case study

Banking on Bots and Booze in Hospitality

By Katerina Berezina and Lisa Cain

Introduction

Robots have been a dream of humankind for centuries, and now they have arrived (Bowen & Morosan, 2018; Ivanov, & Webster, 2017; Murphy, Hofacker, & Gretzel, 2017). The term 'robot' was coined by Karel Capek in his play Rossum's Universal Robots (R.U.R.), and is translated from Czech as forced labor. The current day definition of robots offered by the International Organization for Standardization (2012) describes robots as an "actuated mechanism programmable in two or more axes with a degree of autonomy, moving within its environment, to perform an intended task" (n. p.). Based on this definition, intelligence, independence and mobility are some of the core features of the robot. Since the robot is designed to perform a specific task, the algorithm that is empowering the robot gives it the intelligence or the 'smarts' to tackle the assigned duty. The independence describes the degree to which a robot is reliant (or not) on human input or feedback. And mobility describes a robot's ability to move around to perform its tasks.

Robots' abilities to deliver consistent outcomes, work without downtime, vacations and sick days, and carry out tasks that are difficult, laborious, or tedious for humans made them attractive candidates for employment in different industries. Praised for the human touch, the hospitality industry has also found itself hiring robots to work alongside human staff (Bowen & Morosan, 2018; Collins et al., 2018; Ivanov, & Webster, 2017; Murphy, Hofacker, & Gretzel, 2017). The restaurant segment of the industry has robots working in different positions, including chefs, hosts, food runners, wait staff, bartenders, and food delivery agents (Collins et al., 2018; Holley, 2018; Ivanov et al., 2017; Kraus, 2019; Prideaux, 2019; Rigie, 2019). Oracle report (2019) predicts that robots will be one of the forces driving change in the restaurant industry by 2025. To further consider and evaluate the trend of employing robots in the restaurant industry, this case study presents a case of The Tipsy Robot.

The Tipsy Robot

The Tipsy Robot is a unique bar in the Miracle Mile Shops in Las Vegas, NV. The website of this establishment states that it is "a one-of-a-kind revolutionary jaw-dropping Las Vegas bar attraction with wow factor". They support their claim and satisfy customers' expectations by providing tourists with the first robotic bar on land (Jones, 2017; Craft, 2017). The two robotic bartenders employed by the Tipsy Robot can create 120 different cocktails that take from 60 to 90 seconds to mix (Jones, 2017; Tipsy Robot, n.d.), with the wait time for a customer averaging less than 70 seconds (Craft, 2017). Because the bar opens at 10am daily and serves libations until 11pm on weeknights and 12am on Friday and Saturday, this means that the robots have the ability to serve up to 1,440 drinks each day (Tipsy Robot, n.d.).

The robotic bartender system is designed by an Italian company Makr Shakr and features the robotic arms made by KUKA AG (Kamping-Carder, 2018; Makr Shakr, n.d.a). The Tipsy Robot opened in June of 2017 as the first land-based bar equipped with the robots by Makr Shakr. The second bar of this type was opened in January of 2018 in the Hard Rock Hotel & Casino Biloxi in Biloxi, MS (Makr Shakr, n.d.b). Other bars equipped with such systems are available on Royal Caribbean cruise ships Harmony of the Seas, Anthem of the Seas, Ovation of the Seas, and Quantum of the Seas.

How does one order a drink from a robot? While customers cannot order directly from the robotic arms, they are still ordering through the use of technology. Several iPads utilizing a cocktail application are on display at countertops from which customers may place their orders. Through this application, the customer is able to create, name, and order drinks (Craft, 2017). And for the myriad foodies, bloggers, and spectators, there is an Instagram photo booth where the entire Tipsy Robot experience may be documented and shared on social media, helping to round out their slogan, "create, drink, share".

In addition to being a unique and engaging way to attract customers, each time the robot bartenders create a drink, it is with precise measurements that do not waver. So, when a drink is ordered, the look and taste is the same every time. This consistency helps to establish expectations and ensure satisfaction among customers, not to mention the ability to control the cost of the alcohol, as exact measurements are used with every pour (no jigger required), and spillage and employee theft are eliminated.

Then there is the novelty of watching a robot make a drink. Much like the fountains at the Bellagio and the volcano outside of the Mirage, the robotic bartenders at The Tipsy Robot serve as entertainment for both the consumers and the passersby. It provides the Miracle Mile shops with the 'wow factor' that attracts and retains crowds. As of April 11, 2019, The Tipsy Robot was ranked #69 of 329 places to enjoy in the Nightlife catego-

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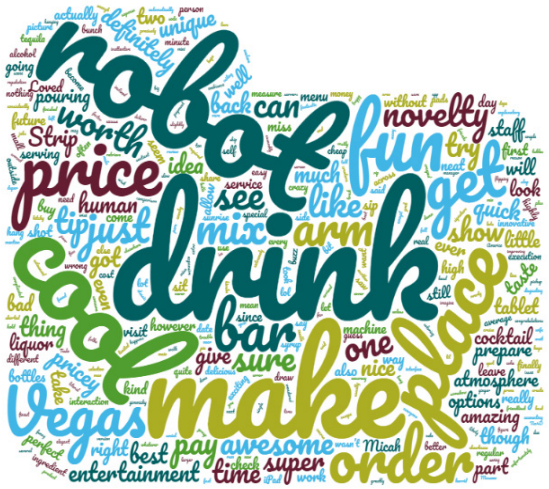
Figure 1

Word cloud of customer reviews of the Tipsy Robot posted on google maps



ry in Las Vegas. It had received 61 reviews on TripAdvisor with an average rating of 4.0, 90 reviews on Yelp with an average of 3.5, and 220 review on Google Maps with an average of 4.2. Figure 1 and Table 1 below summarize the guest comments left on Google Maps for the Tipsy Robot.

Anecdotally, patrons of The Tipsy Robot have touted its efficiency citing "accuracy" and that it offers "Perfect drinks every time." As is evident from the word cloud (Figure 1), they are impressed with the originality and "novelty" of this bar and consider the experience "fun". It is also perceived as "expensive", even "overpriced". Several intrigued reviewers often remarked that they watched the spectacle, but then purchased drinks from a neighboring venue within the casino resort. Individuals even approached the concept with a sense of humor, "Down side is they only accept batteries as tips... and may become sentient and enslave us all. Oh well they make a mean chewbacca!"

Table 1

Most frequently used words in Google reviews of the Tipsy Robot

Count	Word	Count	Word	Count	Word
125	drinks	20	place	13	great
86	robot	17	price	13	Vegas
46	make	14	bartender	12	good
41	cool	14	get	12	interesting
32	watch	14	order	12	overpriced
20	experience	13	bar	11	concept
20	fun	13	expensive	10	arm

Ultimately, the robot drinks are resoundingly a "cool concept".

However, these futuristic bartenders are not without their challenges. At $1 million per robotic bartending system (Kamping-Carder, 2018), the installation and utilization of these robot bartenders is not entirely feasible in traditional bar settings. Most bars do not generate the revenue necessary to implement such a costly device as it costs far less to employ a human, even with benefits and ancillary insurance coverages. Moreover, while it is possible to talk at the robotic bartender, it does not talk back or respond in any meaningful way. Bartenders have been touted anecdotally as therapists for their customers, and these robotic arms do not replace that amenity. To compensate for this lack of human contact, The Tipsy Robot also employs eight humans to assist with drink orders and delivery. And there is always an IT expert on hand in case of a technical malfunction.

Still, The Tipsy Robot was fashioned to create more than drinks to be shared. It was also designed to create a competitive advantage for the casino resort in which it is housed. The technology and its expense are pivotal in creating this competitive advantage for this megaresort. But due to the diffusion of innovation, vendors of these robotic bartenders are designing more affordable options to be released in the near future. Therefore, the purpose of this case study is to highlight the competitive advantage that has been created by The Tipsy Robot, and to assess how they may maintain this advantage going forward.

Theoretical Background

Information technology (IT) has been playing a transformational role in the tourism and hospitality industry, affecting operations and guest experiences in all segments of the industry (Buhalis, & Law, 2008; Law, Buhalis, & Cobanoglu, 2014; Navío-Marco, Ruiz-Gómez, & Sevilla-Sevilla, 2018). Previous research has investigated a link between adopting IT and gaining competitive advantage (Ashrafi, & Mueller, 2015; Pavlou, & El Sawy, 2006; Piccoli, & Ives, 2005). Bilgihan et al. (2011) documented that IT-enabled innovation may lead to competitive advantage, which refers to a "way to differentiate themselves from their competitors" (p.146). It is suggested that critical and careful evaluation of IT decisions leads to implementation of selected IT applications, which, in turn, may result in competitive advantage through the alignment of IT capabilities and competencies. Achieving competitive advantage may give a company the six following outcomes: 1) Low cost; 2) Value added; 3) Speed; 4) Agility; 5) Innovation; 6) Customer service. The benefits and challenges of employing robotic bartenders at The Tipsy Robot are presented below using this framework.

Benefits and Challenges of Employing Robotic Bartenders

Low Cost

In terms of competitive advantage, the term low cost refers to offering services and products, or the combination of the two, at lowest costs (Bilgihan et al., 2011; Huo, 1998; Siguaw et al., 2000). The robotic bartending system costs the company $1 million to install (Kamping-Carder, 2018), plus the renovations to the 2,500 square foot space and the installment of the iPads used for ordering. These devices were clearly not a low-cost option for this early adopter of the technology. However, due to the diffusion of innovation, Makr Shakr is now able to offer these robotic mixologists at $115,00 per unit (Makr Shakr, n.d.a.). The question that is begged is, does the cost to install still create a competitive advantage for The Tipsy Robot?

In addition to considering the initial cost of the robots, the investment over the lifetime of the robot should be evaluated and compared to the investment into human employees to serve customers over the same period of time. It is important to remember that human employees will also require benefits, vacations, sick and medical leave. Furthermore, costs in this segment may be evaluated through the beverage cost control. A robotic bartender allows the company to improve precision in pouring, avoid spillage, and, therefore, reduce cost and waste of the ingredients. Therefore, considering if the price of the technology versus human capital, or the reduction of waste, or the combination of the two result in capital gain for the company must be evaluated.

Finally, the average price of a drink at The Tipsy Robot is $14-19 per drink, including taxes and tips. While this may seem steep for a mixed drink, it actually falls squarely within the $12-$20 standard rate to pay for a mixed alcoholic beverage on the Las Vegas Strip (Colton, 2019). But the question that arises is, can the robots generate a return on investment in a bar atmosphere where the acceptable price for a drink is not as high?

Value added

"Value added refers to offering products and services, which are highly desirable and have distinct features/functionalities. Creative and innovative use of technology that enhances the value of offered services will be the means by which hotels differentiate themselves from their competitors" (Bilgihan et al., 2011, p. 147). From this perspective The Tipsy Robot offers its customers more than a regular bar experience. There are several value adding components of this mechanical bar. First, and most obvious, there is the opportunity to see robots at work. This brings the futuristic element into the present, which results in a unique form of entertainment for the customer. Second, the ordering system enables the customer to create a custom drink, including the exact amount of alcohol and mixers added to each drink. However, the reviews from The Tipsy Robot include anecdotal evidence of individuals who simply watch the process, and then order their drinks from neighboring establishments. The question that arises is, can a stand-alone bar entice patrons with this concept? And if so, how?

Speed

The speed of service is highly important in the bar environment. The advantage of robotic bartenders is the ability to work without downtime and with the same productivity level of creating a drink in under 1.5 minutes. While a human bartender usually prepares a classic martini in less than one minute, specialty drinks may take up to three minutes (Prendergast, 2012). However, where the robot is superior in terms of speed is that it does not fatigue. It does not want or need breaks, it does not carry any emotional stress to work, and it does not get distracted by conversations. Given the efficiency of the robot, would this feature be beneficial in a high-volume restaurant in place of a traditional bartender? Would it be beneficial in a traditional bar setting? If so, how? And is this robot capable of making a specialty cocktail that requires more complex mixing than shaking or stirring?

Agility

"Agility refers to the ability to manage change faster than competitors" (Bilgihan et al., 2011, p. 147). This ability to manage change refers to the ability to adapt and react to trends. Robotic bartenders have the ability to provide rich data about customer preferences and behavior since the entire process is automated and everything from the ordering to the crafting of the cocktail is automated. Once customers walk into the bar, they have to interact with technology. The Tipsy Robot bartender could keep track of all drinks that have been viewed before the customer places the order, all drinks that were ordered, and any modifications that customers requested. This information database may then be accessed and used to offer tailored cocktails to new and repeat customers alike based on previous orders, or preferred types of drinks. However, the data from most point of sales systems can offer bars the information being gathered by these robots and their ordering systems. How does this type of technology offer a competitive advantage in terms of agility?

Innovation

"Innovation refers to the continuous flow of new products and services, which are valued by the customer" (Bilgihan et al., 2011, p. 148). As an early adopter of this technology, the Tipsy Robot is ahead of its competitors. It presents a unique spot (one out of two) in the United States to consume a drink in a high-tech atmosphere. The innovation adopted by this bar is not only in employing robotic bartenders, but also in innovating the ordering process and experience. Even though this technology may be criticized for the lack of human interaction, it also has the potential to bring customers together by creating the drinks together, enjoying the photo booth, and sharing their experiences with their social networks. However, to sustain the competitive advantage, it is also important to keep this momentum and keep the innovation

going. Makr Shakr, the makers of the technology offered in this bar, has already dramatically reduced the price of the technology. How can The Tipsy Robot leverage its early adoption of the technology to continue to be innovative and retain their competitive advantage?

Customer service

"Customer service refers to a superior responsiveness to customer needs" (Bilgihan et al., 2011, p. 148). There are several components to evaluating this factor:

- The Tipsy Robot provides excellent service from the perspective of delivering a perfect product that exactly matches customer request every time it is ordered.
- The fully automated process at The Tipsy Robot makes ordering through an app easy and convenient. Regular customers may easily reorder their favorite drinks. Such ordering processes facilitate a flow for the experience, and eliminates friction points and areas for error.
- The Tipsy Robot provides entertainment to its customers, as this technology is rare and attractive to guests. Visiting this bar may be a unique opportunity for someone to see a robotic bartender in action.
- Conversely, the human touch is largely removed from this unique service. This may be considered a disadvantage, especially in the bar environment where a bartender is often a draw factor for consumers. Lack of human interaction may leave customers' desires for conversation unattended.

Problem Statement

The Tipsy Robot is among the first bars worldwide to employ robotic bartenders and innovate the bar experience. However, this new experience is built on a technology that is unique and rare at a specific point in time, but may not remain as such in the long run. All technological advances become less expensive and more accessible over time. Due to the diffusion of innovation, the creator of these robots, Makr Shakr, and its competitors are coming out with new, less expensive models (Kamping-Carder, 2018). The question that is begged is even if a competitive advantage is achieved based on other factors, is this a sustainable advantage and model? Can this be easily copied by others now or in the near future? And, if so, watching robots make a drink may not be as entertaining and exciting as the technology spreads, thus, leading to the question and challenge of creating a sustainable advantage.

Additional Discussion Questions

- Do you think there is a need and place for robotization in the bar industry?
- Do you believe The Tipsy Robot has achieved competitive advantage?
- If so, how this advantage may be sustained?
- How can The Tipsy Robot leverage its early adoption of the technology to continue to be innovative and retain their competitive advantage?
- Place yourself in the shoes of a consumer. Would you like to experience The Tipsy Robot? What concerns would you have from the consumer point of view?
- Can a stand-alone bar entice patrons with this concept? And if so, how?
- Would robotic bartending system be beneficial in a high-volume restaurant in place of a traditional bartender? Would it be beneficial in a traditional bar setting? If so, how?
- How does robotic bartending system offer a competitive advantage in terms of agility?

References

Ashrafi, R., & Mueller, J. (2015). Delineating IT resources and capabilities to obtain competitive advantage and improve firm performance. Information Systems Management, 32(1), 15-38.

Bowen, J., & Morosan, C. (2018). Beware hospitality industry: the robots are coming. Worldwide Hospitality and Tourism Themes, 10(6), 726-733.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. Tourism management, 29(4), 609-623.

Collins, G. Cobanoglu, C., Bilgihan, A., & Berezina, K. (2018). Hospitality Information Technology: Learning How to use it (8th ed.). Kendall/Hunt Publishing Company: Dubuque, IA.

Colton, J. (2019). Vegas drinking 101 - The most popular drinks in Vegas and how much they cost. Retried on April 14, 2019 from https://jackcolton.com/guides/how-much-are-drinks/

Craft. A., (2017, July 7). Robot bartenders are whipping up cocktails on the Vegas strip. Fox News. Retrieved on April 11, 2019 from https://www.foxnews.com/tech/robot-bartenders-are-whipping-up-cocktails-on-the-vegas-strip

Jones, J. (2017, July 4). In Las Vegas, these bartenders are complete robots, and that's the fun of this new bar. Los Angeles Times. Retrieved on April 11, 2019 from https://www.latimes.com/travel/la-tr-vegas-tipsy-robot-bar-20170704-story.html

Holley, P. (2018, May 17). The Boston restaurant where robots have replaced the chefs. The Washington Post. Retrieved on April 12, 2019 from https://www.washingtonpost.com/news/innovations/wp/2018/05/17/will-robots-replace-chefs-at-this-new-boston-restaurant-they-already-have/?utm_term=.9e19316942ed

ISO 8373:2012 Robots and robotic devices – Vocabulary. (2012). Retrieved from https://www.iso.org/obp/ui/#iso:std:iso:8373:ed-2:v1:en:term:2.2

Ivanov, S., & Webster, C. (2017, October). Adoption of robots, artificial intelligence and service automation by travel, tourism and hospitality companies–a cost-benefit analysis. International Scientific Conference "Contemporary tourism –traditions and innovations", 19-21 October 2017, Sofia University.

Ivanov, S., Webster, C. & Berezina, K. (2017). Adoption of robots and service automation by tourism and hospitality companies. Revista Turismo & Desenvolvimento, 27/28, 1501-1517.

Kamping-Carder, L. (2018, July 19). Robots are ready to shake (and stir) up bars. The Wall Street Journal. Retrieved on April 12, 2019 from https://www.wsj.

com/articles/robots-are-ready-to-shake-and-stir-up-bars-1532008707

Kraus, R. (2019, January 4). Pepsi thinks the future of snacking is robots. Mashable. Retrieved on April 12, 2019 from https://mashable.com/article/pepsico-snackbot-food-delivery-robots/#o.poRnmZvSq2

Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. International Journal of Contemporary Hospitality Management, 26(5), 727-750.

Makr Shakr. (n.d.a). First robotic bar inside Miracle Mile Shops at Planet Hollywood will introduce custom robots, interactive mixology and high-tech design. Retrieved on April 13, 2019 from https://www.makrshakr.com/portfolio/tipsy-robot/

Makr Shakr. (n.d.b). Robo Bar, a robotic experience. Retrieved on April 13, 2019 from https://www.makrshakr.com/portfolio/hard-rock-hotel-casino-biloxi/

Murphy, J., Hofacker, C., & Gretzel, U. (2017). Dawning of the age of robots in hospitality and tourism: challenges for teaching and research. European Journal of Tourism Research, 15, 104-111.

Navío-Marco, J., Ruiz-Gómez, L. M., & Sevilla-Sevilla, C. (2018). Progress in information technology and tourism management: 30 years on and 20 years after the internet-Revisiting Buhalis & Law's landmark study about eTourism. Tourism Management, 69, 460-470.

Oracle. (2019). Restaurant 2025: Emerging technologies destined to reshape our business. Retrieved on March 19, 2019 from https://www.oracle.com/webfolder/s/delivery_production/docs/FY16h1/doc36/Restaurant-2025-Oracle-Hospitality.pdf

Pavlou, P. A., & El Sawy, O. A. (2006). From IT leveraging competence to competitive advantage in turbulent environments: The case of new product development. Information Systems Research, 17(3), 198-227.

Piccoli, G., & Ives, B. (2005). IT-dependent strategic initiatives and sustained competitive advantage: a review and synthesis of the literature. MIS quarterly, 29(4), 747-776.

Prendergast, J. (2012, August 12). Is modern mixology worth the hype? Forbes. Retrieved on April 13, 2019 from https://www.forbes.com/sites/jerryprendergast/2012/08/29/is-modern-mixology-worth-the-hype/#312a31374655

Prideaux, S. (2019, January 14). Robot host welcomes guests at new Dubai mall restaurant. The National. Retrieved on April 12, 2019 from https://www.thenational.ae/lifestyle/food/robot-host-welcomes-guests-at-new-dubai-mall-restaurant-1.813177

Rigie, A. (2018, September 24). The rise of the restaurant robot. Forbes. Retrieved on April 12, 2019 from https://www.forbes.com/sites/andrewrigie/2018/09/24/the-rise-of-the-restaurant-robot/#38f7ed143747

Tipsy Robot. (n.d.). Mixology Perfected by Technology. Retrieved on April 13, 2019 from http://thetipsyrobot.com/