> Churn <p><i>Churn</i> is the ratio of attrited customers to all customers during a period of time $Churn = \frac{Nr\ of\ attrited\ customers}{Total\ nr\ of\ customers}$</p>	<ul style="list-style-type: none"> Seducible Moments <p><i>Seducible moments</i> are those points in time where the customer is vulnerable to an offer</p>	<ul style="list-style-type: none"> Freshness Factor $FF = \frac{Average\ content\ area\ refresh\ rate}{Average\ section\ visit\ frequency}$
<ul style="list-style-type: none"> Velocity <p><i>Velocity</i> is the measure of how quickly a user moves from one stage of the customer life cycle to the next.</p>		

Table 3: Comparative usage by e-Metrics Category

e-Metrics Categories	(%)
CLC	20.4
User Behaviour	20.7
Marketing	90

Table 4: e-Metrics Usage

E-metrics Usage					
Customer Life Cycle	(%)	User Behaviour	(%)	Marketing	(%)
Reach	88.9	Frequency	77.8	Cost per Conversion	77.8
Conversion	77.8	Duration	77.8	Yield	77.8
Acquisition	66.7	Monetary Value	66.7	Optimal Site Path	66.7
Retention	66.7	Recency	55.6	Cost per Acquisition	66.7
Loyalty	55.6	Stickiness	44.4	Net Yield	66.7
Abandonment	44.4	Focus	33.3	Connect Rate	22.2
Attrition	33.3	Slipperiness	11.1	Personalisation Index	11.1
Churn	22.2	Seducible Moments	11.1	Freshness Factor	11.1
Velocity	11.1				

Table 5: Currently used e-Metrics for ROI Calculation

E-METRICS		
Customer Life Cycle	Customer behaviour	Marketing
• Reach	• Frequency	• Optimal Site Path
• Acquisition	• Duration	• Cost per Acquisition
• Conversion		• Cost per Conversion
• Retention		• Yield
• Loyalty		• Net Yield
• Abandonment		• Freshness factor

Table 6: Future e-Metrics: The Tourism Perspective

E-METRICS		
Customer Life Cycle	User Behaviour	Marketing
Acquisition	Recency	Cost per Acquisition
Conversion	Frequency	Cost per Conversion
Abandonment	Monetary Value	Yield
		Net Yield
		Personalization Index

Figure 1: Importance of e-Metrics Categories

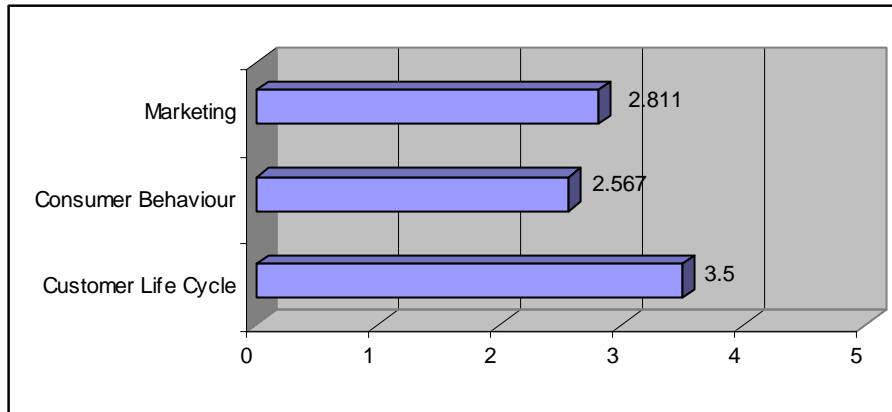


Figure 2: Importance of CLC e-Metrics

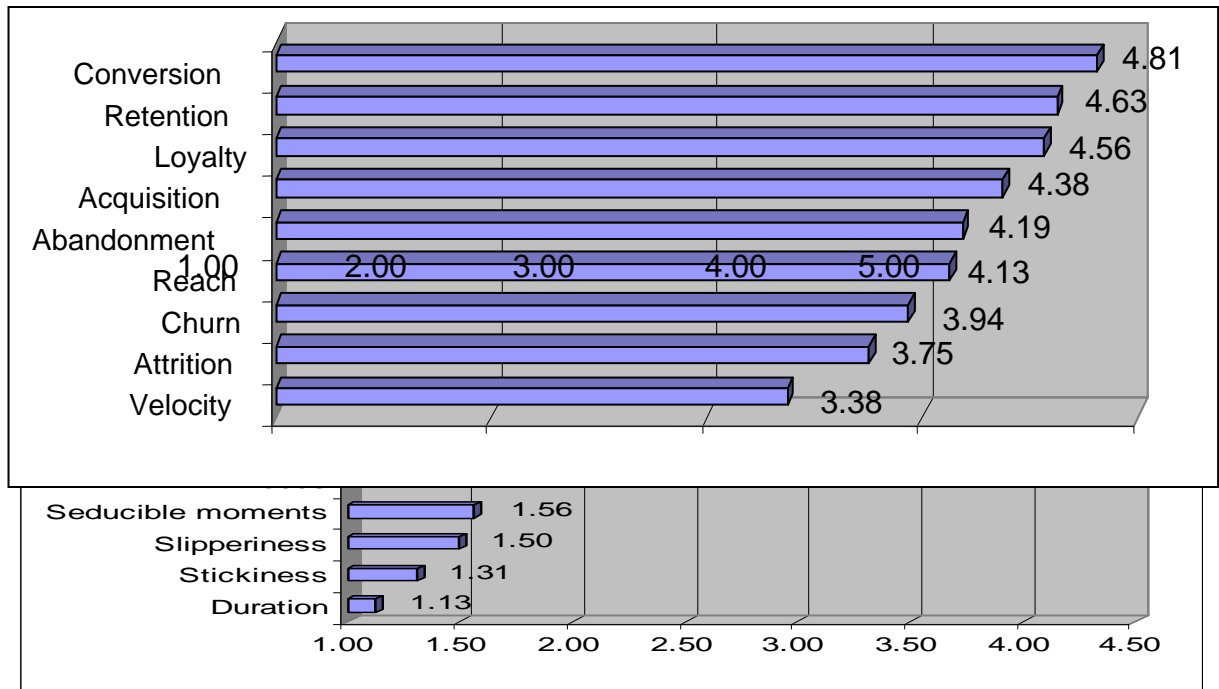
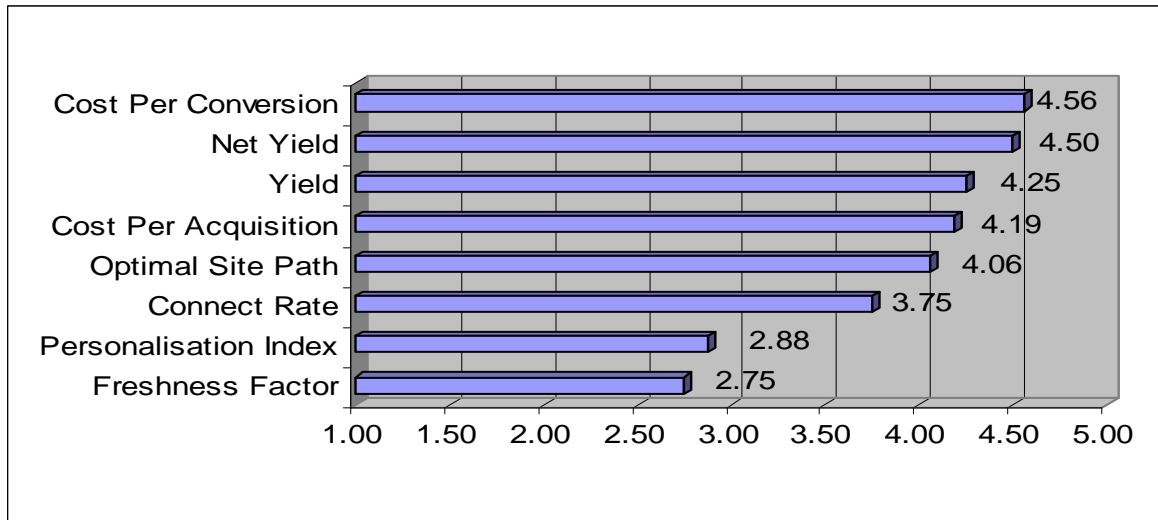


Figure 4: Importance of Marketing e-Metrics



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