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Business intelligence in meeting planning software

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Running Head: BUSINESS INTELLIGENCE

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PART ONE

Introduction

This paper is a content analysis of business intelligence functionality in major meeting planning software. The research explores products for list management work (primarily handling online registration), various products providing multi-level database support (registration, housing, event logistics), and others in the categories of attendee management and exhibition management. It presents an assessment of applications' abilities to fulfill transactional recording needs as well as their extended capabilities to respond to analysis questions for strategic decision-making support.

Purpose

Meeting planning is a process that requires an immense number of ad hoc decisions which are difficult to make given the limitations of the file system in use in the meeting planning field. Business intelligence or technically speaking data warehousing is the next level in software development that alleviates to a great extent the common spreadsheet flaws such as lack of data integrity, poor data access and data redundancy among some others. This paper compares and contrasts leading meeting planning solutions through the perspective of their potential for data warehousing by identifying the database management system components and then reviewing the application's analytic functionality. The content analysis will help meeting planning professionals make much more informed decisions when it comes to selection of event management applications and enhancement of the decision-making process.

Statement of problem

A common practice among users is to implement user-written software applications in their operational activities thus making Microsoft Excel Spreadsheets a

leading meeting planning data analysis tool (Ramsborg & Professional Convention Management Association, 2006). Striving to achieve better organization of data in the ever increasing information load and unaware of better alternative solutions meeting professionals are engulfed long hours in developing and re-working spreadsheets. At the same time the complexity of meeting planning functions and the constantly changing business environment call for a higher level of business analysis and a different approach to data management. The use of databases gained popularity in the business world due to the more advanced modules of data management that they offer, a trend that cannot be assigned to the meeting planning field where companies traditionally lag behind in the adoption of information technology innovations.

Statement of objective

This might be assigned to a variety of reasons such as lack of information on what other options are available for meeting planning, lack of solutions that meet users' needs or lack of knowledge on how to implement these solutions. While there is an immense number of reasons that underlie the current trend, the focus of this paper is on providing more information on the existing technological opportunities for facilitation of meeting planners' data management. The main goal is to provide a structured knowledge in the format of content analysis of meeting planning applications to help enhance to a certain level meeting planners' business intelligence awareness and knowledge.

Justification

Traditionally meeting planners work long hours and during events they may accumulate as much as nineteen hours of work per day (Bureau of Labor Statistics, 2008). Recent study shows that the increased workload is due to reduced staffing (International Association of Exhibitions and Events, 2007) and one to five is the average

number of meeting planners within organizations. At the same time with the evolution of the meeting planning profession the information overload dramatically increased and while two decades ago meeting planning functions were performed by administrative staff, marketing and sales professionals and they were considered supplemental to their main responsibilities, nowadays meeting planning has already crystallized as a profession and business analysis acumen is needed to produce valuable information on demand in order to stay competitive on the growing market. This requires an in-depth analysis of the available software solutions that would fulfill the management needs and help companies utilize more efficient practices.

Constraints

The scope of this paper is limited by the natural constraints imposed by the relatively immature state of both fields meeting planning and business intelligence and the scarce information resources on information technology applications within meeting planning industry. The rapid technological changes further challenge the research and require a more empirical approach to explore which meeting planning products would contribute most to the modification of the current state of event planning process.

Glossary

No doubt major transformation of the operational practices can be achieved through business intelligence. Business Intelligence (BI) was first introduced as Business Intelligence System still in 1958 (Luhn, 1958). At a much later period in 1989 the concept was popularized under the term 'business analytics' by Howard Dresner, Vice President at Gartner Group (Bell, 2005). There is a broad interchangeability in the use of these terms all describing a technique of analyzing data to support the decision-making process.

PART TWO

Introduction

A study on the meeting management research identifies the subject areas most covered in major hospitality journals for the period 1990 to 2003 (Lee & Back, 2005) and information technology in the meeting planning is not among the top themes. The same chain of thought on the existing gap in the literature on information technology in the meeting planning can be found in a later research whose analysis and findings reveal 'lack of relevance' in the publications (O'Connor & Murphy, 2004).

Literature Review

Format and Focus of Study in Meeting Planning Technology Articles. A previous study of meeting planners' attitudes toward computer technology points out to a level of uncomfortability among industry professionals when working with computers (Casanova, Kim & Morrison, 2005). Consequently, only 14% of corporate planners and 17% of association planners use meeting planning software and express difficulties finding appropriate products (Krug, Chatfield-Taylor, Collins & Convention Industry Council, 2000). This alone may be taken as a warning sign but coupled with a limited research in the application of information technologies in the hospitality industry, including the convention industry, is already a major concern.

Literature review is structured in the following directions:

- Prescriptive – articles offer a range of ideas on how to plan an event or how to select a technology vendor.
- Descriptive – in trade publications a very common phenomenon is a biased introduction of selected vendors usually advertisers in these same publications.

- Emphasis on meeting planning from supplier's perspective rather than from meeting planner's perspective.

The importance of information technologies in MICE (meetings, incentives, conventions and exhibitions) and the need for more research on wider IT implementation within this sector is identified still in 1999 (Mistilis, N., 1999). The literature review on information technology in the hospitality journals is focused mainly on explaining the need for more research in the area rather than on providing more in-depth information. What's more, it is centered around the provision of checklists for software evaluation without supplemental information on the sources and criteria used to compile the lists. In-depth checklists developed through a systematic research and extensive study of the market can be found as a part of the industry research collections of professional associations. In the computer industry the Institute of Electrical and Electronics Engineers has developed a Standard for Software Acquisition with checklists grouped in variety of categories as organizational strategy, software defining, supplier evaluation, user survey, software evaluation, supplier performance standards (Institute of Electrical and Electronics Engineers, 1998).

In the meeting planning field a similar extensive checklist offers questions pertaining to software selection in the categories of vendor qualifications and trust, software development, usability, security, contract terms, end user training and exit strategy (Ball, 2001). A number of researchers in later articles added their personal share of questions to the extensive list. However, most of the questions overlap those presented in the IEEE Standard and do not provide additional guidelines explaining what good answers on the vendor side might be. For instance, as a response to the question whether

the application supports queries, an explanation of whether query-supported database is a better option will immediately bring a deeper understanding of the matter.

The lack of systematic research on the features of the information technologies used within the industry in the major convention journals can be considered as a shortcoming because the methodology for formulating the checklists remains mystified and what meeting planners are to expect from vendors' feedback in return to these questions is unclear. Articles focus on researching meeting planners' site selection criteria in terms of enhancing convention services staff ability to attract and retain business. Another theme in more recent articles is how to enhance attendee experience or decision-making process to attend but no coverage on what it takes for meeting planners to accomplish these goals and how to improve the decision making process in planning the event. These limitations impose further investigation in the literature out of the industry in order to align with the current trends.

The complex nature of meeting planning calls for business intelligence. Recent studies in the field of convention industry approach the meeting/event planning process from a business perspective. The event planning process depends on a number of aspects like scope, time, cost, procurement, etc. similarly to the project management process designed and implemented in other industries like information technology and construction (O'Toole, & Mikolaitis, 2002). Events like projects are characterized with their uniqueness as well as operational time limitations and event management activities of defining objectives, planning and organizing the event, implementing/running the event and divestment/legacy (Shone & Parry, 2004) correspond to the conventional

stages of a business project life cycle of defining, planning, executing and delivering (Gray & Larson, 2002).

In the same chain of thought the product analysis refers to event components and feasibility analysis refers to balance of resources in the meeting planning field (Silvers, 2004). Events similarly to projects are characterized by their uniqueness (the parameters of every event are different) and operational time limitations (Shone & Parry, 2004). Other limitations specific to the convention industry are an extensive customer-supplier chains and immense number of stakeholders (Tum, Norton & Wright, 2006).

Although a distinction line might be drawn between project management and business analysis, these two functions are related and project managers find the field of business analysis of great interest (International Institute of Business Analysis, 2006). Within the convention industry meeting planners in their new role of project managers might join other business professionals' efforts on the road to more precise and enhanced business analysis. Furthermore, the complexity of the projects managed is correlated to the constantly changing environment (Cleland & Gareis, 1994) and this calls for supporting business analysis in order to keep projects update with the new events. Reviewing all the details of these elaborate projects allows to make much more informed decisions.

Due to the great number of variables involved and the typical limitations of projects like time and cost, projects do not receive the necessary attention to detail to perform a thorough business analysis. If we take, for instance, just one component of the planning process customer relationship management (CRM) and explore the recent innovation in data collection 'smart cards' we can see how much data can be stored for

further analysis: membership, payment and customer profile information (Knutson & Kasavana, 2002). Furthermore, a number of show management solution providers like Experient, Laser Registration, Registration Control Systems and Wingate Web implemented an attendance-tracking through smart card and this module generates additional information on booth or sessions visits as well as computer kiosk usage (Walters, 2004). The next logical step for the meeting professional after data collection is to use this data to perform a business analysis and bring recommendations.

And then taking into consideration that the process of meeting planning encompasses multiple facets: registration and housing, meeting space selection, food and beverage, production and show requirements, transportation, etc. (Gregory & Breiter, 2001) makes the task of analysis even more challenging. In that aspect business intelligence solutions might cover all the complex functions that meeting professionals strive to accomplish manually and thus enhance the operations management with more fact-based decision-making.

Business Intelligence Successful Implementation. There are many industries that successfully implemented business analytics in their decision-making process. Within the hospitality sector an excellence in updating conventional procedures to align with most current trends in business analytics was achieved by Fairmont Hotels & Resorts by implementing business analytics solutions from SAS. The concept of business intelligence/analytics is not particularly new to the company and for seven years of applying some of its techniques it has already accumulated experience in the area. Fairmont Hotels & Resorts implemented SAS business analytics technology into their CRM operations to better meet guests' needs but business analytics might be applied to a

range of other areas, such as yield management, for instance (Menezes, 2007). Though the company is particularly strong in business intelligence compared to its competitors on the marketplace its shift toward business analytics is rather recent (Beal, 2007).

Lufthansa identified three areas of business process coverage: support processes (information management, facility management, human resources, etc.), core processes (inbound logistics, operations, etc.) and control processes (business intelligence and analytics, planning and corporate governance, strategic enterprise management) and consequently implemented a SAP platform to manage these processes which had a positive impact to the bottom line in terms of better control over operational costs, reduced labor cost and business process efficiency (MetaGroup, 2005). Business analytics as a tool for enhanced performance standards was successfully implemented by a number of companies out of the hospitality industry and a few of the companies from the hospitality field followed their lead.

There is a great number of companies nowadays that compete on business analytics – from Yahoo to Bank of America, from Royal Dutch Shell to Amazon and a significant number of them illustrate common trends in their business practices: the company's CEO is with analytical background and the company is successful. (Davenport, 2007). Within the hospitality industry an example of successful business intelligence implementation is demonstrated by Harrah's in customer relationship management (Sarner, 2001).

Despite the lack of case studies on the subject in the meeting planning field deeper research reveals that some leading companies in the meeting planning field managed to capitalize on the concept and started thinking in this direction. George P.

Johnson, a leading event marketing company, whose unique competency is 'delivering cutting-edge Web-based meeting planning service at breakneck speed' (Sturken, 2001) had backstage the technical resources provided by Oracle - Oracle 9i database (Gill, 2003) and the human capital in the face of Michael Winner, who led the company's Worldwide Technology team. His BI expertise was used by Fortune 100 organizations and at present time helped him secure a position as Chief Technology Officer with Blink Logic Inc, on-demand business intelligence solutions provider (Business Wire, 2007)

Business Intelligence Advantages. Applying business intelligence to the decision-making process has numerous advantages and some of the major ones are higher efficiency as well as precision in the decision making process. When speaking of technologies a contradiction in the literature exists as to whether they can be considered as time-savers or as time-consumers. The majority of the authors, however, join the opinion that once the technology gets adopted and diffused through the company procedures it immensely increases productivity and consequently saves time. The 'productivity paradox' that prevailed in publications in the early 90s has been slowly replaced with a much more positive outlook on the benefits from information technologies (Brynjolfsson & Yang, 1996). In 2000 time efficiency pertaining to computer and software usage in meeting planning is already identified as very important and superior to the cumbersome paper handling (Krug, Chatfield-Taylor & Collins, 2000). For instance, registration software has the capability to provide information on the actual registration with more advanced products equipped with 'e-badging' option (Davidson, 2002).

A study reports a 'new form of competition, based on the extensive use of analytics, data, and fact-based decision making' (Davenport, Cohen & Jackobson, 2005).

The increased interest toward business intelligence solutions whether it's Microsoft SQL Server or the offerings of any of the traditional players in the BI field such as Oracle or SAP reserves BI a place on the list of emerging tourism trends that will continue to have an impact on the way professionals approach the decision making process (Basha, 2008). Business Analytics Software Forecast conducted by IDC shows the main trends on this market – the templates era is back in the period of the 90s, then the evolution leads to the decision process automation of usage of collaboration and workflow, dashboards and visualization, scorecards and DW life-cycle management up to 2004 and the most recent shift is toward intelligent process automation with the usage of alerting, predictive analysis, process awareness, content analysis and event monitoring (Vesset, Wilhide, McCullough, McDonough, Wardley & Sonnen, 2007). Within business analytics itself the emerging trends are supply chain visibility, price optimization, and work force analysis along with the traditional focus on CRM (Kohavi, Rothleder & Simoudis, 2002).

PART THREE

Methodology

The meeting technology products reviewed for the purpose of this paper were borrowed from Corbin Ball's 'most comprehensive listing of meeting industry and technology links on the Web', in particular the events and meetings management category (Ball, 2008). In the initial review seventy three product websites have been screened for one of the major criteria for business intelligence implementation – SQL (Structured Query Language) and for any other visual analysis tools available. The next stage was to identify the real business intelligence solutions and review the meeting

industry key performance indicators implemented in the solution design. The final stage included positioning APEX in the context of business intelligence.

Pulling technical and information requirements together is of prime importance for the benefit of covering the big discrepancy between users and application builders perceptions. In light that there is a trend of users taking computing into their own hands from service providers (Templeton, 2008), which further requires deeper understanding of both technical and business requirements on the side of potential users, precise identification of business intelligence database key components is a necessity.

Integration

Consolidation in the real world is reflected in the integration in the technology world. Overcoming the silo syndrome came into light with Motorola's implementation of the Six Sigma Process to build a quality infrastructure in their pursuit of customer satisfaction and it appealed for removing the artificial walls between departments (Bhote, 1989). The main goal when designing a database is to make prototypes of the objects from the real world. Thus when consolidation in the real world is top priority the rule of avoiding a silo syndrome in the real world is transferred in the principle of avoiding silos of information when building the information infrastructure.

This means that the more integrated the database product is, the more it responds to the users demand for integration. What's more, financially speaking, users do have the option to buy features customizing their product investing more on the most important business processes or purchase an integrated solution out of the box but the second option remains more desirable as it eliminates the additional expense on IT development needed

for integrating the systems involved. (Anderson, 2008). When reviewing the modules covered in the listed databases, the cross-functionality of the business intelligence solutions domineers over the more simple transactional functional applications.

Technical Specifications

At the basic level small companies operate by utilizing simple Excel spreadsheets and their big counterparts invest into business intelligence solutions like SAS, Business Objects, Cognos, while the middle-sized ones might opt for SQL supported databases. (Kirwin, 2007). Meeting planning companies despite their small employee staff operate with a large volume of data which places them in the middle group as their data management needs and priorities outgrow Excel spreadsheets. So those databases which are SQL based make an advancement one step closer to the real business intelligence databases as SQL transforms data into meaningful information. As it can be seen from chart 1 17 out of 73 solutions are either built on SQL Server platform or allow additional SQL scripting. SQL offers ad hoc quering and report generation and based on the new records new quering can be initiated to provide immediate responses to questions like:

- Which were the top ten attendees who spent more than $1,000 on sessions during the last convention?
- How do the current period's session sales compare to those of the previous convention?
- Which sessions sold well during the past year, couple of years, three years?

In contrast to the chart/graph presentations that display the data collected with no option for further manipulation, data visualization tools in databases diminish the influence of GIGO (Garbage In, Garbage Out) and NINO (Nothing In Nothing Out) factors and

their interactivity allows for further zooming on data fractions previously hidden in the data noise. (Shirky, 2002). For instance, it is more difficult to identify the top ten attendees with a spend of more than $1,000 in a tabular presentation of all attendees spend on sessions, while this SQL query would return only the ten records that we are interested in.

In chart 1 the two categories SQL Server, SQL as well as MS Access reveal a great promise in terms of the functionalities of the systems and these products can be placed on the list of business intelligence candidates. A few products (3) displayed ad hoc reporting functionality, and despite the fact that ad hoc reporting is central to business intelligence their platform is not displayed. Under the category miscellaneous visual analysis tools come dashboards and one example of Gantt-Charts. These are all tools that provide summarized view of information and stimulate the thinking process as they diminish the clutter of data stored in the repository. In thirty eight of the meeting planning solutions revised no advanced analysis tools were identified. The observed patterns in the descriptions of product functionalities within this range are as follows:

- No display of features and/or product descriptions on their websites.
- Extensive explanations of the features with no technical capabilities defined in the widely accepted format: tabular with very to the point specifications.

In both cases for the experienced applications evaluator a huge amount of uncertainty exists as to the qualities of the system. This makes it very challenging for meeting planners to evaluate the solutions and most likely leads to confusion and lack of understanding on the functionalities offered.

Key Performance Indicators

On the business side a central theme within business intelligence are key performance indicators. These are the metrics applied to provide answers to a particular business question. Before any database is even developed or consequently acquired, one needs to review the KPIs that are at the core of the database and see whether they match with the company's measurement requirements.

The main question is what do we want to collect data for and measure. Pioneers in this area in the field of event and meeting management are the marketers who are in a continuous search of justification for their programs and apply a variety of techniques to measure ROI (return on investment). Event Measurement Conference is the event marketers initiative to identify the key performance indicators for strategic and tactical decisions (ENN Exhibitor News Network, 2003). In the meeting planning industry in general a great breakthrough in identifying key areas of interest was achieved through the development of EMBOK (Event Management Body of Knowledge) (Silvers, 2007) which can serve as a basis for key performance indicators identification.

The main metrics in the business intelligence solutions reviewed cover the areas of attendee tracking, budgeting and registration. The attendee management module comes natural as at the core of any business are the customers with their needs, experiences and product perceptions. Similarly to Harrah's in the hotel industry which implemented first a CRM (customer relationship management) business intelligence solution, the convention industry has the capabilities to enhance their strategic decision making process with their attendees in mind through this functionality. Considerable access in this area achieved an experiential event marketing provider who stepped even further by implementing RFIDs tied to a database for better data collection and further follow-up analysis (Wardynsky,

2008). The registration module too comes as a natural extension of the transactional registration systems which have a long history of development and implementation in the industry. One of the most valuable modules is the budgeting option as budgets are the foundations for metrics (Goldberg, 2008). Together with timing dimensions these are the most widely present options in business intelligence applications.

APEX

When speaking of information and technology integration the convention industry initiative in this direction is APEX (Accepted Practices of Exchange), a software application that is targeted to streamline and standardize communications in the convention industry (Hatch, 2006). The initiative launched in 2000 and today the application representing a set of standard templates is already on the market.

Out of the hospitality industry, however, software application development goes with a different pace. Business Analytics Software Forecast conducted by IDC shows the main trends on this market - increased interest from a larger set of organizations in business analytics solutions and a growth rate of 11.2% recorded by the business analytics software market for the year 2006 (Vesset, 2007).

This in turn leads back to the main question of the convention industry's positioning on this market. The trends in the industry identified in the same report designate BI suites and analytic applications (templates, data models, ETL and data quality) to the period starting in 1990. This in turn logically leads to another question 'Does the fact that the main initiative in the convention industry is at the application development stage of templates production reflect the position of the industry as a whole identifying a 17 year lag behind other industries in adoption of business intelligence ?'.

The main challenge in the wide adoption of APEX lies in the fact that it provides static reports. This poses a challenge for meeting planners who rely on solutions for their analysis whether these are user-tailored spreadsheets or powerful BI systems and then need to additionally enter the information into APEX. With this in mind, collaborative work between APEX and BI providers might bring the desired results. In that sense there two paths that can be followed: either BI providers add additional reporting capabilities so that the reports generated for communication purposes comply with APEX standards or APEX extends its functionality to developing a sophisticated database for collecting data and tying it to the reports.

Conclusions

As it can be seen there is a certain level of discrepancy in the reporting capabilities and formats offered by databases and APEX. In order to achieve advancement in this area a cumulative effort is needed to achieve unification of reporting. To facilitate advances in the area of business intelligence in meeting planning solutions further research can be initiated in the following directions:

- Extended research on key performance indicators used in the meeting industry
- Meeting planners use of business intelligence in the planning process

There is no doubt that business intelligence offers a breakthrough in the decision making process and as it was reviewed a certain number of solutions are already readily available in the meeting planning. Thus meeting planners on the side of users already have the potential to support their strategic decisions with powerful business analysis and the solution provider APEX has a benchmark on what functionalities can be of further value to the industry. What course of action meeting planners and developers take on

information consolidation will define the success or failure of standardization within the industry and business intelligence will most probably be an underlying factor in this industry shaping process.

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Appendix

List of reviewed meeting planning technology products

123Signup - Event Manager
a2z, Inc.
AAA Event Solutions
AdvancedFair
Amlink Technologies - Events
Aptify™
Arcaneo
Artegis - Regis
ICM - Interneational Conference Management
Impact Solutions, Inc.- MaxEvents
Intelevent
iPlan Meeting Planning Software by MRA Services
ISIS Corporation - GOLD Systems
J. Spargo & Associates
JLSystems - Noah Meetings and Exhibitions
Jumpstart-it

Attendee Interactive
BlueConference
BlueSkyz
Center for Community Futures - CAPERS
CMEPG.com
ConveneMachine
Crescent Technologies - Event Manager
e2M Systems - Maestro
EdN - ICT Solutions
EKEBA International - Complete Event Manager
EMA - Managemyevent.com
eMeetingExperts - ePlanner
eMeetingsOnline
ennectEvent
Ephibian
eTouches® - Integrated Event Technologies
Eveni

Event Mgmt Systems - Impact SYSTEM VI
Event Ready - i-plan Software
Eventbookings
Eventcentric ConferencePLUS
EventPro-Planner
EventRebels.com - Meeting Management Software
Exgenex
ez-eventsuite.com
FuelDog Javelin Event Management
GET IT PLANET Online Event Management Software
Hopkins Technology - EZEventPlanner
Kavi - Membership and Events Management
Kermeet - Facilitateur d'événements
MarketingPilot
Media Services Group
Meeting Company PlanIT Platform
Meeting Manager GmbH
MeetingWare Office 2000
MicroSpec - Event Management
MIE Software - Summit Software

Mission Business Systems - Event Master
MPBid
Netronix - eShow2000
New Age Systems, Inc. - AM GUARD
Outside Technology - Book'em
Parrimark Technology - Events Perfect Software
Peopleware - Peopleware Pro
Planion Event Planning Software
Profit Systems Inc - EventPro Event Management Software
RegOnline Easy Online Event Registration
Robust
SAGE
StarCite.com - RegWeb Attendee Management

Ungerboeck
vacazio.com - Event Management Software
ViewCentral - Manage Events for More Impact
Vox Solutions - iMeetingPlanner

WingateWeb
WinPlan

Table 1

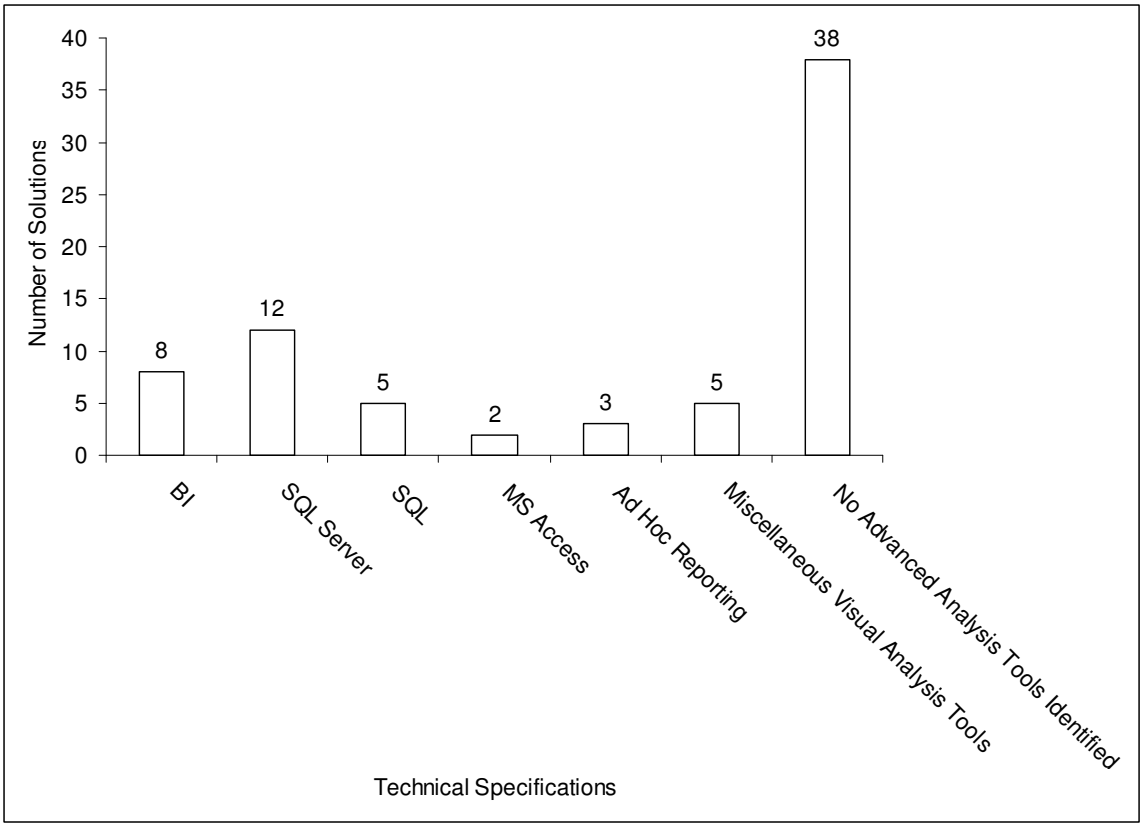
Core Key Performance Indicators

Vendor/Product Name	Technical Specifications	Attendees	Budgeting	Registration	Housing	Vendors	Speakers	Facilities

Arcaneo/Metron	SAP, PeopleSoft, Siebel	√	√		√	√		√
eMeetingsOnline	Crystal Reports	√	√	√	√	√	√	√
Exgenex	Data Warehousing	√		√	√		√	
FuelDog/Javelin Core	SalesLogix platform					√	√	
MPBid	Business Intelligence	√	√			√		
Ungerboeck/EBMS	Event Data Mart	√	√	√	√		√	√
WinPlan	Crystal Reports, MS Access	√	√	√				

Figure Caption

Figure 1. Event and Meeting Management Software Advanced Analysis Technical Specifications


40
35
30
25
20
15
10
5
0
Number of Solutions
8
12
5
2
3
5
38
BI
SQL Server
SQL
MS Access
Ad Hoc Reporting
Miscellaneous Visual Analysis Tools
No Advanced Analysis Tools Identified
Technical Specifications