Technology's Effect on Hotels and Restaurants: Building a Strategic Competitive Advantage

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The changing face of technology has played an integral role in the development of the hotel and restaurant industry. The manuscript investigated the impact that technology has had on the hotel and restaurant industry. A detailed review of the literature regarding the growth of technology in the industry was linked to the development of strategic direction. The manuscript also looked at the strategic analysis methodology for evaluating and taking advantage of current and future technological innovations for the hospitality industry. Identification and implementation of these technologies can help in building a sustainable competitive advantage for hotels and restaurants.

INTRODUCTION

Current economic conditions have had a dramatic, negative financial impact on the hospitality industry (Brandau, 2009). Consumer behavior patterns have been changed for multiple reasons, including high levels of unemployment, a deep recession, and overall fear of what the future holds. Hoteliers and restaurateurs will need to look at various strategic vehicles to build and regain customers. The face of innovation in technology is continually changing. The hotel and restaurant industry needs to take a proactive stance in implementing technological advances, while continually striving to build levels of service quality and guest loyalty (Magnini, Honeycutt, & Hodge, 2003). A 2004 study conducted by the National Restaurant Association stated that 70% of a restaurants business base comes from repeat customers. The same survey asked restaurateurs if it was getting more difficult to maintain customer loyalty. Fifty-two percent of the respondents said yes (Sanson, 2004). Tapping into customers needs through the use of information can be instrumental in building loyalty and gaining competitive advantage (Piccoli, 2008).

Hotels and restaurants are continually competing for employees, locations, and more recently information about customers. As more people are using the Internet there is a high amount of information that is being captured on web server logs (Garver, 2002). Proper extraction of this information coupled with high levels of service is what will help the hotel and restaurant industry build competitive advantage in a troubled economy. An organizations ability to take advantage of external environmental factors will help the firm sustain and grow in economically challenging times (Oparanma, Hamilton & Accra-Jaja, 2009). Piccoli, Spalding, and Ives (2001) stated that organizations need to structure the way they think around how customers think and act. By accomplishing a customer-centered focus, companies will be able to highlight their strengths and highlight opportunities for improvement. Information regarding customers will continue to have a big impact on the future of the industry. This information base can be seen through the explosion of personal and business social network sites such as LinkedIn, Facebook, and

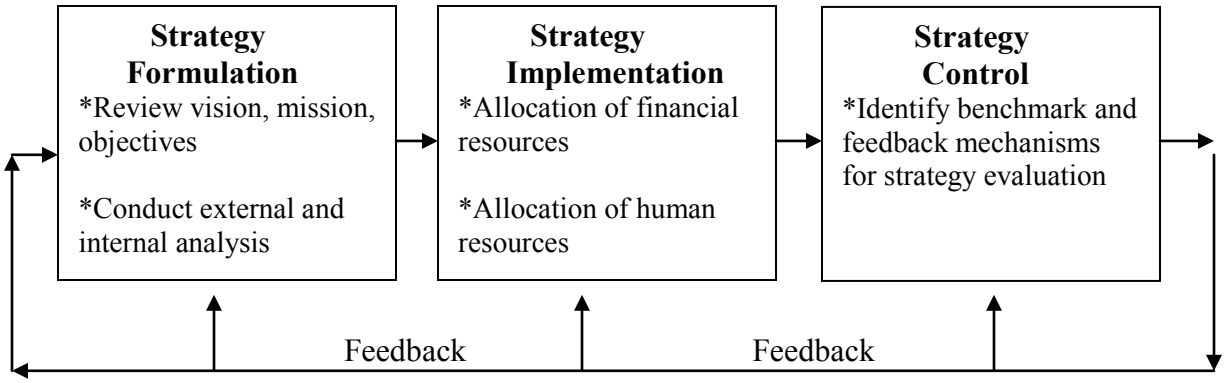
Twitter. Identifying patterns of current and potential customers and servicing their needs is one way that organizations are attempting to use information as a leverage tool against competitors (Magnini, et al., 2003; Piccoli, 2008).

The following manuscript analyzed the strategic analysis methodology for evaluating and taking advantage of future technological innovations for the industry. Proactive identification and implementation of these technologies can help in building a sustainable competitive advantage (Piccoli, 2008). The manuscript additionally reviewed the existing literature regarding the role technology has played in the hotel and restaurant industry and how strategic innovation has spurred "best practices" for the industry.

STRATEGIC ANALYSIS AND INDUSTRY IMPLICATIONS

Strategic analysis examines both environmental and firm environments, which are integral components of strategy development. Understanding the impact that environmental factors have on organizations is of paramount importance in building successful firms (Oparanma, et al., 2009). In a worldwide study of firms spanning a variety of industries, 81% of companies reported conducting strategic analysis (Harrison, 2003). Additionally, studies have shown that firms that engage in strategic planning tend to have higher levels of performance (Miller & Cardinal, 1994). The strategic management process is a dynamic process and one of continual change and improvement. The dynamic nature of the process stems from the ever-changing environments in which companies operate. The mere fact that change remains a constant in business environments should be a driver for organizations to be proactive and embrace the strategic management process. The core of the strategic management process breaks down into three functional components: strategy formulation, strategy implementation, and strategy evaluation (David, 2009). Although the core functions appear to be simple in nature, the systematic and in depth analysis of the functions is the driving force behind the process.

FIGURE 1
THE STRATEGIC MANAGEMENT PROCESS (adapted from David, 2009)



The strategy formulation component is the driving force of the analysis. An in depth look at firm direction begins at this point. The focus in this stage is to assess the current vision, mission and objectives of the organization in addition to examining both the external and internal environments. From an external perspective, organizations need to look at two distinct environments: the broad environment and the task or firm environment (Harrison & St. John, 2008; Harrison, 2003). The broad environment looks at factors, including societal trends, technological advances political and legal trends, economic factors and other major industry innovations. The task or firm environment looks at factors such as customers, competition, government agencies, suppliers, and financial intermediaries. Finally, the internal environment focuses on factors within the organization such as management, financial, and human

resources and general organizational competencies (David, 2009; Harrison & St. John, 2008; Harrison, 2003). After careful evaluation and measurement of these environments, executives develop strategies to pursue that will enhance the longevity of their respective organizations. The implementation stage looks at engaging both financial and human resources in the pursuit of the strategies. The final stage of the process reviews strategy execution on a continual basis and allows for feedback and adjustment (David, 2009; Harrison & St. John, 2008; Yang & Fu, 2007).

The Broad Environment

Opportunities are discovered when organizations begin to analyze the broad environment. Hoteliers and restaurateurs need to be cognizant of these factors and how they can drive change in the industry. Societal trends and technological trends should be critical points of interest for industry executives. From a societal perspective, organizations need to look at influences such as current hot topics, emerging attitudes, demographic shifts and new fads (Oparanma, et al., 2009; Harrison, 2003). An example of societal trends that are impacting the hospitality industry would include the explosion of social networking. The trend has spanned across several demographic barriers ranging from Baby Boomers to the Millennials. There has additionally been an enormous affect on the hotel and restaurant industry. Bloggers have launched sites commenting about experiences that they have had and have made recommendations regarding the hotel or restaurant. Savvy industry executives understand the impact of these societal trends and focus efforts on establishing methodologies that can incorporate appropriate strategies to take advantage of these trends (Luebke, 2010). Table 1 depicts some of the more popular social networking sites to date.

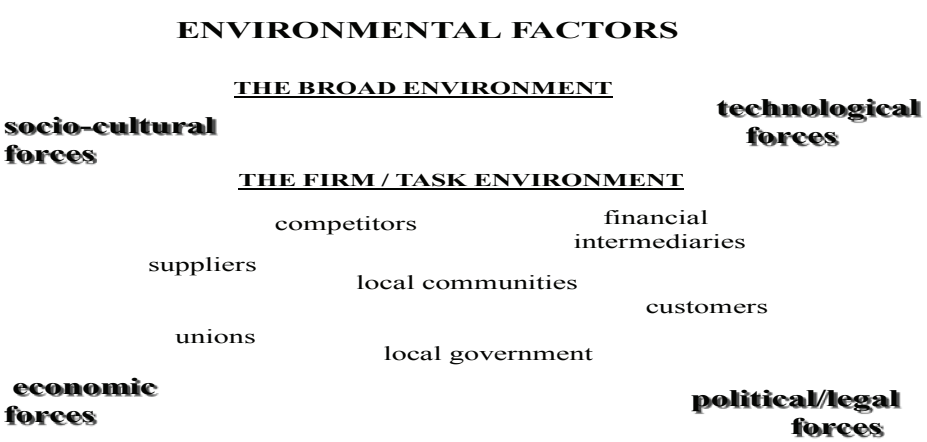
TABLE 1
SOCIAL MEDIA SITES (adapted from Luebke, 2010)

Facebook.com	Social networking site connecting family, friends and acquaintances.
LinkedIn.com	Social networking site primarily used by business professionals
MySpace.com	One of the original social networking sites. Primarily used for friend to friend communications
Twitter (tweeternet.com)	One of the newest iterations of social networking. Helps the "tweeters" keep track of what everyone is doing in real time.
Blogger.com	Blogs were launched in 1999 (blogger.com) and create a forum for individuals to speak and report anything on their minds
YouTube.com	One of the most popular social media sites, where individuals upload and share video clips

Technological advances focus on the innovation of products, procedures, or services and how these developments can affect the hospitality industry (Yang & Fu, 2007; Harrison, 2003). For example, online reservations have grown exponentially over the years (Jin-Zhao & Jing, 2009). The ability for industry executives to recognize the implications of this technological advance and develop strategies to take advantage of it is a critical component of strategy development. One of the premier online reservation

portals, OpenTable.com, boasted that in 2006 dining seats filled in restaurants through the use of their online reservation system exceeded one million (Ross, 2006). This was a 65% increase from the previous year. Industry leaders, not acknowledging this technological advance and implementing it in some capacity would find their companies lagging in providing the appropriate customer service that their clientele would demand. Delay in the implementation of technological advances of this magnitude detracts from developing sustainability and competitive advantage (Jin-Zhao & Jing, 2009; Piccoli, 2008; Yang & Fu, 2007). Figure 2 considers the full gamut of environmental factors that need to be addressed in the external analysis component of the strategic formulation process.

FIGURE 2
ENVIRONMENTAL FORCES IMPACTING ORGANIZATIONS
(adapted from Harris & St. John, 2008)



TECHNOLOGY'S IMPACT IN THE HOTEL INDUSTRY

A study conducted by Griffin (1998) investigated how information (through data warehouses) was being utilized by hotels, through the investigation of 12 of the largest hotel firms in the industry. In this study, only 7 of the 12 hotels were involved with data manipulation and 2 of the 7 had successfully developed and implemented their own data warehouses. Even though some of the hotels did not have data houses in place they were planning on the future development of this technology. Most of the hotels in the study were, using information for support of strategic market analysis including, targeting new customers, fine tuning loyalty programs, sales analysis and conducting trend analysis. The study concluded that the hotels ability to collect, process, and access large amounts of data can help companies build a competitive advantage (Griffin, 1998).

A study conducted by Robinson (1996) examined 62 companies who had successfully developed and implemented data warehouses. The financial impact shown was remarkable, return results; ROI equaling 401% and payback periods of approximately 2.31 years.

One of the limitations discovered in Robinson study was the expense involved with the development of this type of technology. O'Sullivan (1996) has stated that the development of this type of data warehouse could cost in excess of 3 million dollars. The shear cost of development of this type technology will simply eliminate many smaller companies from participating in using this technology. A possible solution to the smaller firms could be purchasing information from a third party vendor on a decision-by-decision basis (O'Sullivan, 1996; Robinson, 1996).

Hotel executives understand the importance and power of information, especially in troubled financial

times. The development and use of information systems can additionally aid in hotels ability to develop concepts for new development, target better locations, identify potential franchisees, locate new labor markets, track employee performance, and, most importantly, track customer satisfaction (Jin-Zhao & Jing, 2009; Griffin, 1998).

Magnini, et al. (2003) have identified six essential factors that can help build successful marketing strategies through the use of data mining, a statistical technique that builds models from vast data bases. They include, (a) creating direct mail campaigns, (b) planning seasonal promotions, (c) planning the timing and placement of ad campaigns, (d) create personal advertisements, (e) define growing and emerging markets, (f) help in room reservations (wholesale and business customers) (Magnini et al., 2003). The factors are recommended to be used in conjunction with other statistical modeling tools and help build competitive advantage.

According to Siguaw and Enz (1999), companies that effectively use technology will have the biggest affect on the customer satisfaction. The authors discussed three hotels which were awarded "best practices" for their technological innovations. These programs were specifically designed to improve service. These hotels were, The Balsams Grand Resort Hotel, Fairmont Copley Plaza, and the Ritz-Carlton Chicago.

At the Balsams Grand Resort Hotel in New Hampshire, technology was used to help develop a guest history log. The Balsams Grand used the guest history logs to capture customized information on the guests that had already made reservations at the hotel. The program was one of the first attempts to use an expert system model to gauge the needs and wants of the guests. Information was generated in regards to hotel inquiries, rooms, room types and numbers, special requests, times of year visited, any special requests, service personnel requested, etc. (Siguaw & Enz, 1999). All of this information was stored into an individual's personal file. The expert system then can anticipate almost any guest request. The success of this program has generated approximately 85% repeat business for the hotel. Additionally, new business has been generated from previous guest recommendations (Siguaw & Enz, 1999).

Boston's, Fairmont Copley Plaza's property management system was adopted and incorporated to expedite the concierge service at the hotel. Property management system enabled to get guest information such as newspaper preference, wake up time, overnight laundry service, restaurants with distance and directions from hotel as well as many other options. The result was an overwhelming, 90% satisfaction rate of the concierge service at this hotel, with an increased revisiting rate (Siguaw & Enz, 1999).

At the Ritz Carlton in Chicago, customer demand of technical help with computers in the rooms was on the rise. With most guests making inquires to the concierge office, both guests and employees were getting frustrated due to lack of technical knowledge. In response Ritz management created a new position, pulling from the hotel management information systems department, called the concierge. With services being offered Monday through Friday, guests were able to obtain any technical support they need in conducting business requiring computers or computer technology. Customer service has improved overall, as well as the moral of the staff at the Ritz Carlton (Siguaw & Enz, 1999).

In addition to improving customer service and satisfaction several hotels were given "Best Practices Awards" for information technology by implementing systems that helped in the increased efficiency of hotel operations. The Barbizon Hotel and Empire Hotel New York co-developed a computer database and expert system known as HOTELEXPERT. The system was initially developed to eliminate the use of hotel logbooks, phone calls for maintenance and record keeping of operations. Hotel personnel from any house phone or pc throughout the hotel can access the expert system. The expert system automatically assigns tasks to the responsible employee or manager, and can even page them to make them aware of the task. In 15 minutes the system will re-page to remind, and if the task has not shown to be completed the system will automatically notify the appropriate manager. The system also facilitates management in retrieving timely reports on hotel operations. The HOTELEXPERT has saved the hotels a total of $750,000 in 3 years through increased productivity, decreased paperwork, and ability to analyze trouble spots. Directly linked to the hotels improvement in operations they have shared a 30% increase in repeat business (Siguaw & Enz, 1999). It is evident through the preceding literature that leveraging this type of information can lead organizations toward better decision making and building and sustaining competitive

advantage (Yang & Fu, 2007; Lee, Barker & Kandampully, 2003).

TECHNOLOGY'S IMPACT IN THE RESTAURANT INDUSTRY

There has been significant improvement in the technological build up in the restaurant industry as well. Historically restaurants have been slow to adopt new technology (Leahy, 2008; Ansel & Dyer, 1999). Viewed simply as adding costs to the profit and loss statements, restaurants tended to shy away from new technological advances, because they added costs to already slim profit margins. In the past 10 years there has been a steady increase in restaurants realizing the importance of increasing their level of technology to become more competitive in managing the business (Ansel & Dyer, 1999). The technological transition phase has seen restaurants shift from the cash register as the premier technology to today's high tech online reservation systems as well as automated ordering systems (Tanyeri, 2007).

The first revolutionizing technology implemented by restaurants, was the well-known point of sale (POS) systems. Developed in the early 1980's the systems fit into the restaurant industry well by automating the jobs of the service staff and kitchen staff. No longer was handwriting orders and hand delivering them to the kitchen the means by which guest orders were processed. The POS was able to save valuable time and was a much more efficient way of executing this function. A major advance in this initial POS system was that the servers no longer had to remember or input pricing on hand written checks. The POS system was programmed with menu items corresponding with price, increasing efficiency to new levels. Ultimately the POS system had a positive effect on service quality. In the 1990's the technology progressed again still utilizing POS technology and upgrading ability to handle accounting and payroll functions (Rubinstein, 1997). Today the restaurant industry is still comfortable with, and utilizes POS systems, although the technology has grown more complex and useful from a managerial perspective. Vendors are continually trying to outperform and win over business from each other by striving to add many upgraded features to their systems. The following have been cited by Ansel and Dyer (1999) as current technological advances in POS systems for the restaurant industry: menu item tracking (track items sold in real time), graphic user interface (helps reduce and simplify training time), meal time duration (how long guests sit at tables), kitchen display systems (tracks where the order is in the production process in the kitchen), improved reporting (support management decision making), advanced input devices (touch screens) (Ansel & Dyer, 1999). Some vendors have even gone as far as developing complex information systems to help manage and help support main functions in the restaurants. For example, Micros (industry technology leader) has developed a table management system. The system is designed to track table status, improve timeliness and table turns (Ansel & Dyer, 1999). The system additionally tracks reservations and floor plan management, wait list management, table availability and customer paging. The latest innovation in technology comes in the form of the customer taking over the tasks traditionally performed by servers. The new technology empowers the customer to do everything from placing their customized order to paying their bill from a kiosk located on their table (Tanyeri, 2007).

Vendors have also developed production management systems. In addition to performing labor scheduling, systems have been developed (EATEC) to manage menu engineering, production forecasts, pricing formulation, inventory and purchasing controls (Ansel & Dyer, 1999). The EATEC system integrates with the restaurant POS system and enables these types of activities to co-exist with one another.

Information systems are being adapted from other industries as well, to aid the decision-making capabilities of organizations. Strategy formulation is the next important step in the technology development stage for restaurants. By having information warehouses, mining for pertinent data and utilizing that information to aid in the decision-making process restaurateurs will be able gain competitive advantage (Piccoli, 2008). As is the case in the hotel industry, it will seem that only big national chains will have the financial means to align themselves with this type of technology. Smaller restaurants will again be behind the curve in their ability to compete. Although restaurants have shown great improvements in their effort to implement new technology, they still need to figure out the best way to manage the technology and

implement the proper infrastructure to best utilize the technology and pertinent information extracted (Berry, 1998). Additionally, continuous updating is recommended every few years. The only organizations which have the resources (both financial and human) of supporting this high tech type of technology discussed above are the national chains. The technology comes with a price and many independent restaurateurs will again be unable to invest monies to upgrade their systems to the levels of national chains. Inevitably this will increase the competition gap between independents and national chains.

Social networking is one strategy that can help the independents bridge this gap. There is minimal cost attributed with social networking which allows business of any size to participate (Irvine & Anderson, 2008). The driving factor of the success of this vehicle is in the continual need for participation by the restaurateur. Many of the operators are wary of participating because lack of knowledge and ability to navigate within the existing social networks (Luebke, 2010). Luebeke (2010) stated, "the social media are here to stay – a new paradigm of how we communicate with one another and how we market our businesses. It's time to get smart about how you may use social media to your advantage" (p.17).

MANAGERIAL IMPLICATIONS

The technology being developed and implemented by hotels and restaurants is ultimately going to increase the level of service quality and customer satisfaction industry wide. As was seen by the studies conducted in the hotel industry, a primary focus was the improvement of the level of service to the guests (Siguaw & Enz, 1999). The same scenario holds true for the restaurant industry. Service quality is a construct, which has received a great deal of attention and has been studied empirically in many industries including the restaurant industry (Garver, 2002; Bojanic & Rosen 1994; Stevens, Knutson, & Patton, 1999). Vandermerwe (1993) felt that those companies which would become successful would have had to look at the customer's entire experience from the pre to post purchase stage. Strategic use of technological factors gives industry executives the ability to gauge that experience and to predict purchasing habits of current customers, future customers, clusters of customers, and can break groups down demographically for better analysis (Garver, 2002). As in the hotel industry, restaurateurs would have the ability to build competitive and strategic advantage by better understanding the needs and wants of the guests, hence building repeat business. Piccoli et al. (2001) believed that competitive advantage which is provided by technology can and will be invaluable to hospitality and other industries in the future. It is also felt that gaining competitive advantage by using technology, as a distinctive competency will require a total commitment from the entire organization. Piccoli et al. (2001) continues by adding that proper evaluation of customers, competitors, internal and external factors combined with technology will uncover many opportunities which could be used to increase the service quality and customer satisfaction of hospitality and other industries customers.

CONCLUSION

It is evident through the literature reviewed that technology has played, plays, and will continue to play a key strategic role in the growth and progression of the hospitality industry. From its slow beginnings (Griffin, 1998) the entire industry has progressed using technology to forge forward in many facets of their industry. Technological advances initially developed to aid in the efficiency of operation and reduction in labor, food and other operational costs have ultimately aided these organizations in the attainment of the ultimate goal, customer satisfaction and repeat business (Ansel & Dyer, 1999). Studies have successfully shown the industries drive to improve customer service and quality through the use of technology (Jin-Zhao & Jing, 2009, Garver, 2002; Siguaw & Enz, 1999). There is little question as to the positive effects technology has on the ability of organizations to gain strategic competitive advantage. External, strategic environmental analysis is critical in enabling organizations to take advantage of opportunities (David, 2009; Piccoli, 2008; Harrison & St. John, 2008). In reviewing the literature there were virtually no negative attributes discussed about what technology can do for organizations, except for

costs. Cost (of the technology) is one of the main restrictors as to why the hospitality industry, both hotels and restaurants, have been laggards in the adaptation of new technology. The industry consists of many types of ownerships, both at the hotel and restaurant levels, ranging from national and regional chains to independently owned operations. Smaller companies more than likely will not be able to afford to invest in the latest type of technology, creating an additional barrier to competition. The best hopes for these types of organizations will be to try and obtain second hand information via the Internet or consulting service to make an attempt to remain competitive (Irvine & Anderson, 2008). Technology has already broadened the scope of how the hospitality industry functions today and will continue to forge forward in the future aiding in the development of strategic competitive advantage within the industry.

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