Atithya: A Journal of Hospitality
11 (1) 2025, 125-136
www.publishingindia.com/atithya/

Technology Replacing Experienced Hands: "CULINARY BYTES" An Exploratory Review and Future Challenges

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Abstract

From farm to fork, the food chain has evolved into a very convoluted industry. Every link in the food chain is incorporating industrial robots to boost output & provide better goods that meet or surpass consumer or guest's expectations. Although technology should complement interaction rather than replace the human touch. When human contact and technical innovations work together harmoniously, they can create an experience that guests will find truly remarkable. Certain industry experts contend that the utilization of technology is both economically beneficial & operationally efficient, whereas other authorities see it as a threat that could leave many professionals jobless. This paper will focus on prospects and challenges of modernization and futurism and aims to delineate, scrutinize & understand the role of robotics in the hospitality & culinary operations to enhance the comprehension of prevailing trends and innovations within the food sector and offering valuable perspectives to hoteliers, culinary professionals, entrepreneurs, engineers, software developers, data analysts, economists and other scholarly audiences & food supply chain- one of the predominant sectors in the industry.

Keywords: Technology, AI, Robots, Skills, Culinary, Service, Hospitality

INTRODUCTION

The "Terminator" would never stop. It would never leave, never hurt or shout at, get drunk or say it was too busy or tired or not well to be at work. In a few years from now the waiter robot will be at your table and introduce himself as "Hello, I am Terminator, and I will be here at your service tonight." Chef Optimus Prime will prepare your meal as per your preference. These super-efficient, talented and programmed machines are surely the future of the hospitality & culinary industry.

In the film & television shows, the kitchen computer & robots have conveyed dreams & anxieties around the future. This duality appeared in the fictional futuristic cartoon series called 'JETSONS' featuring a family living one century in the future. In this futuristic family's home, Jetsons have a Foodarackacycle machine (also called as electronicook, Food-o-matic) that can cook any dish in minutes with very little assistance. However, no matter how modern & futuristic the idea of the show is, the tasks are finished by the supervision of a female human being.

Serving as automated assistants, service robots can occasionally display human-like traits and are capable of carrying out repetitive, boring & difficult daily duties on our behalf. On the market service robots deviate greatly from this idealized image that is frequently portrayed in movies. One of the most notable instances of a service robot in modern life is the reasonably priced cleaning robot, Roomba. These gadgets are among the first to be on the market for a rapidly developing & exciting field like service robots.

The realm of gastronomy has perpetually upheld the principle of artisanal production. It has long been believed that homemade food captures people's attention, regardless of the particular culinary style. Nevertheless, social dynamics have changed as people became more & more consumed with the temporal, material and social validation of their pursuits in addition to fleeting pleasures. This particular group shows little enthusiasm in cooking meals every day with fresh ingredients, instead they would rather use their cooking time to watch TV or sleep.

Scholars and entrepreneurs have recognized this shift in consumer attitudes & have proactively adapted their strategies to enhance their commercial ventures. The advent of prepared meals, convenience foods & the accessibility of ingredients & pantries at every store

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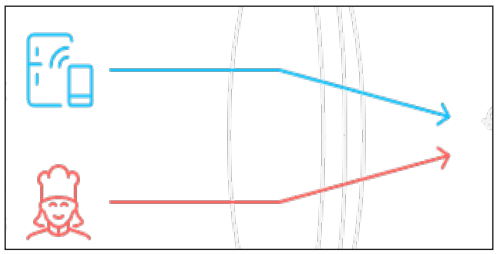
and supermarket has been well received by the present generation.

Ultimately implementing novel methods to boost efficiency, increase perceived & actual value of food, providing nutritious well-balanced meals & reducing wastage is important.

OBJECTIVES OF THE STUDY

- To provide a theoretical framework to understand the influence of technology in ease of culinary operations and restaurant service.
- To understand the possible challenges that can be faced while implementing technology in kitchens & restaurants



RESEARCH DESIGN

The study employs a survey research design. It combines the primary data in the form of survey data with analysis of various theories on customer satisfaction, technological advances, emotional and human quotient in service & the culinary expertise of human chefs to provide a holistic understanding of the topic.

DATA COLLECTION AND ANALYSIS

Methodology

The primary data was collected through a structured questionnaire aimed specifically to understand the objectives of the research. The data for the survey design is collected using a non-probability sampling technique via Google Forms. The data will be analysed using simple statistics (measures of central tendencies) along with textual analysis of the theories.

Secondary data was collected through several articles published in renowned journals, books, magazines etc. Which provided a basis to understand the gaps in the study. Formulation of hypothesis and objectives were based on the gaps identified from the literature available.

Ethical Considerations

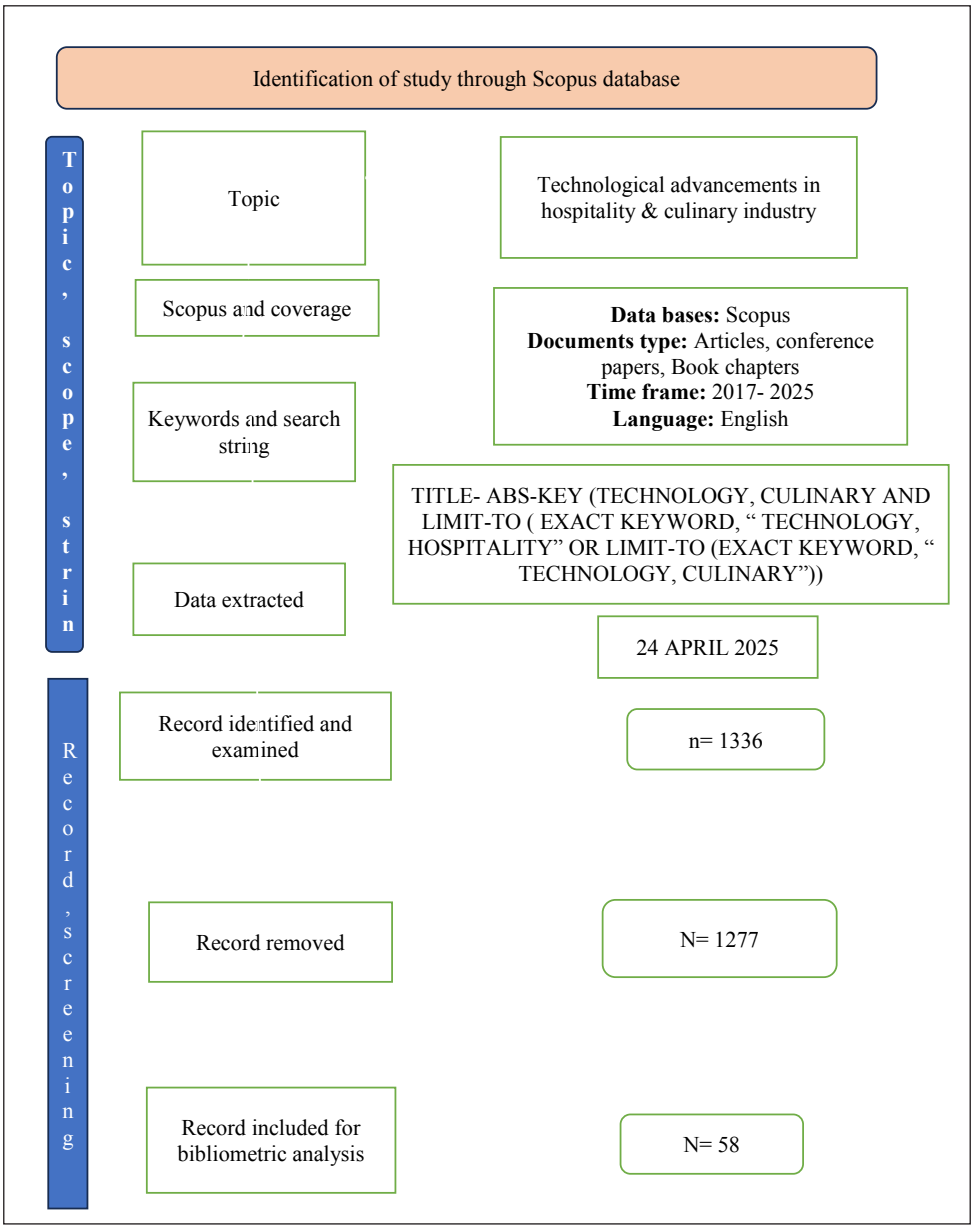
The study does not have any ethical issues. The identities and personal details of the participants have been kept confidential. The participation in the survey was voluntary.

Table 1: Evolution of Technological Advances in Hospitality and Service Sector

Author	*Year*	*Title*
Priporas, C. V., Stylos, N., Rahimi, R., & Vedantachari, L. N.	2017	Unraveling the diverse nature of service quality in a sharing economy.
Bowen, J., & Morosan, C.	2018	Beware hospitality industry: the robots are coming. Worldwide Hospitality and Tourism Themes.
Choi, S., & Lee, J.	2019	Automation in the culinary industry: Economic implications and operational benefits.
Bogue, R.	2020	Robotics in the kitchen: Automation and innovation in food production.
Huang, M. H., & Rust, R. T.	2021	Artificial intelligence in service industry.
Ghosh, B. K., & Batabyal, D.	2022	Measuring tourism efficiency for sustainable tourism policies.
Lee, K. H., Kim, D. J., & Kim, S. W	2023	Artificial intelligence in menu design.
Somya Takuli, Yashwant Singh Rawal, Debasish Batabyal, & Satish Jha	2024	Reviewing Functional Values and Dimensional Linkages to Customer Experience in Hotel Industry.
Song Q., Huang M., Ren Z., Lin X., Li S., Sun B., Li Y.	2025	User Well-Being in Kitchen Environment Design from a Positive Psychology Perspective.

METHODOLOGY

Bibliometrics is a statistical analysis tool of publication that offers quantitative insight into academic literature. Kumar and Sahoo (2024). As mentioned by Goyal et al., 2023; Ismail et al. (2024), data collected in the database, such as quotes, writers, keywords, or the number of articles read, the bibliometric analysis provides insight into the growth of literature and information transfer over a while within a given field. Most recent research studies about technological concepts, marketing and destination image also utilized this scope. Bibliometrics includes various approaches such as citation analysis, co-citation analysis, bibliographic linking quotation Goyal (2023), and co-word analysis for keywords Sharma and Sharma, A. (2023), depending on which data it uses in research. Using this strategy, we may identify major topics that have been addressed, important knowledge gaps, and unexplored regions, as well as make recommendations for future research directions.



Sources: Constructed by author.

Fig. 1: Flow of Extracting Process (Flowchart Illustrating the Search Process)

LITERATURE REVIEW

The culinary and hospitality industries have long thrived on a balance of creativity, craftsmanship, and customer service. However, the rapid pace of technological innovation is reshaping these industries in significant ways. Technologies such as artificial intelligence (AI), robotics, and automation are increasingly becoming central to the sector, driving substantial advancements while raising questions about the preservation of traditional culinary skills. The "Terminator" analogy mentioned in the abstract underscores the growing presence of robots in the service industry—machines that are tireless, consistent, and always available to serve customers. Whether the industry embraces or resists these changes, it is clear that technological innovation will play a defining role in the future of the culinary and hospitality fields.

This literature review examines the intersection of technology and the culinary arts, focusing on the rise of automation, robotics, and AI and the implications these technologies hold for seasoned professionals in the food sector. The review explores both the opportunities and challenges presented by these innovations, outlining the potential trajectory of culinary practices in light of technological advancements. By considering both the benefits and potential drawbacks, this paper offers a balanced perspective on the role of robotics and AI in hospitality, while addressing the ongoing debate over the replacement of human labor with machines.

Technological Advancements in the Culinary Sector

In recent years, the integration of technology into the culinary industry has evolved from simple tools to full-scale automation involving AI and robotics. Within the kitchen, robots are increasingly employed to perform tasks such as chopping, stirring, grilling, and plating. Companies like Moley Robotics have developed sophisticated robotic arms that can replicate the precise movements of a skilled chef, enabling the preparation of meals with remarkable accuracy and consistency. Bogue (2020) notes that robotic chefs are capable of mimicking cooking techniques with impressive precision, ensuring uniformity in the final dish. This technology is particularly beneficial in high-volume kitchens where consistency and speed are essential.

Beyond the kitchen, robots are also being introduced to front-of-house operations. The hospitality sector has seen the development of service robots, such as SoftBank Robotics' Pepper, which can interact with customers, take orders, and deliver food. These robots are equipped with natural language processing abilities, allowing them to engage with customers and enhance their dining experience. Additionally, autonomous robots designed for food delivery are streamlining service, reducing labor costs, and improving operational efficiency (Van der Meulen et al., 2022). AI and machine learning are also being increasingly applied in areas such as predictive analytics, inventory management, and personalized customer service. AI systems can analyze customer data to predict dining preferences, enabling restaurants to tailor their menus and services more precisely to individual tastes. Lee et al. (2023) highlight how AI is also helping optimize supply chains, reduce food waste, and improve resource allocation, thereby enhancing both environmental and economic sustainability.

Economic and Operational Efficiency

The integration of technology into the culinary industry is often associated with significant economic and operational efficiencies. Automation and robotics have the potential to reduce labor costs, improve productivity, and streamline operations. For example, AI-driven algorithms help restaurants forecast demand and adjust menus accordingly, minimizing overproduction and food waste. Choi and Lee (2019) found that the implementation of robots in kitchens led to a 30% reduction in food preparation time without sacrificing quality, which in turn reduced customer waiting times and increased table turnover rates.

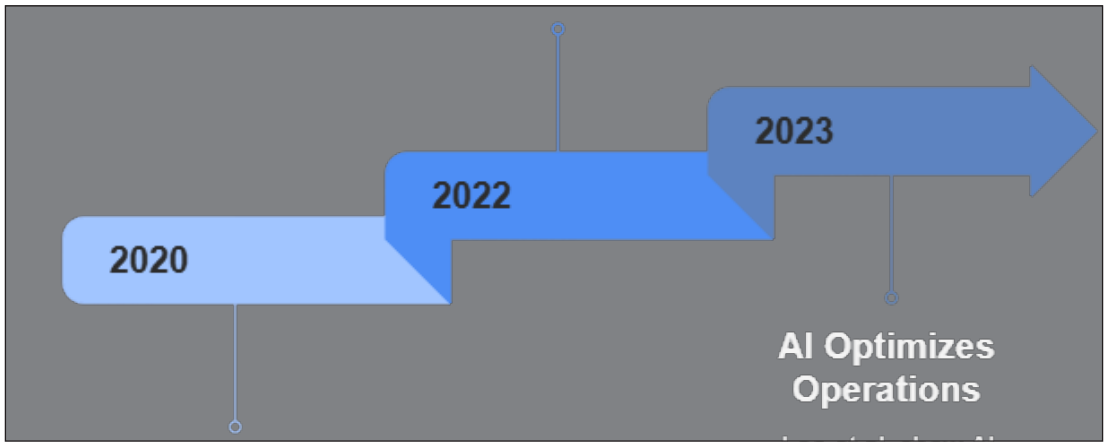
In addition to improving operational efficiency, technology offers greater consistency and predictability. Robotic systems can perform repetitive tasks, such as frying, grilling, and plating, with precision, ensuring that every dish is prepared consistently. Bogue (2020) notes that this reliability offers significant advantages for quality control, particularly in large-scale kitchens or restaurant chains where uniformity is critical. Furthermore, automation provides added safety and sanitation benefits. Robots can perform dangerous tasks, such as handling hot surfaces or hazardous chemicals, reducing the risk of workplace accidents and fatigue-related errors.

The Human Touch: Complementing, Not Replacing, Expertise

While the operational advantages of robotics and automation are evident, many experts emphasize the ongoing importance of human expertise in the culinary and hospitality industries. The culinary arts are valued for their creativity, personal expression, and the ability to create emotional connections with guests. The assertion that "technology should complement interaction rather than replace the human touch" highlights a central concern regarding the use of robots in hospitality. As Bitner et al. (2020) suggest, customer satisfaction in hospitality is often linked to personalized service, emotional connection, and human interaction—elements that robots cannot replicate.

The integration of technology should therefore not diminish the role of skilled chefs, servers, or sommeliers. Instead, technology should enhance their ability to deliver exceptional dining experiences. For example, while robots can follow recipes with precision, they lack the creativity and intuition that chefs bring to the kitchen. A skilled chef can adapt a dish based on factors such as ingredient freshness, customer preferences, or changes in texture or flavor, while a robot will strictly follow a set pattern. As Hwang and Lee (2023) argue, the future of the culinary industry lies in combining human creativity and expertise with the precision and efficiency of machines, enabling chefs and staff to focus on what technology cannot do: innovate, empathize, and create memorable dining experiences.

Rather than replacing human workers, robots, AI, and automation should be viewed as tools that enhance human capabilities. For example, a robot waiter may efficiently take orders and deliver food, but human staff are still essential for providing context, reading customer needs, and responding to complex or non-standard requests. The importance of maintaining human presence is particularly evident in high-end restaurants, where personalization and guest relations are central to the dining experience (Jones, 2021).



Employment Implications: Job Displacement or Transformation?

A significant concern surrounding the increasing use of technology in the culinary and hospitality industries is the potential for job displacement. Automation and robotics are often seen as threats to low-skilled jobs, such as kitchen assistants, servers, and cleaners. According to the International Labour Organization (ILO) (2022), automation could lead to the loss of millions of jobs in the hospitality sector over the next few decades, particularly in repetitive, low-wage positions.

However, other experts argue that technology will not necessarily eliminate jobs but rather transform them. As robots take over routine tasks, human workers can shift to more creative, strategic roles that require emotional intelligence and complex decision-making. Hwang and Rust (2021) suggest that technological advancements will create demand for new roles, including those in AI management, robotics maintenance, and digital marketing. These roles may require workers to develop new skills in technology, robotics, and data analysis, leading to a more technologically literate workforce.

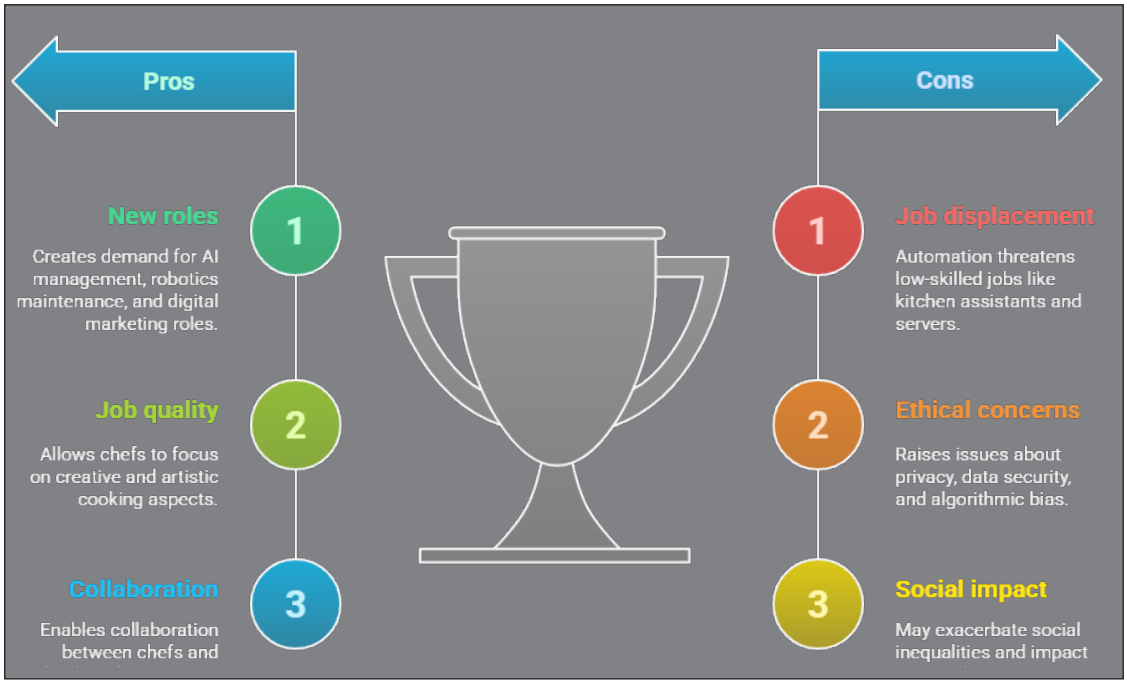
Moreover, automation could improve job quality rather than reduce job quantity. By taking over repetitive tasks, robots could allow chefs and kitchen staff to focus on the creative and artistic aspects of cooking, which may lead to more rewarding and specialized roles. The rise of AI

and robotics offers culinary professionals the opportunity to collaborate with technology, combining their creative vision with the precision and efficiency of machines.

Ethical and Social Considerations

The rise of automation in the culinary sector raises several important ethical and social considerations. The use of robots and AI in food service and production presents challenges related to privacy, data security, and algorithmic bias. AI systems that rely on large datasets to personalize services may raise concerns about the collection, ownership, and misuse of customer data. As Lee et al. (2023) note, questions about data privacy and ethical data use need to be addressed as AI systems become more integrated into the service industry.

The adoption of robots in customer-facing roles also raises concerns about job loss, particularly in marginalized communities. Bogue (2020) highlights the potential for automation to drive efficiency and profitability, but its broader societal impacts must be carefully managed. The challenge will be to ensure that technological innovation benefits all stakeholders, avoiding the exacerbation of social inequalities.



RESULTS, DISCUSSION AND FUTURE RESEARCH

In reviewing the customer experience landscape within the hospitality and culinary industries, it is essential to recognize the inconsistencies and contradictions in the existing literature surrounding functional values and the relationships between different service dimensions. While several studies emphasize the critical role of service quality and customer satisfaction in fostering positive customer experiences, other research suggests the need for additional dimensions or challenges the prominence of certain factors. For example, Priporas et al. (2017) underscore the importance of service quality in enhancing customer satisfaction, yet Shvets (2020) points to gaps in understanding which specific service quality attributes truly influence guest experiences.

Takuli (2024), Rawal (2024), Batabyal (2024), Jha (2024), The highly competitive nature of the hospitality and culinary sectors means that customer experience has become a key differentiator for businesses seeking to stand out and foster customer loyalty. Issues that detract from the customer experience, such as outdated technology, the over-reliance on automation, and the implementation of standardized recipes in kitchen robotics, can significantly undermine service reliability and erode trust. In particular, outdated technological systems can create a disconnect between customer expectations and actual service delivery. Addressing these challenges through technological upgrades and implementing more

tech-savvy solutions across all service touchpoints—before, during, and after a customer's visit—has the potential to enhance operational efficiency and service quality, particularly in restaurants, cafés, and kitchens where labor costs are a concern.

Ghosh and Batabyal (2022), Customer experience and the experiences of hospitality workers are deeply intertwined, each influencing the other through the fulfillment of expectations, the creation of demand, and the pursuit of satisfaction. The rise of dynamic travel technologies and shifting guest behaviors present unique challenges in designing optimized customer interactions. As the demand for personalized, efficient, and creative service continues to grow, hospitality providers face increasing complexity in meeting customer needs. These challenges include ensuring seamless communication between various service systems—such as order-taking platforms, dietary preference tracking, and robotic kitchen assistants—and maintaining consistent service delivery across these systems.

Technologies such as the Internet of Things (IoT), chatbots, smart sensors, mobile applications, and robotic automation offer promising solutions to these challenges. These innovations help streamline service delivery, from advanced kitchen tools like robotic arms capable of precise chopping, cooking, and plating, to smart point-of-sale systems in restaurants. By integrating these technologies, establishments can offer highly personalized services, such as crafting customized meals or preparing unique cocktails, all while ensuring customer satisfaction and fostering brand loyalty. The implementation of such technology not only enhances the customer experience during their visit but also facilitates a memorable interaction that can increase customer retention.

Van der Meulen, Gregory and Hutchinson (2022), Achieving such advancements in customer experience requires a collaborative effort among a diverse range of stakeholders, including engineers, software and hardware developers, culinary professionals, restaurant managers, and business investors. Continuous improvement and innovation are key to developing new ideas that deliver personalized and engaging experiences. As the industry evolves, experienced hotel and restaurant staff must embrace these new technologies, cultivating innovative skills that extend beyond traditional hospitality practices. This approach, coupled with the adoption of new technological solutions, can help establish a cycle of improvement that attracts repeat customers, boosts customer loyalty, and enhances overall revenue generation through positive customer reviews.

Furthermore, the changing expectations of tech-savvy consumers, who have grown up in an era of rapid technological advancements, make it imperative for service providers to keep pace with these demands. In the hospitality industry, customers increasingly seek digital solutions to make their travel experiences more seamless, and they expect technology to play a central role in their interactions with service providers. By combining innovative technology with high-quality service, hospitality businesses can create a win-win situation, where both guests and service providers benefit.

Hotels can leverage this by offering customized services that evoke positive emotions and create memorable experiences, ultimately improving competitiveness and differentiation in the marketplace. Further research could explore the relationship between customer experience and other key factors such as service mix strategies, brand equity, customer engagement, and retention. Investigating how innovative technological solutions impact customer loyalty and word-of-mouth communication would provide valuable insights into maintaining a competitive edge in an increasingly digital and customer-focused hospitality industry.

THE SERVICE INTERFACE, IMPORTANCE OF CONNECTING BRAND EQUITY AND CUSTOMER EQUITY

The preliminary evidence has integrated approaches to service quality and customer satisfaction research can be considered because perceived customer's value is an immediate antecedent to purchase intention and customer satisfaction and one more variable word of mouth is linked with it. Replication of various relationships in particular perceived value, service quality and customer satisfaction can be conducted with particular emphasis on hospitality services.

The paper provides insights in the field of hospitality industry, culinary world, restaurants, and services

in specialty and fine dining restaurants, evolution of customer experience concept and the role of technological innovation in enhancing customer satisfaction and experience.

Implications for stakeholders i.e service providers, guests, hotel owners, managers, chefs, culinary professionals, food photographers, food merchandising and marketing professionals, food bloggers, engineers, nutritionist, dietetics, doctors, scientists and future researchers can critically examine the various dimensional linkages to accelerate the adoption of technology in all the aspects of service delivery can help to minimise the gap between guest expectation and actual service and hotels and kitchens can offer customized services by adoption of technological innovation in various phases of customer journey (Rawal et al., 2022).

Sharma et al. (2023) mentioned that the future of innovation in guest experience can only be obtained through adoption of technology and the hotel industry has numerous touchpoints where guests directly interact and these human interactions can be made memorable through use of technology.

Starkov (2021) also focused on multiple digital touchpoints in the customer journey where new digital perspectives can be implemented. Tech solutions can provide optimal use of technology to improve customer service and operational efficiency (Ghosh & Batabyal, 2022). Digital future will necessarily have implications on generation of innovative technology, invention of hospitality, innovation in hospitality processes, business strategies for gaining competitive advantage.

CHALLENGES

The rapid integration of technology into the hospitality and culinary sectors represents a pivotal shift that will define the industry's future. Robotics, automation, and artificial intelligence (AI) are no longer mere theoretical concepts or futuristic fantasies, but active elements of the dining experience. As explored in this research, these innovations are transforming every aspect of the food service chain—from farm to fork—enabling improvements in operational efficiency, consistency, and food safety. However, this technological revolution also

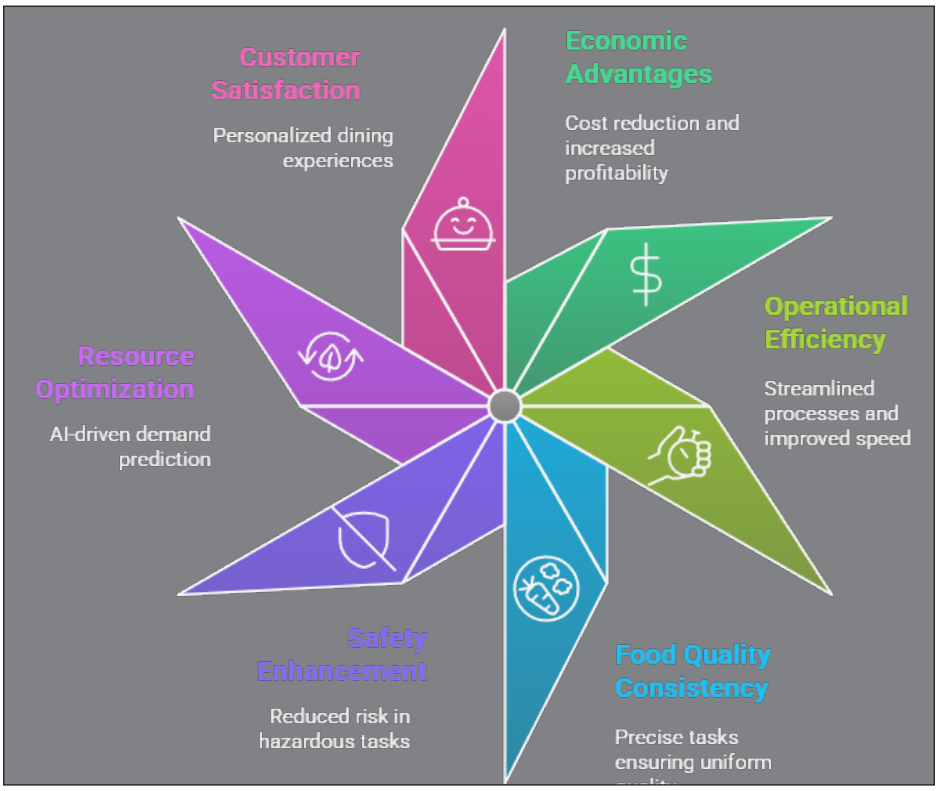
raises critical questions about the balance between human creativity and machine efficiency, the social and ethical implications of widespread automation, and the future of employment in an increasingly mechanized industry.

This study's central focus was to examine the opportunities and challenges posed by the rise of robotics in culinary and hospitality settings, offering insights into the evolving dynamics of the food service sector. Through a comprehensive literature review and analysis, we identified both the profound benefits and potential risks that accompany the deployment of advanced technologies such as AI and robotics in kitchens and restaurants. It is clear that while technology will reshape the industry, it will not render human expertise obsolete. Instead, the future of the industry lies in an optimal synergy between technology and the human touch, where machines handle repetitive, mundane tasks, and skilled professionals focus on creativity, customer relations, and delivering exceptional dining experiences.

Benefits of Robotics and Automation

The most compelling advantages of robotics in the culinary and hospitality sectors are economic and operational. As evidenced by various studies, automation can significantly reduce labor costs, increase productivity, and streamline processes, enabling restaurants and food service providers to operate more efficiently. For instance, robotic systems capable of performing precise tasks such as chopping, stirring, and grilling can minimize human error, ensure consistency in food quality, and reduce the time spent on food preparation. In high-volume settings, where speed and uniformity are crucial, robotics can provide substantial operational benefits, from improving the speed of food delivery to enhancing kitchen safety by taking over hazardous tasks like handling hot surfaces or chemicals.

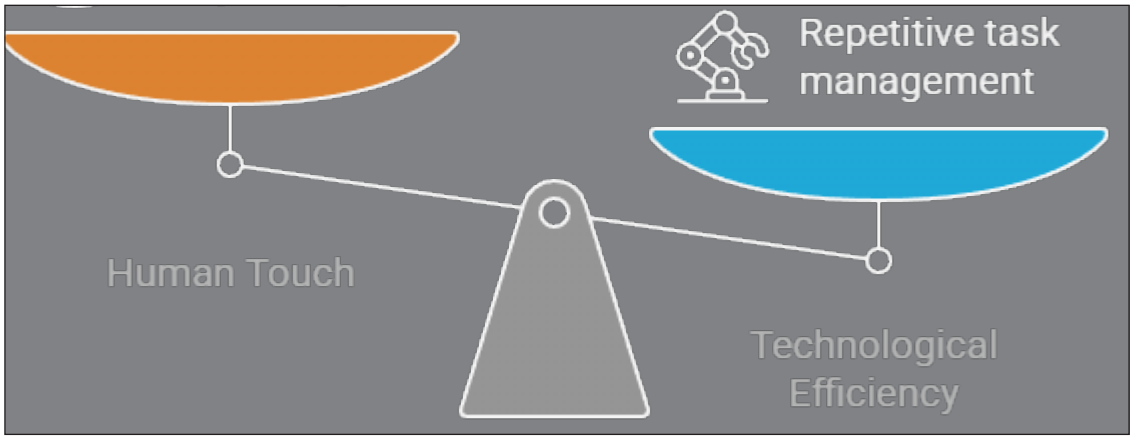
Moreover, AI-driven technologies contribute to resource optimization by predicting customer preferences and demand, thereby reducing food waste and ensuring that kitchens are stocked with the right ingredients at the right time. This is particularly important in an era where sustainability is a growing concern in both the culinary and hospitality industries. AI's ability to analyse data and forecast trends also enables restaurants to customize menus and dining experiences, providing a level of personalization that enhances customer satisfaction and loyalty. These efficiencies not only improve the bottom line but also contribute to the creation of more sustainable practices in food sourcing, preparation, and waste management.



The Human Element: Complementing Technology

While the operational efficiencies enabled by robotics and AI are substantial, the need for human creativity, intuition, and emotional intelligence remains irreplaceable. As discussed in this paper, many industry experts argue that robots should not be seen as replacements for human workers but as tools that augment and enhance human capabilities. The artistry involved in preparing a meal, the emotional connection fostered through personal interactions between staff and guests, and the creative adaptability of chefs to respond to unique challenges in the kitchen are qualities that machines cannot replicate.

Indeed, the heart of gastronomy lies in the human touch—the ability to innovate, adapt, and create memorable experiences that resonate with customers on an emotional level. Technology can certainly assist with the logistical aspects of food production and service, but it cannot replicate the subtle nuances of personal service, such as anticipating guest needs, interpreting emotions, or creating a welcoming atmosphere. As such, the future of the hospitality and culinary sectors will rely heavily on finding ways to combine the precision and efficiency of robots with the creativity and warmth of human professionals. In this hybrid model, robots could manage repetitive tasks, freeing up staff to focus on what they do best: fostering personal connections and offering personalized experiences that delight customers.



Employment and Social Implications

A central concern in the widespread adoption of robotics and AI in the hospitality and culinary industries is the potential for job displacement. As automation increasingly takes over routine tasks, the traditional roles of kitchen assistants, waitstaff, and other frontline workers could be at risk. This transition could lead to significant job losses, particularly for individuals in low-skilled positions. However, as noted by several scholars, including Hwang and Rust (2021), automation does not necessarily equate to job elimination but rather job transformation. As machines take over mundane tasks, human workers can be re-skilled and redeployed into more creative, strategic, and complex roles that require emotional intelligence, decision-making, and problem-solving.

In this context, the implementation of robotics could improve job quality by allowing culinary professionals to focus on the more satisfying aspects of their work—creating and innovating in the kitchen. Moreover, new roles will emerge as the demand for AI management, robotics maintenance, and data analysis grows. These roles will require workers to develop new skills and adapt to a more technologically advanced work environment, which could ultimately lead to a more skilled and adaptable workforce.

While the shift to automation may create disruption in the short term, the long-term effects could be more positive if accompanied by adequate investment in education, retraining, and workforce development. The challenge will be to ensure that the benefits of technological innovation are distributed equitably across society, without exacerbating social inequalities or leaving marginalized communities behind.

Ethical Considerations

The integration of AI and robotics in the food service sector also raises important ethical questions, particularly

around issues of privacy, data security, and algorithmic bias. As AI systems collect vast amounts of customer data to optimize service, questions arise about who owns this data and how it is used. Additionally, as robots take on customer-facing roles, there is a risk that they could perpetuate biases or fail to meet the nuanced needs of diverse populations. Therefore, it is essential for developers and policymakers to address these concerns proactively, ensuring that technology is used in an ethical and transparent manner.

Furthermore, the social implications of widespread automation in hospitality must be considered. While technology has the potential to improve efficiency and reduce costs, it must be balanced with considerations for employee welfare and customer experience. Ultimately, the goal should be to create a future where technology benefits both businesses and employees while also enhancing the overall dining experience for customers.

CONCLUSION

The integration of robotics and AI in the culinary and hospitality industries represents a transformative shift that offers both tremendous opportunities and complex challenges. On the one hand, these technologies hold the potential to significantly enhance operational efficiency, reduce waste, and improve service consistency. On the other hand, they also pose risks related to job displacement, social inequality, and the potential erosion of the human element that makes dining experiences truly memorable.

Ultimately, the future of the culinary and hospitality industries will depend on how well these technologies are integrated into the existing framework of human expertise and creativity. By focusing on collaboration between machines and people, the industry can achieve a harmonious balance that leverages the strengths of both. The key to success will lie in developing technologies that complement, rather than replace, the human touch, and in ensuring that the benefits of automation are shared equitably among all stakeholders. As the industry moves forward, it will be crucial for businesses, policymakers, and workers to adapt to this new technological landscape while preserving the core values of hospitality and craftsmanship that have long defined the sector.

The complexities of kitchen chores, from physical interactions to temporal and spatial alignment of objects and goals in the kitchen for all age groups. Focusing on physical manipulation, such as chopping, opening packages, and moving objects around the kitchen, organization and coordination, such as switching, synchronizing and monitoring cooking tasks; and reorchestration and reorganisation, which includes inserting additional tasks and rearranging tools and ingredients when adjustments are required during the cooking process. Assistive technologies, when tailored to fit the needs and capacities of older individuals, can considerably boost their independence. This study could highlight the potential for assistive technology to provide physical and cognitive support to older persons for assistive technology to provide physical and cognitive support to older persons in a specific domestic duty, such as cooking a meal at home.

Technological advancements such as robotics and AI hold great potential for the culinary and hospitality industries, their implementation must be approached with careful consideration of both their operational benefits and their social, ethical, and economic implications. Balancing the efficiency and precision of machines with the creativity and emotional intelligence of human workers will be essential in shaping a sustainable and equitable future for the industry.

Bowen and Morosan (2018). By 2030, robots will account for around 25% of the "workforce" in the hospitality business. Employees must be aware that food may be made using "artificial intelligence" capable of accurately managing various variables such as temperature, cooking time, color, fragrance, and taste. Hence, the staff must be taught from an early age to operate within systems that encourage good teamwork, prevent contamination, and establish the efficiencies on which most successful food inventions rely. The ever-increasing unemployment rates and possibility for expansion in the hotel sector highlight the vital need for competent & trained hospitality experts along with the technological support needed in the development of the hospitality industry.

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