MSCIB1

How can a company enhance employee satisfaction and time effectiveness by enabling AI in their ticketing system?

By

Sujay Suresh - 20237138

Abstract

The current research has aimed to examine the employee satisfaction and effectiveness of AI-based ticketing systems which can help the organisations in improving their services. This research has been conducted based on quantitative methods in which survey-based data collection has been conducted and frequency analysis based on SPSS and regression has been applied. The results have identified that an AI-based ticketing system has been quite helpful for the organisations in improving their businesses and employee satisfaction. The research has identified significant results which have been properly interpreted and discussed based on prior literature. The research has also helped as it developed a brief conclusion and implications/recommendations regarding the results. The results also identified that employees are highly satisfied for resolving the tickets along with the software being customer friendly as well. Also, results indicated that in the presence of a large number of tickets there were less shortages and troubles within the system.

Keywords: Artificial Intelligence, Ticketing Software, HRM, Technology, Quantitative – AI – ticketing system – ticketing tools – static instrument/tools

Submission of Thesis and Dissertation

National College of Ireland
Research Students Declaration Form
(Thesis/Author Declaration Form)

Name: Sujay Suresh

Student Number: 20237138

Degree for which thesis is submitted: MSc in International Business

Title of Thesis: How can a company enhance employee satisfaction and time effectiveness by enabling AI in their ticketing system?

Date: 15Th August 2022

Material submitted for award

A. I declare that this work submitted has been composed by myself. ✓

B. I declare that all verbatim extracts contained in the thesis have been distinguished by quotation marks and the sources of information specifically acknowledged. ✓

C. I agree to my thesis being deposited in the NCI Library online open access repository NORMA. ✓

D. ***Either*** *I declare that no material contained in the thesis has been used in any other submission for an academic award. ✓
Or *I declare that the following material contained in the thesis formed part of a submission for the award of

_____
(State the award and the awarding body and list the material below)

ACKNOWLEDGEMENT

I am personally thankful to NCI for giving me the opportunity for allowing me to research on this topic. It has given me exposure and great knowledge about various departments. I truly gained a first-hand experience which helped me to grasp and relate to the theoretical knowledge much better.

I would also like to thank my supervisor **Mr. Thomas McCabe** who guided my in the whole process and made sure I was on track. I thankfully acknowledge **Mr. Rob MacDonald** and **Ms. Colette Darcy** for helping me understand research methods and research proposal respectively . Also, I would like to thank **Ms. Rachel Smith** who kept us informed and updated about the submissions. Lastly, I would like to thank my parents and friends for supporting and walking with me through my masters journey.

Table of Contents

Chapter 1: Introduction

1.1 Background

ICT organisations and software development units are also affected by the consequences of digital transformation and the spread of sophisticated digital technologies like AI, ML, and IoT. It's reasonable to say that the great majority of IT businesses nowadays use some combination of software engineering (which encompasses procedures like project management and maintenance) and service engineering (service design and engineering, cloud engineering, agile service development, service management) (Jäntti, 2021). However, the importance of service engineering is growing, and service management is changing how many software maintenance processes are carried out. As a company expands and the complexity of the services it offers increases, so does its toolkit. Since AI first opened its doors, the majority of businesses in the software development sector have offered customer assistance forums and problem tracking systems (like Jira and open-source ticket systems). A company's toolkit when deciding to join the services industry often includes an IT service management solution. Artificial intelligence (AI) enables automated requests for assistance beyond the first level of support or minor changes to customer service (Baines et al., 2017).

Furthermore, artificial intelligence/machine learning has the potential to automate or enhance almost every job. These might be used for things like ticketing systems without paper. So, it would then be better able to concentrate on difficult subjects like interpersonal relations (Wang and Siau, 2019). Besides, after having a good understanding of the fundamentals of reporting, it can begin developing financial and consumer prediction models. Automation in ticket tracking frees up employees' time to concentrate on more difficult tasks and creates a strong foundation for future planning. Given that AI will have a significant impact on productivity, its adoption should be accelerated. The relationship benefits both parties. To ensure that the procedures go smoothly and promptly, continually endeavour to improve the rules that are already in place (Montasari et al., 2021).

Moreover, businesses with a focus on software development or provision must also be ready to offer customers technical support for their own IT products. The majority of businesses provide STSs for this function, enabling clients to record incidents and describe their issues or demands. The great majority of state-of-the-art STSs still rely on support employees to make at least some crucial judgments about the delegation of support tickets to the proper support team or

support assistant (Fuchs et al., 2022). Since the issuance of assistance tickets may require a significant amount of time from technically competent persons, large organisations generally recruit less skilled or temporary workers or outsource the support to a third party. It takes time and money for human workers to manually distribute new assistance requests. Instead, it vastly lengthens the amount of time required to fix issues, which in turn lowers the initial degree of pleasure from the client (Al-Hawari and Barham, 2021; Gupta et al., 2018).

Furthermore, due to the widespread accessibility of AI and ML techniques, the automation of STSs is more fascinating than ever. Automating crucial daily IT tasks and improving employee satisfaction are both possible with automated ticket categorization and resolution using machine learning. Customers may primarily record incidents needing assistance using STSs. All facets of a single support duty are included in what is referred to as a "support incident" (Mandal et al., 2019). The most common sort of documentation for these kinds of events is a support ticket, which includes a title, the plain text of the ticket, and other details—the meta-data—that identify the ticket itself, like its priority, incident category, ticket-id, etc. In certain circumstances, the system could also gather documents about a customer's ticket or other private data. When it refers to "incident management tools" in this context, it is being referred to a specific kind of IT artefact that may be used to handle support issues inside of an STS. To have an impact on an event, one must either respond to it, inquire about its origin, or assign its management to a qualified support agent (Al-Hawari, 2021; Chagnon et al., 2017).

Additionally, IT has a significant impact on the HRM practices and procedures of today's savvy firms. The extraction of organisational information is a crucial AI function. Modern technologies like automation augmented intelligence, and robots may be able to assist organisations in implementing creative and effective HR practices to maintain their competitiveness in the current labour market (Pathak and Solanki, 2021). This study examines how AI is transforming HR practices and how it is affecting the industry as a whole. Human resource managers are pushing higher-ups to incorporate technical factors in strategic choices because managers recognise how important it is to do so. Upper management has acknowledged the significance of HR software. Also, being able to change rapidly is essential since the corporate world is always evolving.

The latest evolution has been in the information technology sector with an increased focus on optimisation and automation. The vendors of such technology advertise it as an effective and

easy way to carry out mundane and repetitive tasks, labour-intensive tasks, and ones that require the cognitive skill of humans. An integral part of such a system is the ticket assignment and dispatch process wherein the requests which are submitted by the customers are reviewed by a central team that dispatches the request to be assigned to the right department for its resolution. A ticket must be dispatched to the right department for it to be resolved swiftly. But if a faulty decision is undertaken the process can take a long time for a turnaround, which has also been observed by researchers when studying an actual production system (Agarwal, Sindhgatta, and Sengupta, 2012). When such faults take place, and a subsequent delay is a result it causes dissatisfaction amongst consumers as well as monetary penalties from the vendors due to breaches in service agreements. The employees handling such systems need to be knowledgeable about a lot of sub-processes like knowledge about the roles and responsibilities of the groups, the informal nature of emails, texts, and the "high attrition rates in service delivery teams" (Mandal et al., 2019). Since it is understandable that if the dispatch is efficient, the entire system is usually effective, or else the assignment system is to be automated.

It is very important to effectively manage everyday transactions in project management as it is considered one of the most common issues. In any company with evolution, the project management factor becomes more complicated and prominent in other aspects of the business where it is important to maintain market share and profit. But since it is one of the core management teams of the company many adopt various technological, social, environmental, and economic changes to retain the value of the team and retain competitive advantage (McGarth and Kostalova, 2020). Many companies today have also integrated IT help desks so that the ticketing process becomes smoother and more effective in managing customer complaints. The management of such tickets helps automate everyday IT tasks like email notifications to the related parties, assignment of tickets to service agents, and much more. Moreover, the competitive market space has led companies to improve their Customer Support and Service (CSS) Department which needs to meet the expectations of the customers (Qamili et al., 2018). Consequently, such departments in every business are changing to attain effective business systems. The companies need to identify the points in the process which are slow, analyse the issue to find the root cause, and find an effective plan to improve the performance. At most companies, the process of resolving issues for the customers is error-prone and flawed. Usually, the customers have to wait for prolonged periods until their queries are resolved for a faulty product. The primary reason for delays in the support

service is the manual processes. To negate such manual processes, businesses integrate "intelligent business processes" and "business process automation" (Scheer et al., 2004). The primary objective of this study is to identify the flaws in the ticketing system which can be attained by the companies with an application of artificial intelligent components which can be easily integrated at a very low cost by the companies.

1.2 Problem Statement

Nowadays, before organisations can effectively incorporate AI into their everyday operations, several challenges must be overcome. Artificial intelligence, for instance, is now too costly or hazardous to deploy due to the untested nature of the technology and managers' overall lack of competence and understanding of how to apply it. Additionally, the diverse consequences are not well known. The research, however, does not consider how using help desks with AI optimisation may increase the efficiency of support agents and managers (İşcen and Gürbüz, 2019). The majority of support employees and management agree that dealing with irate clients, incorrect ticket distribution, frequently asked questions, etc. is the most demanding or frustrating aspect of their work. Unfortunately, there is a dearth of research on how AI-driven automation can boost support agents' and managers' happiness, particularly in the case of smaller businesses with fewer human resources and the challenge of utilising their skilled workers as both 2nd level support agents and productive workforce (Fuchs, 2022).

Moreover, to stay competitive, businesses in the IT and software sectors are refocusing on the supply of digital services. But because of how significant a shift this transformation process is, new digital competencies must be developed, new working practices must be learned, new digital technology must be adopted, and new labour divisions must be created inside an organisation. In addition to organising their internal resources, businesses in the current day need to focus on the critical skills of the digital age. Every employee in the organisation has to understand their involvement in the process of digital transformation as well as the financial potential it has created (Xu et al., 2018). The manual categorisation of an issue ticket, which has the potential to result in misclassification, must consider the user's viewpoint on the issue. The improper domain expert team receives misclassified tickets, which causes a delay in resolution and increases everyone's burden. To find a solution for the user's issue, the domain expert or service desk employees must accurately comprehend the ticket description (Agarwal et al., 2017). To solve these issues, a ticket classifier model must be created that would automatically group customer support requests into

pertinent categories and effectively manage the descriptions of those requests. The data from past users' tickets may be analysed using AI and machine learning approaches to create these intelligent ticket classifier models (Paramesh and Shreedhara, 2019).

1.3 Research Objectives

The research aims and objectives are as follows:

- Address the gap in the expertise of the employees in implementing the new technology.
- Analyse the kind of qualifications and training required by the employees to effectively use the technology and improve time efficiency.
- Explore the kind of procedures to be undertaken by the companies to achieve the objective of integrating the technology.

1.4 Research Questions

This research has aimed to address two identified research gaps:

1. Experience gap: One of the major obstacles in successfully achieving efficiency in the ticketing system would be the management and control of the overall operations. Though the requirement of the human workforce is less, few professionally skilled workforces are necessary for emergencies and troubleshooting technical issues. Also, a specific training program is required to train the present employees on how to use the new ticketing process.
2. Investment gap: Though it cannot be predicted that the exact investment required for adapting AI-based ticketing systems, a rough picture can be predicted to help the companies planning to adapt in the future and plan their budget accordingly.

Both the gaps will be presented to experienced Human Resources of some reputed companies with a successful track record in AI-based ticketing systems and the best possible solution will be further analysed and presented in this research. Hence, the current research has developed two research questions based on these gaps.

RQ1: How can a company create an effective AI-enabled ticketing system so that employee satisfaction and time efficiency can be improved?

RQ2: What kind of investment budget is required to integrate Artificial Intelligence into the ticketing system?

1.5 Significance of the research

The current research has emphasised addressing the employees' expertise, qualifications, training, procedures, and investment budget for implementing an AI-based ticketing system. This

research can be beneficial for both academics and practitioners as it discusses an in-depth theoretical discussion along with practical knowledge based on interview data analysis. One of the major contributions/justifications of this research is that it focuses on research gaps and aims to fulfil it based on practical knowledge. Although this topic has been studied in a few types of research still there are not many types of research that have emphasised this topic and studying this topic creates a significant contribution. For instance, conducting qualitative research can help in gathering useful data regarding the topic and help in answering the research questions. Similarly, academics can utilise this research for the reason that it includes an effective literature review and through which academics can improve their understanding and conduct further research as well. The practitioners can also utilise this research as it involves practical knowledge gathered from company professionals/employees and it can help in assessing the topic based on logical reasoning and conclusion which can eventually lead to developing useful strategies for AI implementation in the ticketing process of the organisations.

1.6 Outline of Dissertation

This research is based on five chapters the first chapter's introduction focused on discussing the background, problem statement, research objectives, research gap and questions, and significance of the current dissertation. The second chapter literature review focuses on discussing various topic-related themes and theoretical discussion. The third chapter research methodology focuses on discussing various research methods, data collection, data analysis, and ethical considerations. The fourth chapter's results, analysis, and discussion include data analysis, interpretation, and discussions. The fifth chapter's conclusion and recommendation include a brief conclusion and policy implication/recommendation and future recommendations.

1.7 Chapter Summary

The current chapter has emphasised initiating the research topic and discussing an in-depth background that has identified the topic's importance based on prior literature. This chapter has also discussed some problems which can be faced during the AI-based implementation of the ticketing process in organisations. The problem statement has identified that a lack of technical/skilful employees can be seen in organisations regarding AI implementation in the ticketing process. Besides, research gaps and questions have been discussed in which management, controlling, and training programmes along with lack of understanding on investment budget has been termed as major research gaps and questions. This chapter has also identified the research

aim and objectives along with a brief significance/contribution of this research and dissertation outline as well.

Chapter 2: Literature Review

2.1 Introduction

The current chapter focuses on discussing different themes regarding the research topic in which ticketing systems and employee satisfaction have been emphasised significantly. This chapter has helped in improving the understanding regarding the topic in which prior literature has been discussed based on answering the research objectives. This chapter has also discussed a theoretical perspective in which UTAUT theory is discussed along with linking it with AI and technology acceptance.

2.2 Ticketing System and Employee Satisfaction

End users of the company largely depend on service desk technologies to assist the company in resolving service-related issues. By acting as a single point of contact, service desk systems enable users to report and have any sort of problem fixed (SPOC). Customers, staff, and others are all possible users. Whether organisations are in the telecommunications industry, retail, banking and finance, healthcare, manufacturing, IT, education, etc., most firms nowadays use some kind of service desk solution (Paramesh and Shreedhara, 2019). Web-based, email-based, chat-based, or voice-based service desks are all possible. A help desk or ticketing system are other names for service desk software. Problem tickets are created in a helpdesk system by selecting the appropriate category, and these tickets are then sent to a team of domain experts or service desk representatives for resolution. When a user detects an issue, a service desk representative immediately looks into it and provides a fix within the time frame allowed by the service level agreement (SLA) (Xu et al., 2018).

The great majority of companies employ a web-based service desk system with a pre-built user interface for reporting complaints (UI). Fields for recording structured data, such as the submitter's name, the ticket type, the subcategory (if any), the priority (or severity), the status, and so forth, are often used in online user interfaces. Users may utilise the ticket description and other free-form places in the web portal to create a free-form description of the issue ticket. Depending on its specific needs, each company's service desk web portal will seem a little bit different, but it will all have a basic set of fields, including "submitter," "ticket category," "ticket priority," and "ticket status," and "attachments" (Paramesh, 2019). Artificial intelligence (AI) and other digital technologies are quickly integrating into many aspects of contemporary life. The world is moving toward being more organised, precise, and linked. Even the most unexceptional items now attempt

to capitalise on the trend since the term "smart" has become so pervasive in contemporary marketing (Górriz et al., 2020).

The usage of artificial intelligence (AI) technologies is widespread. For instance, Amazon has enhanced retail inventory management using analytical AI. The Los Angeles Times is one media organisation that uses AI to produce news pieces about the entertainment industry. The usage of AI tour guides has helped improve museum attendance. In HR, the use of artificial intelligence (AI) might be beneficial. Marketing professionals often employ artificial intelligence to enhance customer connections. For example, hotel reservation systems may leverage analytical AI to quickly reply with pre-programmed responses to inquiries from visitors (Prentice et al., 2020). AI has also been employed by call centres to enhance customer service. Depending on the tasks at hand and the degree of complexity involved, artificial intelligence plays a variety of roles in enterprises. Machine learning and other AI techniques are often used to do repetitive, rote jobs. Based on the four taxonomies of analytical intelligence, intuitive knowledge of service provision about the complexity of emotional and cognitive tasks was formed (mechanical, analytical, intuitive, and empathic intelligence) (Bolton et al., 2018).

The AI dimensions show how each employee views AI, and when combined, it shows how each employee views the quality of AI. Previous research has shown that these aspects of information and system quality might contribute to favourable attitudes toward technology and better job results. AI may be able to help humans with a variety of jobs, including understanding consumer inquiries (for example, via language translation), sifting through corporate knowledge systems, and developing human-friendly solutions. The use of AI could disclose pricing fluctuations and scheduling problems (Chung et al., 2020). Additionally, AI has the potential to increase workplace productivity and efficiency. That results in higher productivity at work, which should improve the chance that workers will stick around. Through a ticketing system, which may be used on a website, messenger, mobile app, or wherever else, users can get content such as text, photographs, videos, music, and links. Some of the functions that these systems may do include answering frequently asked questions, making automated bookings, fulfilling requests, gathering data, providing customer care, and even administering surveys. The demands of the company, the deployment environment, and the people (customers, partners, or workers) with whom the system will interact all affect each system's capabilities (Stoilova, 2021).

The help desk professional records their observations in a ticket when a customer contacts for support or technical assistance. A new customer ticket will be issued if the call has to be sent to another department, such as hardware or software support, to continue troubleshooting. The time of the call and a free-text transcription of the whole discussion are both included on the ticket. A call reason and a resolution summary are also shown on each ticket, both of which are selected by the customer care representative from a list of pre-established categories to reflect the nature of the problem or query asked by the client and the resolution offered by the agent (Jin et al., 2011). There are several reasons why a client would desire to contact the business. The majority of customer care calls are not technical; instead, they deal with problems with phone operation, service agreements, and invoicing. Customers sometimes contact us with technical issues, such as connectivity issues or issues accessing certain features of our service. It is curious about the customer-submitted technical support tickets and wants to investigate and interpret them (Malik et al., 2022).

Additionally, before the outbreak, ticketing systems were often seen as a kind of digital marketing tool that was used for push alerts, email and phone list collecting, and marketing campaigns. The epidemic has made it evident that contactless remote internet customer support and communication are necessary. The usage of the ticketing system by enterprises has enormous potential and advantages. A growing number of businesses are using ticketing systems to automate repetitive tasks and enhance customer service by enabling consumers to ask inquiries, get prompt responses, track the status of service requests, and book reservations whenever they want (Labanauskaitė et al., 2020). This is the core assistance provided by ticketing systems, and it often entails menial duties that staff members would rather outsource.

2.3 Ticketing System and Role of HRM

It will become more and more important to manage HR ecosystems that leverage artificial intelligence (AI) and other cutting-edge technology platforms to enhance employee engagement (EE) in the workplace and the employee experience (EX) of HR practices as workplaces become more digital. Employees engage with the various digitised assets in an organisation's ecosystem as workplace digitalisation advances, but HRM's capacity to solve the issues using AI-assisted HRM is still a problem (Hmoud, 2021). Incorporating AI-assisted HRM technology into a company's environment has been found in prior research to either have a beneficial or bad effect on productivity and generate employee anxiety. Few researchers, Malik et al., (2022) and Renkema,

(2021) however, have examined the effects of AI in HRM on EX and EE. For companies to build and deploy an HR ecosystem and a configuration of digitalised AI applications to cater to the digital, human, and physical parts of the company to increase EX and EE, there is a lack of theoretical underpinning. Investigating the usage of AI in HRM is crucial since organisations have been obsessed with EE and EX difficulties ever since the epidemic started (Bhatiasevi and Naglis, 2020).

AI may be used in HRM apps to continuously and in real-time gather information on workers from their whole physical, social, and digital work environments. This point of view is consistent with both the current knowledge of the customer's perspective on the whole process and the growing amount of research on digital channels for client contact. To achieve the required set of EX and EE results, it is necessary and timely to understand how organisations configure AI-assisted HRM apps and platforms and integrate it into their larger ecosystem (Burnett and Lisk, 2019). To attain high levels of EX and EE in the HRM sector, strategic decisions and expertise in the configuration and quality of planned and executed AI-assisted HRM applications are necessary. With this method, HR managers may build a digitalised HR ecosystem for EX and EE at the highest levels of an organisation (Al-Alawi et al., 2021).

Since social exchange theory is founded on trust and the transfer of value between employees in the workplace, it is particularly important to EX and EE efforts. Employees are exposed to a variety of stimuli, and how to react to those stimuli depends on their interpretation of those stimuli. A second reason why the concept of AI-mediated social interaction is current is due to the prominence of AI applications in today's digital HRM environments, which promote employee cooperation and communication. Thirdly, these AI-based technology platforms consistently evoke the reciprocity standard between HR designers and workers, which has an impact on EX. The research on EE and the usage of platforms that may increase EX is crucial to understanding how and why firms make strategic decisions as firms build their digitised HR ecosystem of AI-assisted HRM apps (Hmoud, 2021).

The importance of IT in daily corporate operations is increasing as a result of the quick advancements in AI, machine learning, and automation. The development of AI-based solutions is becoming more and more important for difficult and time-consuming human resource management (HRM) tasks. The goal of this study is to examine the variables that affect the adoption and dissemination of artificial intelligence based HRM solutions. Performance

expectations, top management support, competitive pressures, and the link between the HR jobs that are prioritised within an organisation and the attitude of HR practitioners regarding the deployment of AI are all included in this (Vinuesa et al., 2020). The expansion of IT's influence on the HRM function has been one of the major HRM study issues, keeping researchers busy so far in their investigation of the phenomena of IT adoption. One of the key drivers of the HRM revolution is the development of information technology. Businesses may now centrally manage and exchange HR-related information with both internal and external clients thanks to Human Resource Information Systems (HRIS) and electronic (e-HR) (Gope et al., 2018). However, it is already evident and is growing quickly that HR tasks like hiring people primarily depend on AI-based solutions, connectivity, and automation. Although AI in HRM significantly alters traditional HRM practices and there is a lot of literature on integrating AI with HRIS, research on the factors influencing its acceptance is limited and lags behind other domains (Lee et al., 2019).

The majority of HRIS research, which has shown that HR executives are positive about technology's potential benefits, see it as strategically advantageous, and include its adoption into the strategic planning process, is in direct opposition to this study. One reason for this phenomenon is that decision-makers find it more difficult to feel confident in these areas since, in contrast to HRIS and e-HR, the influence of AI-based technologies on HRM and organisational performance is less clear. Another rationale is that because AI-based HR solutions are still in the early phases of distribution and there is less competition pressure, there is less of a need for a strategic evaluation at this time. The results of this study by Zarqan and Sukrani, (2017) also expand information technology's application to human resource management (Votto et al., 2021). It was discovered that HR executives had a favourable opinion of AI's capacity to improve HRM efficiency.

2.4 Ticketing System Issues and Research Gap

In many instances, a way to provide comments that can help in resolving customer queries is still available. Implementing any kind of ticketing system is standard procedure. It took a lot of effort to develop clever and practical helpdesk systems, and have proven successful in a variety of situations, including the reporting of general IT issues. Such ticketing systems, however, have a poor reputation for being insufficient in several other situations. First off, the material supplied in generated tickets is often authored by a customer representative rather than the end user and is written in the customer's language, which is probably not well understood by the engineers trying

to solve the issue (Li et al., 2011). Second, when ticket traffic increases, tickets effectively disappear from the ticketing system, making proper prioritisation, aggregation, and categorisation impossible without the exorbitant time and labour expenditures. The recent shift from a customer-installed deployment technique to a software-as-a-service model, which benefits from continuous delivery and deployment, challenges this perspective on non-development duties. The user is in charge within the confines of an agreement that specifies the circumstances and anticipated calibre of the service, but the service provider accepts complete responsibility for the service provided. Customer service, marketing, and sales should be considered throughout the software development and deployment phase in addition to the functional aspects of the final product (Koski et al., 2016).

A "ticket" number is assigned to a customer's email issue and delivered to the support team. After that, it produces tickets, which set off a flag informing all other call handlers that the call has ended. The emails are preserved, but neither the nature of the issue, its recurrence frequency, nor the effectiveness of the answers is examined. The amount of emails each manager receives is the sole piece of information that is recorded (Montgomery and Damian, 2017). Many customers' help requests are received using a ticketing system, which creates distinct tickets for each request. The owner of a ticket will be able to monitor it and give it the attention it needs while the user's problem is recorded and given the appropriate level of priority. The main objectives of the customer ticketing system, a customer relationship management (CRM), are to be customer-centric, to build trust with the customer, to make the customer happier, and to have strong relationships with the customer, all of which raise the competitiveness of the business (Wilson et al., 2001).

Furthermore, as a result of the current business climate, which is characterised by an evident competency, competition to attract new customers is intensifying. Businesses that concentrate on satisfying customer requirements are more likely to prosper than those that don't. An information system called customer relationship management (CRM) was created so that consumers and companies could manage their contact activities. Business owners want to concentrate more on the customer. An example of a customer relationship management solution that uses AI is the customer service ticketing system (Lyons et al., 2019). Customer agent categorisation (call cause and/or resolution summary, such as billing, contract, use, etc.) and/or certain keywords included in the free text may be used to quickly identify and filter the majority of "non-technical" issues (for example plan, payment, bill, and account). Attempting to further categorise the remaining tickets based only on the categorisation of customer service agents or

keywords in the free text may be challenging and inaccurate. For instance, a client may phone in complaining that the client cannot connect to the network when, in fact, the issue may have been caused by a misconfigured user interface option. Even yet, the CSR can still categorise the call's origin and remedy it as a "network connection" issue. Probably, the ticket's free-form text won't be much use either (Jin, 2011).

2.5 Employee Expertise Implementing AI Ticketing System

The speed at which artificial intelligence will transform business is often overestimated. While fully automated customer service may still be some time off, AI is already having an impact on choices in a variety of sectors, from banking to agriculture. The development platforms, computing power, and data storage that enable AI are all advancing quickly and becoming more affordable. It seems to be the right moment for businesses to profit from AI (Lichtenthaler, 2019). Also, it has been projected that AI will boost the world economy by $13 trillion over the next ten years. Although AI has enormous promise, many businesses' efforts to employ AI are unsuccessful. After interviewing hundreds of CEOs on how their companies utilise and prepare for advanced analytics and AI, it has been discovered that only 8% of companies follow the key procedures that pave the path for adoption on a large scale. The overwhelming majority of businesses only use AI in a few small pilot projects or a single department (Fountaine, 2019).

Additionally, senior executives often have a narrow perspective on AI needs. Along with cutting-edge technology and skilled workers, mainstream adoption of AI requires alignment of organisational culture, organisational structure, and working practices. However, the majority of organisations that were not born digital have out-of-date mindsets and working methods that make it difficult to integrate AI. Enterprises must make the following changes to grow AI: Turn away from academic silos and toward cross-disciplinary cooperation. When an AI is built by multidisciplinary teams with specialists from several disciplines, its influence is maximised. When business and operational specialists collaborate with analytics experts, projects will be more effective at meeting organisational goals as a whole (Quinn et al., 2009). Another aspect that interdisciplinary groups could look at is potential modifications to current procedures that may be required for the implementation of new applications. After the implementation of an algorithm that forecasts maintenance requirements, for example, it is more likely to recognise the need for a reorganisation of maintenance activities. When end users are engaged in the design process, the likelihood that an application will be adopted increases significantly (Fountaine, 2019).

Moreover, businesses are increasingly using HRM software to improve operations and keep track of employee performance to better serve their tech-savvy clients. Industries, economies, and society as a whole are constantly adapting to digital innovation. In many nations, the highest-paying professions did not even exist ten or even five years ago. The ability to pick up new abilities and modify one's behaviour in response to changing situations will be more crucial than ever. Because of this, it will be essential to be able to "reformat knowledge and create information to communicate oneself creatively and accurately in a digital context" (Hecklau et al., 2016). To make an educated choice on whether to use more AI in their services, service providers need to be aware that mechanical, cognitive, and emotional AIs may be used to engage clients in service. More complicated, unique, and emotionally charged services need a higher degree of artificial intelligence (in terms of how challenging it is for AI to execute the service function). when workers often utilise machines that have a certain level of intelligence. Depending on the service being offered, several forms of AI might be used; for instance, mechanical AI is great for standardisation, thinking AI is great for personalisation, and feeling AI is ideal for renationalisation (Huang and Rust, 2021).

2.6 AI Ticketing System Implementing Procedure

For ticketing software to make judgments and operate without the need for human intervention, artificial intelligence is required. Although the chatbot is less sophisticated than human agents, it nevertheless offers certain benefits. It is always accessible, capable of carrying out a broad range of jobs, and far faster and more precise than humans. The user's job is specified by the "intent," which also acts as a link between what the user says and what the ticketing system should perform (Beerbaum, 2022). Key assertions, actions, responses, and contexts make up its four components, which are together known as "the core concept" in interface design.

The use of entities allows for the extraction of parameter values from free-form text inputs. A user's request will include important data that falls within a certain category. Only those ideas from the agent description that are used throughout the data execution process need to have their entities built. To comprehend the user's goals more clearly, factors like location, date, and time may be provided. To answer in natural language, the intelligent agent must first comprehend English, turn it into a clever query, search through the relevant information, and finally interpret the response. These are the main characteristics of the chatbot: The ServiceNow platform, which houses the database holding all necessary data, and the API will both provide information. The

system will handle questions written in English; replies will be expressed in standard English and will be simple to comprehend. A web call will contain a query as a string of URL queries, and the service will reply with a JSON file (Blaj et al., 2019).

Users may communicate with the chatbot using Skype, WebEx Teams, and the intelligent speaker using natural language. The Dialog flow platform served as the foundation for the Chatbot's development, and all of its function processing was done in the cloud, notably on the Natural Language Processing (NLP) enabled Firebase. The whole programme is a NodeJS implementation. The assistant may interface with the ServiceNow platform by using the API table. In a database on ServiceNow, there is a list of all the open requests. Google's Dialog Flow platform, which is used to create technologies for human-computer interactions, is built around natural language dialogues (Singh et al., 2019). Support for twenty distinct languages and compatibility with fourteen different systems. The development of new apps is possible without the need for any external servers thanks to an integrated code editor. To comprehend human interactions in natural English, the bot employs machine learning. In Dialog Flow, agents utilise machine learning to identify user requests with particular intents before using entities to separate the data needed (Nuruzzaman and Hussain, 2018).

ServiceNow is, to put it simply, a cloud-based service. ServiceNow has emerged as a well-liked replacement for traditional IT service management (ITSM) systems because of its user-friendly graphical user interface (GUI), cloud-based data storage, and inexpensive price. It is always changing, and new releases come with helpful, modern features. One component of the IT infrastructure that will be governed by this platform is the ticketing system (Kotha, 2017). The advantages of this arrangement will be felt by both customers and businesses. A uniform registration system is set up for all of the IT operations within the organisation, which streamlines the IT procedures. A software corporation may provide hundreds of products, all of which serve different functions. Currently, a sizable number of users from all around the world are utilising this programme. A sizable workforce of workers offers technical help round-the-clock. The workers receive support tickets, attentively examine it, and then provide solutions. What product and version the issue is happening should be one of the first pieces of information you look for while doing research. Some software defects only appear in more recent versions, whilst others are version-specific. The ability to extract software references from a ticket and appropriately attach it to the product and version may be beneficial to the software support process as a whole.

Use cases for this technology include automated ticket analysis and comprehension, sophisticated ticket search and classification, locating the source of a problem, offering advice on how to solve it, and producing a knowledge base specific to the issue (Blaj, 2019).

Software support tickets include both organised and unstructured data. Users provided this data, which may be hazy or specific to a certain site. Numerous everyday nouns are homonyms, acting as synonyms for various things. The current generation of IT ticket information extraction systems typically uses part-of-speech (POS) tags and other language patterns (Baars and Kemper, 2008). Similar to this, research on the problems of extracting and connecting domain-specific names has mostly ignored external knowledge in favour of internal data.

2.7 Unified Theory of Acceptance and use of Technology and AI

The first instances of AI may be found around the middle of the 1950s. Despite its early promise, it seemed to have reached a dead end because of several things, including technological restrictions on the ability to process large amounts of data, handle a range of data kinds, and simulate the human mind. The rapid advancement of information and communication technology is largely responsible for the resurgence of artificial intelligence (AI) technologies, which are no longer constrained by the limitations of the past. AI has the potential to assist companies significantly as it improves (Venkatesh, 2022). Businesses are racing to invest in, implement, and utilise artificial intelligence technology across a broad variety of organisational functions to profit from it, gain a competitive advantage, and improve performance.

In contrast to organisational adoption, which is a prerequisite for employee acceptance of AI tools and the realisation of benefits, certain elements of AI tools may be critical, particularly in restricting staff adoption. There are a few well-established theories that can accurately predict how employees will utilise and embrace new technologies. The unified theory of acceptance and use of technology, one of the most extensively utilised notions, has been successfully duplicated several times and applied to the analysis of a broad range of technologies and circumstances beyond just employee adoption (Sohn and Kwon, 2020). Critically, it is acknowledged that the adoption and use of certain technologies are influenced by a variety of attributes and contextual circumstances. The goal of this study is to get a better understanding of how different environmental factors may affect how quickly organisations integrate AI into their daily operations. As was previously said, AI tools, at least in their present form, cover a broad range of decision-making and support functions across a wide range of settings. One of the key factors in the advancement of artificial

intelligence systems is the transition from decision-support to real decision-making (Andrews et al., 2021).

Additionally, the job of the human worker or decision-maker may be reduced or removed with the use of AI technology. AI systems may evaluate enormous amounts of data, even in real-time, to extract insights that may serve as the foundation for wise judgments, thereby freeing up human brainpower for more strategic and/or abstract tasks. The well-publicised artificial intelligence method employed by Amazon to sort job applications, which resulted in prejudice against female candidates, is a poor illustration of the opposite (Chatterjee et al., 2021). Undoubtedly, this is only one of many instances when a key decision has been made without a person being present. Without human input, companies are forced to depend on AI algorithms to make judgments, the effects of which could not be apparent for a long time after the transaction has been completed. Therefore, it seems that how employees use AI tools is similar to how they used earlier decision support systems, but with an emphasis on more difficult problems and the support of more complicated judgments (Williams et al., 2015). The employee would then have total discretion over how and when to make use of AI decision-making capabilities. This research focuses on the potential use of AI technology in compromised settings.

In light of the aforementioned issues, this section recommends a research programme using UTAUT as its theoretical foundation. Remember that UTAUT has been used to examine all phases of technology adoption, from first steps through continued usage. Below are thorough descriptions of UTAUT's core concepts. Four UTAUT components—anticipated performance, expected effort, social impact, and enabling variables—predict technology adoption and adoption intent. An explanation of these grammatical constructions is provided below: Performance expectancy is the belief that adopting a new system will result in better performance at work; effort expectancy is the belief that adopting the system will be simple; social influence is the belief that adopting the new system is appropriate; and facilitating conditions is the belief that the necessary organisational and technological infrastructure is present (Sohn and Kwon, 2020).

Moreover, certain human traits are essential in the great majority of situations involving the use or acceptance of technology. Likely, traits associated with people who are more used to ambiguity, complexity, and uncertainty will prove more helpful in this situation than they typically would. The most probable users of AI technology are those that are inquisitive, flexible, and at ease with uncertainty. Two more conventional technology-related qualities, computer self-

efficacy, and computer pleasure may also be relevant. A role for generic personality qualities is also possible. These variables may affect enabling conditions as well as the many predictors of UTAUT, such as performance and effort expectations. The aforementioned human traits considered together may have an impact on how employees react to issues with AI technology and/or bigger concerns. Researchers should consider the elements that might support or hinder the use of AI technology. Employers may utilise this information to identify personnel who will contribute to fostering a supportive environment for emerging technology (Barnett et al., 2015). The Technology Readiness Assessment (TRA), the Technology Adoption Model (TAM), and the Technology Preferences Board are some of the earlier ideas on the subject of technology adoption that were integrated to create the UTAUT (TPB). Consideration is given to individual viewpoints as well as the impact of social and environmental variables on technical advancement (Sohn and Kwon, 2020). The UTAUT was used to judge the acceptability of intelligent ticketing systems, customer service technologies, and other intelligent systems.

2.8 Chapter Summary

The current chapter has been effectively conducted as it has helped in understanding the role of AI in improving HR processes and ticketing systems towards employee satisfaction and time effectiveness. The role of HRM and the ticketing system or service desk has been discussed in which it has been identified that human resources have been quite significant before applying AI and ticketing systems within the organisation. Similarly, a few issues within the ticketing system have been discussed which has helped in understanding what needs to be emphasised/solved for improving such processes. This chapter has also discussed employee-related expertise/skills in implementing and adapting to such a system which can only help in increasing employee satisfaction along with organisational performance. The ticketing system implementing procedure and theoretical discussion has also been identified in this chapter.

Chapter 3: Research Methodology

3.1 Introduction

The research methodology, which is a collection of procedures and techniques, is the sole thing that makes it possible to gather and analyse data. The researcher is given resources in this area to assess the validity and trustworthiness of the study. The process of collecting data is crucial to the research technique. As a result, research methodology has been defined as a systematic strategy for researching various subjects to advance knowledge. This chapter will also concentrate on assembling data to support the hypothesised connections between the variables. Give an "onion diagram" of your research, highlighting your strategies, technique, and methodologies. The research "onion" graphically depicts how the study's design, scope, and method of data processing are all influenced by the research questions. The researcher has also effectively followed the phases outlined in the research onion, which describes how a researcher develops a workable technique. Following the steps of the research process also helped the researcher comprehend the various data gathering techniques and choose the best plan of action. The existence of the research onion helps the researcher make sense of the many starting points and conclusions of their inquiry. As a consequence, it contributed to the development of a realistic and meticulous plan for collecting and analysing research data.

3.2 Research Philosophy

It is crucial to make a distinction between the emphasis on the nature of reality and the emphasis on the reliable facts and information needed for doing research when addressing the link between ontology and epistemology. When doing scientific research, the three primary schools of thinking are interpretivism, positivism, and pragmatism. The ontology of the piece is based on the notion that every person has a collection of experiences and viewpoints that they use to understand the world (Al-Saadi, 2014). The technique of the study is significantly influenced by the positivist research philosophy, which is a collection of beliefs and guiding principles reflecting that person's perspective on the world. The study adhered to positivist research's rules. The positivist worldview emphasises concrete facts, much as quantitative research. According to the positivist research principle, it is possible to study society objectively (Rahi, 2017). The researcher assumes the position of an impartial analyst in this method of scientific investigation. The main objective of positivist research is to provide justifications and insights that might be used for the future management and forecast of the phenomena of interest (Ryan, 2018). This research has also

applied positivism philosophy which eventually assesses the perspectives and experiences of HR professionals regarding AI-based ticketing systems.

3.3 Research Approach

Since deductive reasoning lays greater emphasis on analysing a hypothesis, it is best suited for dealing with quantitative facts. The technique often requires repeating the experiment to see whether the results remain the same. The deductive method was far more practical for evaluating the study's objectives since it used numbers. The deductive method is advantageous for a variety of reasons, one of which is that it emphasises numerical data to differentiate between claims and the justifications for them. This method was selected in part because it generates empirical findings using quantitative data (Pearl, 2014). This research has applied the deductive method that offers both quantitative proofs for the theory being examined as well as responses to the research questions that served as the study's guiding principles.

3.4 Research Choice

The information collection has been conducted based on quantitative choice and statistical analysis that allowed us to quantitatively assess employee happiness since AI was enabled in the ticketing system. By testing hypotheses following the research questions, the researcher may obtain helpful findings using this technique. It is thorough in its implementation and impartial in its evaluation, much like this strategy (Khare and Buris, 2010). Regarding the research's goals, the outcomes of this technique are far more generalizable. Additionally, the information is collected from a cross-sectional perspective at a single event, with HR professionals as the intended audience and a ticketing system powered by AI. With this mode of thinking, the researcher may obtain material that is current and pertinent to the topic at hand more quickly and easily. The quantitative approach, on the other hand, places a strong focus on numerical data and statistical analysis methods. This method has been used a lot in a range of research projects since it enables extremely quick data collection. For this examination, a quantitative approach was adopted since it enabled the researcher to gather more data in a shorter amount of time (Goertsen, 2017). The purpose of quantitative research is to extrapolate its findings to a broader population. Additionally, confirming, explanatory, and predictive findings from quantitative research are possible.

3.5 Research Strategy

The survey method has previously been recognised as a promising way to collect information from respondents. By employing a survey, the researcher may be able to learn more

about the objectives and procedures of the study (AI ticketing system). The survey approach involves having participants complete a questionnaire on their schedule, often with multiple-choice questions (Choy, 2014). With a questionnaire, the researcher may provide respondents with a variety of alternatives for responding to each question.

3.6 Target Population and Sample Design

The target population of this research is the HR employees/professionals of companies that have applied AI in their ticketing systems. These companies are from the service industry in the UK and the sample size is based on 15 responses which have been aimed to gather data through a survey questionnaire.

Not all possible participants have the same probability of being chosen since the deliberate sampling approach is non-probabilistic. This approach also incorporates a technique for getting information from specialists. It is possible to target individuals with knowledge and quickly collect data from them, making data collection simple. In comparison to information gained using a random sample technique, information collected through a targeted sampling strategy may be more generalised. This approach is also seen as being very subjective and researcher-centric. Purposive sampling allowed for the discovery of findings that were both pertinent and tenable for this inquiry (Etikan et al., 2016). Probability sampling and non-probability sampling are the two main methods of data collection. Probability sampling includes techniques including cluster, stratified, random, and systematic sampling. Non-probability sampling occurs when members of a group are not randomly chosen to be included in the sample. To choose the non-probability sample, quotas, dimensions, and practicality are used. "Purposeful sampling" is the process of gathering data from a population to learn insightful information about a certain subject (Campbell et al., 2020). This study makes use of purposeful sampling, which enables the researchers to choose respondents who are experts in human resources and familiar with the AI-based ticketing system.

3.7 Data Collection Procedure

Survey methodology may be described as a technique for gathering data by questioning participants about the study's variables. Evaluation of the respondent's behaviours, opinions, and prior experiences in light of a set of established criteria is the fundamental idea behind the survey methodology. However, there are a variety of techniques that may be utilised to implement this tactic, such as the questionnaire approach. In the design of this questionnaire, a five-point Likert scale and/or closed-ended questions may be utilised to provide respondents with a selection of

possibilities (Taherdoost, 2016). Besides, participants may be given a self-administered questionnaire without any further direction from the researcher. The main benefits of using questionnaires are their simplicity of use and capacity to enhance the generalizability of the data. In this study, a self-administered questionnaire with multiple choice responses was used as the survey technique (Roopa and Rani, 2012). This approach was chosen because it significantly increased the effectiveness of gathering a representative sample of HR experts and users of an AI-enhanced ticketing system.

3.8 Data Analysis Technique

Since regression analysis only utilises a two-variable model to analyse data, it is regarded as a first-generation technique. This technique may be utilised successfully because it emphasises the need of creating achievable and realistic goals. Additionally, it aids in locating the variables and connections that are most pertinent to the current research. Regression and reliability analysis techniques were used in this study because they best suited the data (Sarstedt and Mooi, 2019). These techniques were used because they support the basic theoretical framework's legitimacy and evaluation.

3.9 Ethical Considerations

The necessity that the researcher gets verbal consent from respondents before data collection shows that there may be ethical challenges in the research project, which might have a big impact on the findings. To make logical conclusions, it is crucial to collect data objectively. Since collecting data without danger enhances the possibility of getting real, first-hand knowledge, the researcher should promote it. This study was ethically responsible since it dealt with ethical issues. Participants have the right to leave the study at any moment if they are dissatisfied, and the researcher must gather reliable data and offer a pleasant setting. The study's procedure should be explained to participants, and they should be advised not to disclose what they are identified in the questionnaire. Participants in this study said that they felt comfortable and secure throughout the research procedure as a consequence. The researcher has also been cautious while handling the data and has not in any way used the information supplied by the respondents.

3.10 Chapter Summary

The current chapter provides a thorough overview of the research methodology and emphasises several research techniques and analytical frameworks. The chapter's introduction covered the advantages of utilising a research onion structure when creating a methodology, and

the parts that followed provided in-depth explanations on how to apply it. The study's design, including the research methodologies, research samples, and research methodology, is then covered in the next section of the chapter. The approach and data collection process were both highlighted. Analysis was also done on the sample design, the demography of interest, and the expected sample size. The process of data processing was examined in light of ethical considerations. The next chapter will include data analysis, interpretation, and discussions of the results.

Chapter 4: Analysis, Results, and Discussions

4.1 Introduction

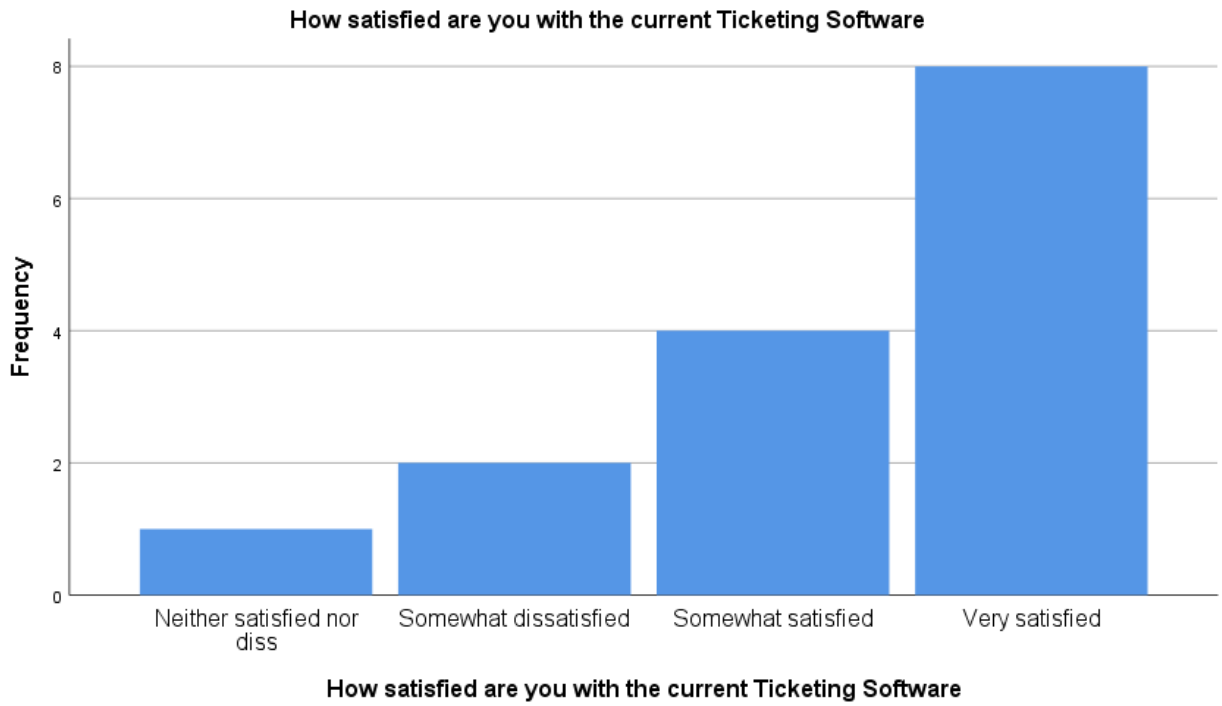
The current chapter focuses on results and discussion in which quantitative analysis has been discussed based on SPSS results and their interpretation. The analysis has been conducted based on a survey questionnaire in which responses have been analysed. Similarly, an in-depth discussion has also been conducted regarding the results in which the themes have been developed based on prior literature. This chapter can be termed the major chapter of this research which has helped in answering the research questions.

4.2 Frequency Analysis and Interpretation

The following tables represent the frequency data analysis based on the responses given by the respondents.

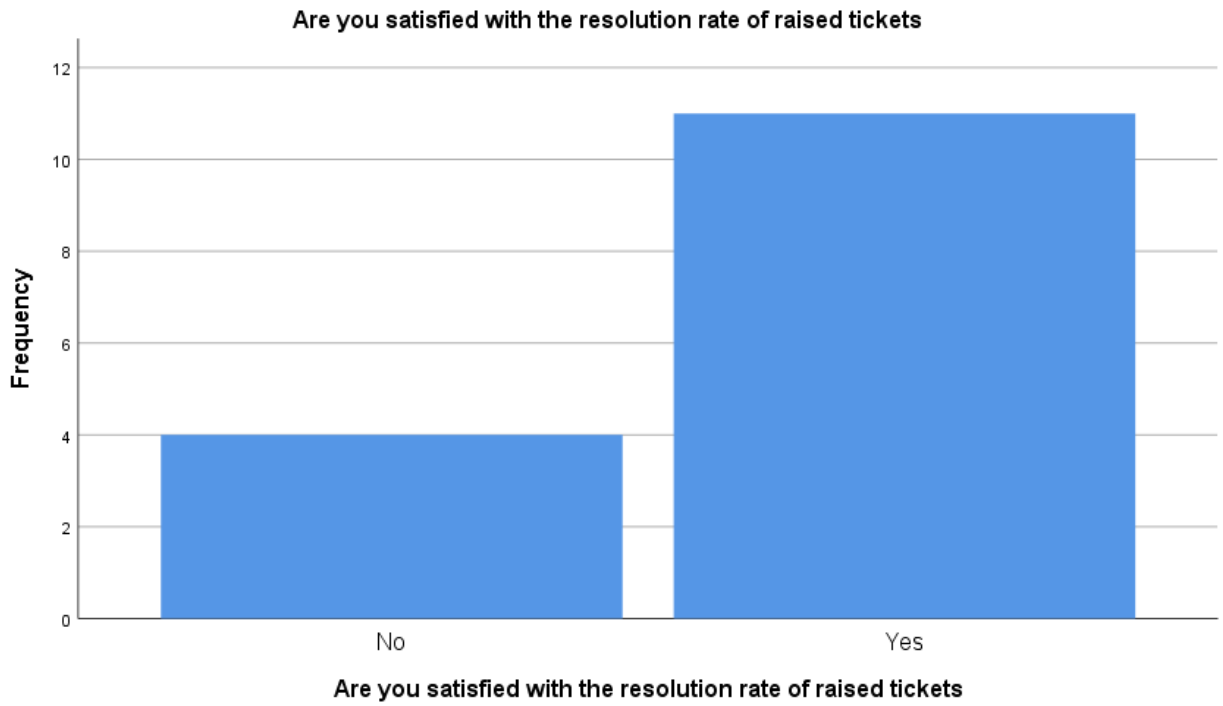
How satisfied are you with the current Ticketing Software

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neither satisfied nor dissatisfied	1	6.7	6.7	6.7
	Somewhat dissatisfied	2	13.3	13.3	20.0
	Somewhat satisfied	4	26.7	26.7	46.7
	Very satisfied	8	53.3	53.3	100.0
	Total	15	100.0	100.0	



The above table and graph represent that the majority of the respondents (8) have been very satisfied with the ticketing software they are using.

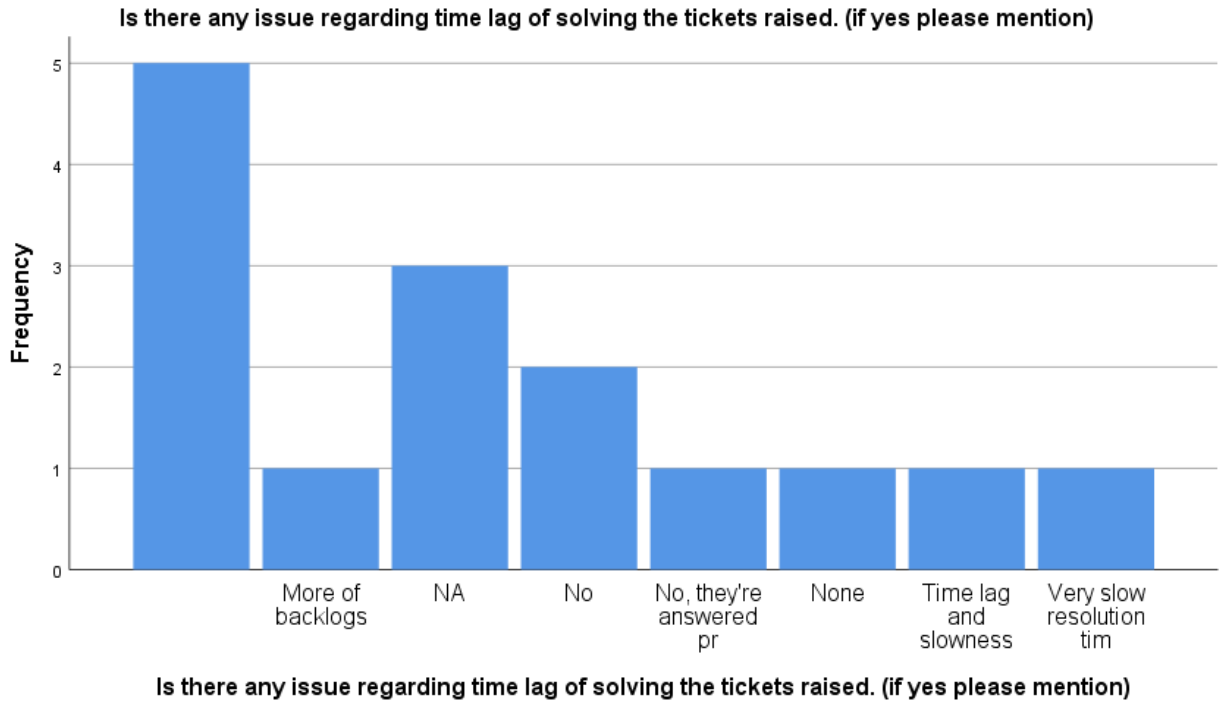
Are you satisfied with the resolution rate of raised tickets					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	4	26.7	26.7	26.7
	Yes	11	73.3	73.3	100.0
	Total	15	100.0	100.0	



The above table and graph represent that the majority of the respondents (11) have agreed that the resolution rate of raised tickets is high.

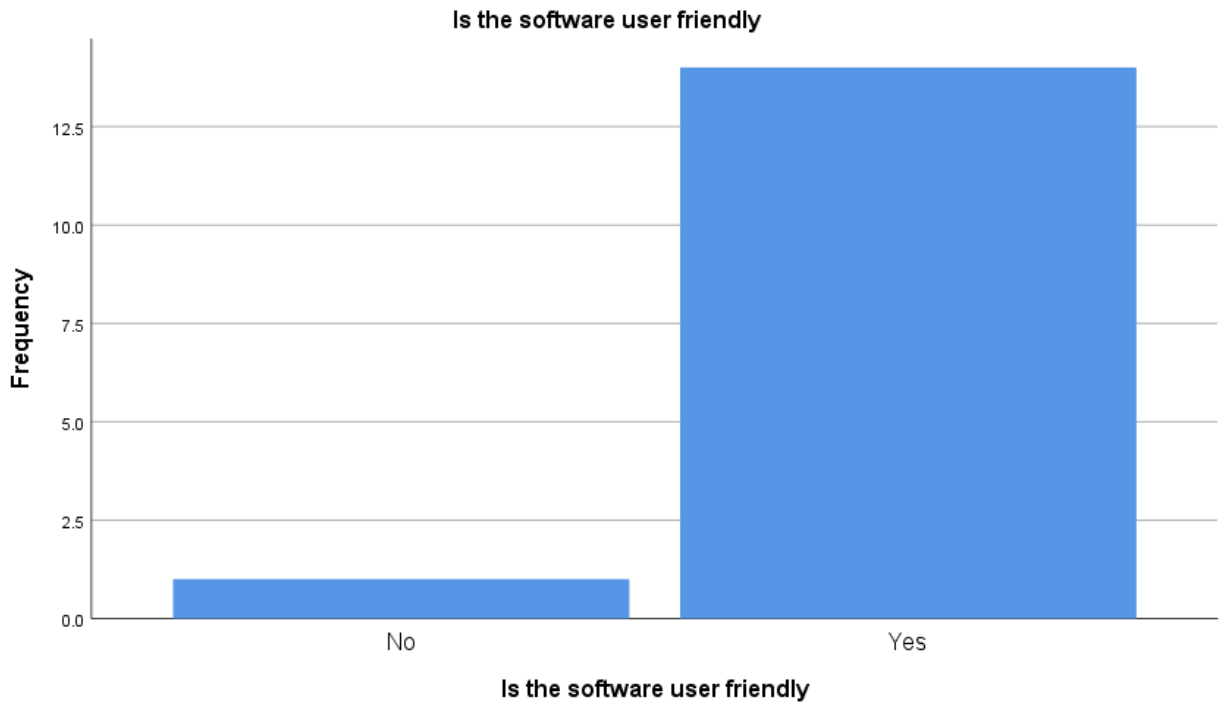
Is there any issue regarding the time lag of solving the tickets raised? (If yes please mention)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	33.3	33.3	33.3
	More of backlogs	1	6.7	6.7	40.0
	NA	3	20.0	20.0	60.0
	No	2	13.3	13.3	73.3
	No, they're answered pretty quickly	1	6.7	6.7	80.0
	None	1	6.7	6.7	86.7
	Time lag and slowness	1	6.7	6.7	93.3
	Very slow resolution time	1	6.7	6.7	100.0

	Total	15	100.0	100.0	



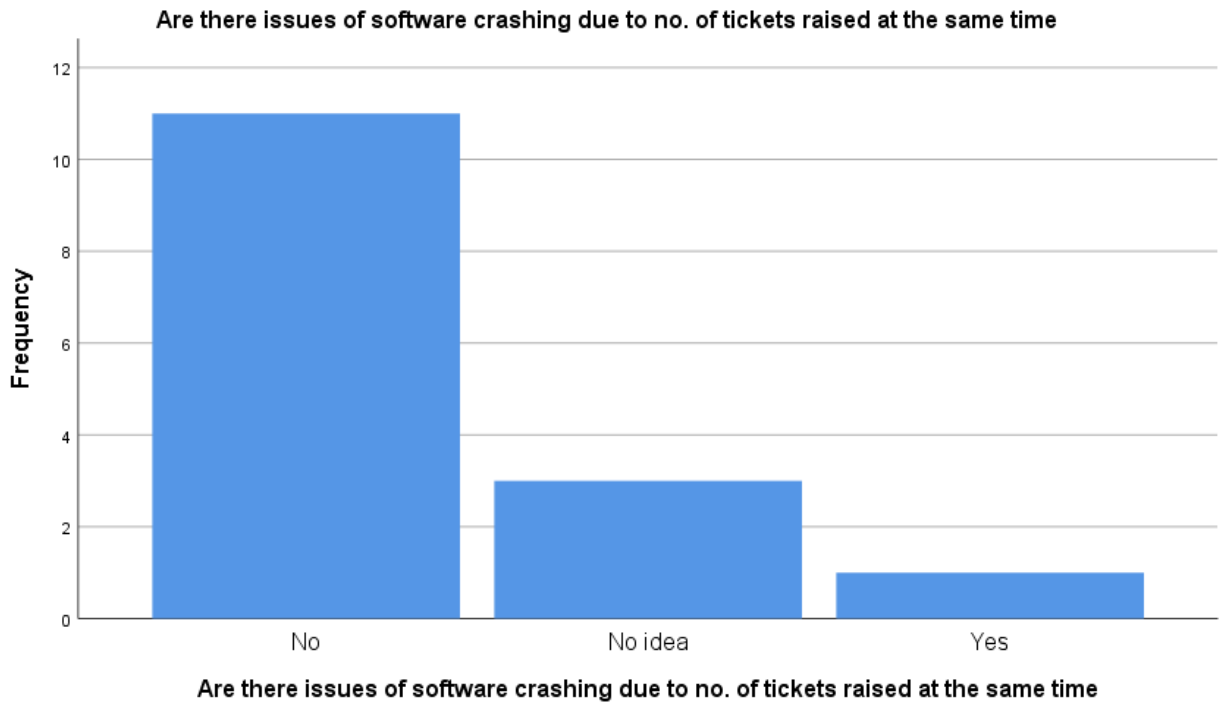
The above table and graph represent that the majority of the respondents answered that there was very little lag and issues faced during ticket raising.

Is the software user friendly					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	6.7	6.7	6.7
	Yes	14	93.3	93.3	100.0
	Total	15	100.0	100.0	



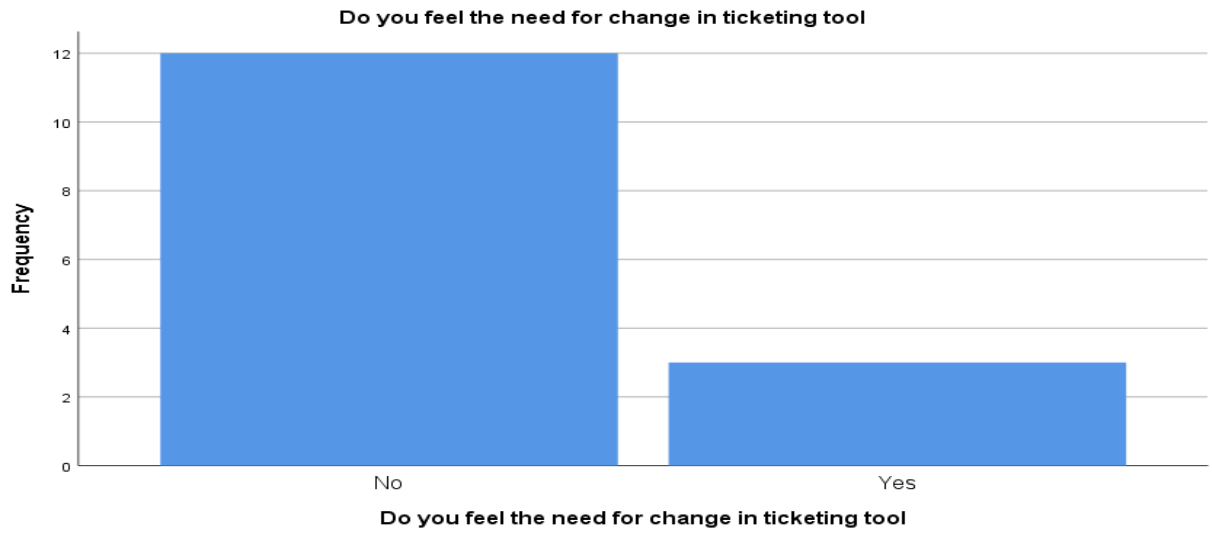
The above table and graph represent that the majority of the respondents 14 have identified that ticket-raising software is user-friendly.

Are there issues of software crashing due to no. of tickets raised at the same time					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	73.3	73.3	73.3
	No idea	3	20.0	20.0	93.3
	Yes	1	6.7	6.7	100.0
	Total	15	100.0	100.0	



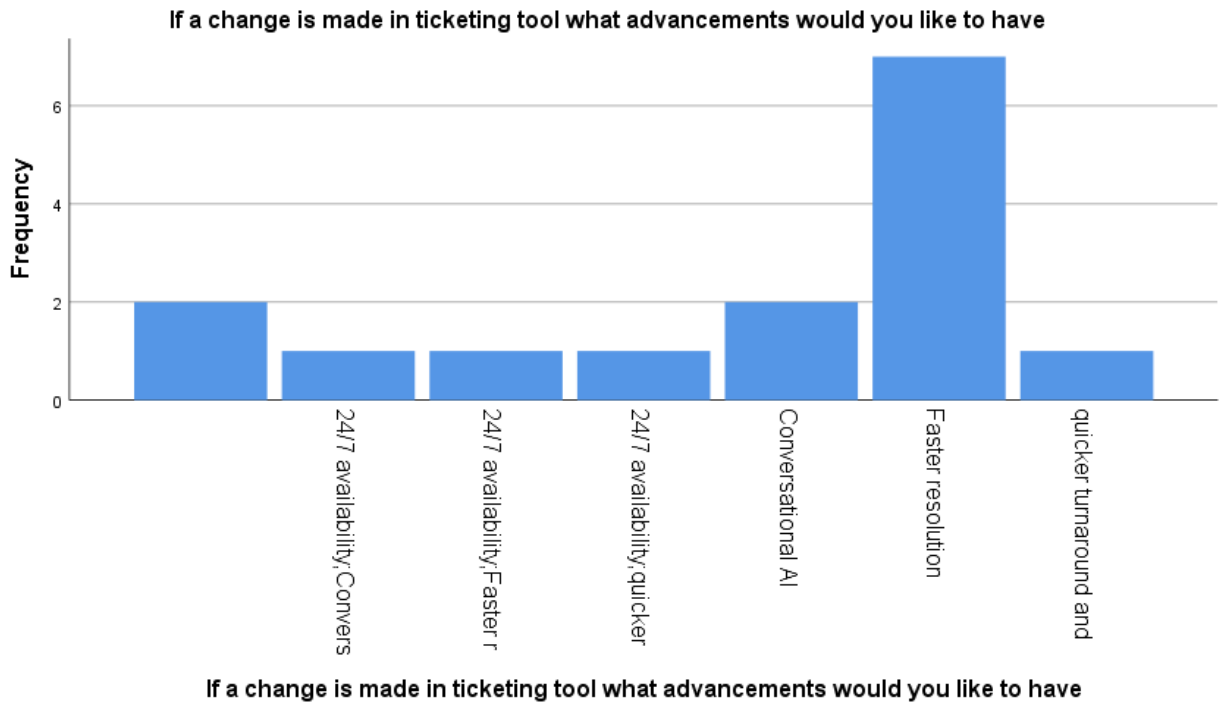
The above table and graph represent that the majority of the respondents (11) have identified that there were no issues of software crashing during a large number of tickets being raised.

Do you feel the need for change in the ticketing tool					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	12	80.0	80.0	80.0
	Yes	3	20.0	20.0	100.0
	Total	15	100.0	100.0	



The above table and graph represent that the majority of the respondents (12) feel that there is no need to change the ticketing tool currently.

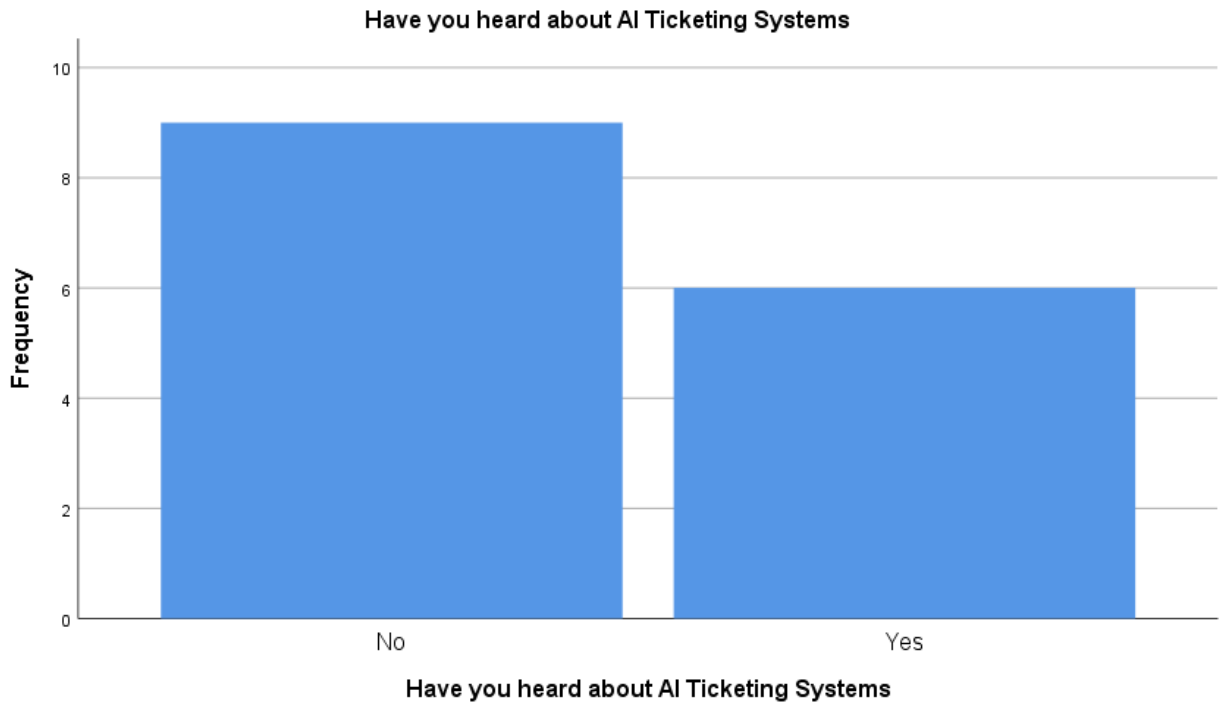
If a change is made in the ticketing tool, what advancements would you like to have					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	13.3	13.3	13.3
	24/7 availability; Conversational AI	1	6.7	6.7	20.0
	24/7 availability; Faster resolution	1	6.7	6.7	26.7
	24/7 availability; quicker turnaround and multilingual	1	6.7	6.7	33.3
	Conversational AI	2	13.3	13.3	46.7
	Faster resolution	7	46.7	46.7	93.3
	quicker turnaround and multilingual	1	6.7	6.7	100.0
	Total	15	100.0	100.0	



The above table and graph represent that the majority of the respondent (7) indicated that faster resolution needs to be included as a change within the ticketing tool advancements.

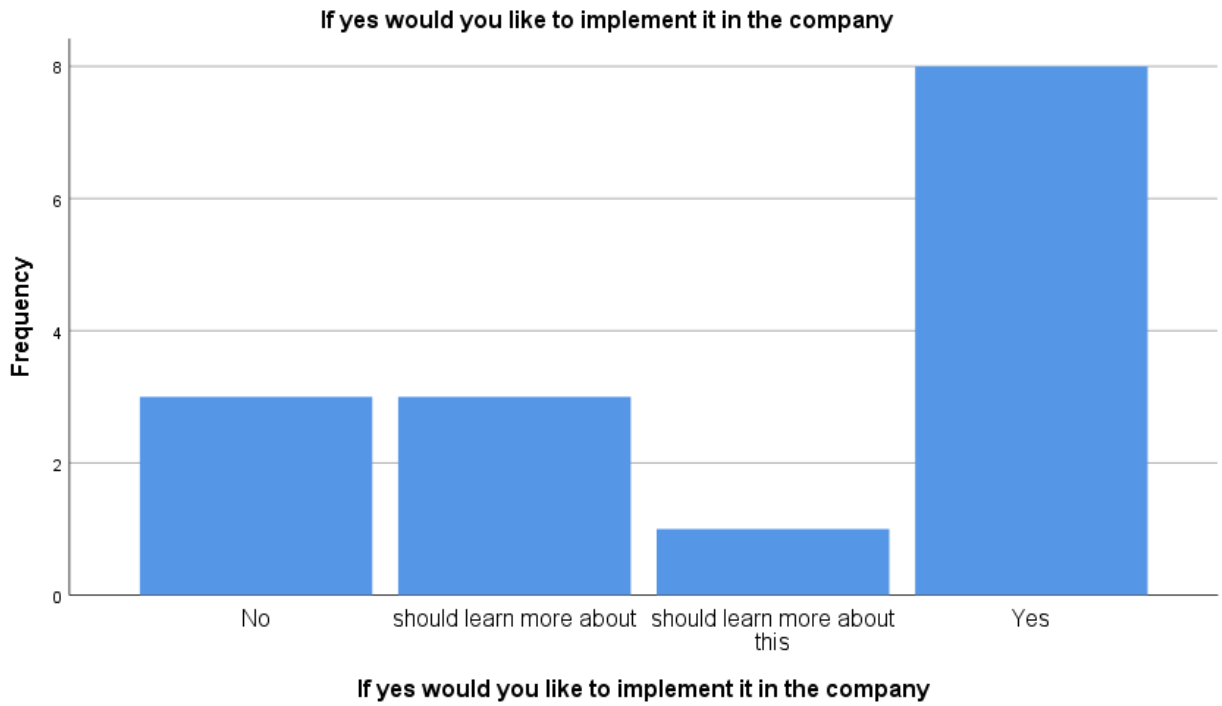
Have you heard about AI Ticketing Systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	9	60.0	60.0	60.0
	Yes	6	40.0	40.0	100.0
	Total	15	100.0	100.0	



The above table and graph represent that majority of the respondents that (9) indicates that they have heard about AI-based ticketing systems.

If yes, would you like to implement it in the company					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	3	20.0	20.0	20.0
	should learn more about current tool	3	20.0	20.0	40.0
	should learn more about AI Tool	1	6.7	6.7	46.7
	Yes	8	53.3	53.3	100.0
	Total	15	100.0	100.0	



The above table and graph represent that majority of the respondent (8) have shown agreeableness to implement AI-based ticketing software in their organisation.

4.3 Ticketing System Software

The effects of service robots and AI on service organisations and personnel are analysed at the micro, meso, and macro levels in the service sector. By automating monotonous processes, AI increases operational effectiveness and the calibre of the client experience. Service providers may automate formerly human-only chores and expedite and enhance functional and technical support procedures by using AI-powered chatbots and messaging (Smith, 2016). The service encounter is a complex setting where AI may improve, substitute for, or streamline both the service provider's and the client's experience. The use of AI in the service sector and allied industries has grown significantly over the last few years, notably in the categories of marketing intelligence, customer assistance, chatbots, and messaging (D'silva et al., 2017).

However, other research claims that AI will only ever be able to outperform humans in really basic tasks. Though their contributions to human-intensive services, such as those needing specialised skills acquired in college or accredited by a professional board, are less significant, it is widely acknowledged that AI and robots may improve high-level professions like science and engineering. Prior research on AI tended to focus on utility and effectiveness. The possible impacts

of AI on organisational results from the viewpoint of the workforce have not yet been investigated via study (Rachmawati et al., 2018). HR departments could benefit from using artificial intelligence (AI) to choose candidates. To provide clients with better service, artificial intelligence is increasingly employed in the marketing sector. For instance, chatbots in the hospitality sector may leverage analytical AI to provide prompt, automated replies to visitor enquiries. AI has also been employed by call centres to enhance customer service. Although AI is often used in business environments, the technology's ultimate worth depends on the tasks at hand and the level of complexity involved (Qamili et al., 2018). Low-level, menial jobs are often candidates for automation by AI.

In the service sector, ticketing systems are often utilised for effective and prompt issue tracking and resolution. The majority of IT organisations that provide technical support depend largely on helpdesk software or ticketing systems. She adds the information to the open ticket if following through with the troubleshooting procedures is unsuccessful in fixing the issue. Your request is currently being handled by a support agent. Later in the morning, the employee enters into the ticketing system, retrieves the customer's ticket, ascertains the issue and the cause of the mistake, and resolves the issue before moving on to the next ticket (Conlon, 2007). The majority of helpdesk software programmes on the market all have several basic issues with their design. Instead of front-end design and evolution, most commercial products concentrate on back-end technology and value-added services like asset and change management. Numerous of these allegedly "value-added" things are frills. They sometimes originate from completely different businesses (Kos-Łabędowicz, 2014). All but one struggle to fit in with the products that presently make up the market's core.

Moreover, we saw employees assisting the IT helpdesk at Vanderbilt's ITS computer centre. Based on our observations and discussions with these technicians and other professionals with extensive experience in the field of IT support, we have created the following characteristics of a typical support technician. (1) Technicians continuously go through tickets to identify those that meet certain requirements, such as the highest priority and the nearest deadline. Examples of secondary criteria include location, user accessibility, and issue nature. Within these restrictions, tickets are often distributed on a first-come, first-served basis. (2) The majority of tickets are resolved swiftly, sometimes within a week of being filed. As a consequence, technicians show the most interest in new tickets. The average technician may write up to fifteen tickets every day,

however, the number may vary greatly depending on the difficulty of the problems (Xie et al., 2004).

The majority of users of IT ticketing systems concentrate on a limited number of fundamental tasks, such as adding new tickets, finding the one that needs their attention next, and resolving old ones. Each ticket type has to be controlled for priority and deadlines. After seeing many technicians at work, we improved the UI to show the most-used functions while concealing the ones that aren't as often utilised. A content panel pulls out from the right side of the screen when you open a ticket in a new tab to show you information like the ticket's assigned agent and its current status. The majority of the display space is taken up by the most crucial information, such as the user's error message and the kind of issue (Kos-Łabędowicz, 2014). The most recent and important remark is shown next to the ticket as an extra benefit, and earlier comments may be found on a tab within the main ticket.

4.4 Ticketing System and Problem Resolution

In recent years, the delivery of services in the IT sector has shifted toward becoming more mechanised. Any software monitoring system's main objective is to instantly create incident tickets in response to any required occurrences. The possibility that many of those tickets will contain answers to the same issues is increased by the similarities between tickets produced by recurrent events and the services offered by those events. By comparing new events to past occurrences that have comparable features, we create ways for recommending an appropriate response. Effective and efficient service delivery and support are required given the cutthroat nature of business and the complexity of service environments (Andhale et al., 2019). Service-providing facilities work with system management tools to automate maintenance chores including identifying and resolving problems with the service infrastructure.

In automated service management, false alarms are closed down with statements like "this is a false alert," "all is OK," and "no defect discovered." If the system administrator is provided instructions on how to resolve a phoney ticket, they can ignore the true issue. Denial of a genuine system issue might have disastrous effects on a major corporation's IT infrastructure. Effective service delivery and support systems are required in the complex service settings and business climate of today. The automation of regular maintenance operations, including problem detection, diagnosis, and resolution in the service infrastructure, is made possible by system management tools and the collaboration of service-providing facilities (Tang et al., 2013). Modern service

infrastructure management has been developing new strategies and technologies to increase service effectiveness and quality. An automated approach to service management is preferable. However, automating the resolution of issues is challenging. Weakly linked service compositions provide a very challenging problem since the coupling is unknown during the design process. In a perfect world, monitoring software would automatically create incident or event tickets and actively gather data. Recurring events produce similar event tickets, and these tickets often include several solutions to the same persistent issues. We use a system that generates recommendations to address the problem of event tickets (Zhou et al., 2015). We also enhance the recommendation approach to accommodate the possibility that some tickets are bogus.

This method is used in this study to address problem tickets related to maintaining the service infrastructure. We also enhance the proposal procedure to account for the potential for false tickets. Event tickets, which are incident tickets produced by monitoring systems, are the primary subject of our attention. We hope that our efforts will assist service providers in correlating previously handled requests and identifying relevant solutions to problems. Many companies in this sector maintain track of past issues and how they were resolved. The majority of the time, the ticket's resolution is documented in plain language so that all parties concerned can quickly see the actions done to fix the problem. The IT Infrastructure Library (ITIL) describes the accepted practice for resolving issues with service delivery (Gupta et al., 2018). Monitoring programmes often computer hardware and software performance indicators regularly to assist identify problems. The metrics are then compared to pre-set criteria; if a violation occurs, an alert is sent; if the violation continues for a prolonged length of time, the monitor produces an event. An enterprise console collects monitoring data from the whole service architecture, analyses it using rule-, case-, or knowledge-based engines, and determines whether or not to open a ticketing system issue. An event ticket is generated when anything happens in the monitoring system (Han et al., 2018). To accommodate client demand, more tickets are produced as required. Data from the ticket is used by technical support to identify and resolve problems.

4.5 Ticketing System and Effectiveness

HR practitioners have long felt that a company's success depends on HR. The majority of yearly reports for businesses state that their people are their most valuable resource. Despite these widely held assumptions and all-too-common announcements, numerous organisational actions point to a relatively low focus on the company's human resources and the human resource (HR)

department. Researchers and business executives have put a lot of effort into identifying the variables that affect how well a firm performs (Huang and Rust, 2021). A resource-based perspective of organisations allows for the analysis of human resources in terms of their economic worth. In this perspective, the assets of the firm are examined for their potential to serve as strategic advantages.

A software corporation may have hundreds of products in its portfolio, all of which have a wide range of applications. Numerous clients have already installed and are utilising this service on a global scale. A sizable workforce of workers offers technical help round-the-clock. They receive support tickets, assess them, and then provide remedies. The product and version number(s) in the issue should be one of the first pieces of information gathered when looking into a problem. Some software faults only appear in more recent versions, while others only affect a small number of users. Companies need a system in place for dealing with customer support inquiries to provide organised and informed customer assistance (Ehsan et al., 2021). However, since handling such problems requires a lot of staff, the service provider must charge more and take longer to react to requests. The effort to automate these help desk ticketing systems was motivated by the development of machine learning technology. To determine their current technological state of the art, we did a Literature Review of automated support ticket systems (Mandal et al., 2019). We provide a summary of current changes and contentious topics in the sector.

The database that underpins ITIS service is referred to as the ITIS information system. It's a ticketing system designed to make it easy for users to report problems (in this case, software developers) and simple for analysts to manage, watch over, and fix them. When starting a firm, software developers need assistance with their IT infrastructure. Any company's ability to survive depends on its ability to effectively satisfy customers. When handling IT support issues, organisations often adhere to a set process. When filing a ticket via the system, users often choose the right category for their problem (hardware, software, or network). Each category has a unique ticket reporting template that includes questions about information required to address the issue. The user is immediately requested to complete the category-specific template using the ITIS database. In the form of a written request, the user often gives a thorough description of the service they desire, along with information about the relevant category (Jäntti, 2021). The categorisation of the ticket affects the service level response time.

The ticket is sent to an analyst, who is then charged with resolving it within the allotted service level. Service providers must make sure they provide the advertised service levels or risk financial penalties. The analyst may consult with the client while working on a ticket. The status of the ticket gets changed to "Pending User Input" as a result (AUI) (Gupta, 2017). To shield the service provider from collecting the wrong penalties, the service level clock is turned off when the AUI is in effect. It's crucial to remember that the duration of the AUI state will have an impact on how long it appears to the user until the problem is fixed. In actuality, when tickets are sent back and forth to get customer feedback, the resolution process is hindered, and the user experience is poorer. Customers want you to address their issues with the least amount of engagement possible (Gupta, 2017).

Moreover, when users submit incomplete or inaccurate information when analysts misinterpret user inputs, when analysts are unable to handle issues that call for particular information that is not obvious to end users, and in other scenarios, analysts may need assistance from end users. The need for such inputs might be removed by requiring the user to provide all pertinent information at the moment the ticket is submitted. Additionally, since maintaining SLA compliance is crucial, labelling a ticket as Awaiting User Inputs is a sneaky way to satisfy the resolution time SLA objective. Analysts are recommended to only ask for user inputs when they are required for resolving a case (Bartolini et al., 2009). According to studies by Ferreira and Da Silva, (2018), users may submit input requests that are not information-seeking but rather tactical, intended to stop the service level clock at all costs. In addition to ensuring that the appropriate information is accessible at the time a ticket is filed, managing tactical user input requests is essential for reducing the total volume of user input requests.

4.6 Ticketing System and User Friendliness

The past several years have witnessed a dramatic rise in popularity of the Internet and the technology that it is connected to. As a result, many businesses have invested money in creating novel ways to communicate with their customers. This trend is mostly the result of the growing usage of electronic tickets (Qteishat et al., 2014). According to, a variety of businesses may utilise e-tickets to promote anything from online shopping bargains to tickets for live events like concerts and athletic contests. While it wouldn't be quite accurate to say that e-tickets are now commonplace, there's no denying that their popularity heralds a change from the way tickets have traditionally been bought. Businesses seem to benefit from e-tickets in a variety of ways, including

decreased costs and greater efficiency (Boyer et al., 2002). Therefore, it seems to sense that e-ticket use would increase in the future.

The cognitive aspects of e-ticketing have also been a major issue for organisations as attempts to enhance it have persisted over the last several years. Customer satisfaction has become more important in business, especially in the area of e-ticketing. As a result, companies are looking into the precise elements that influence customers' choices when purchasing e-tickets. On top of this foundation, the present research identifies the individual elements of the e-ticket purchase procedure (customer technical assistance, infrastructure, data security, and/or user-friendliness) that contribute to the customer's total happiness (Bansal et al., 2014). By following the effects of consumers' choices on a range of unrelated factors, it may be possible to better understand consumers' experiences with purchasing and utilising e-tickets.

Customer and technical support are essential, according to studies on the elements that affect customers' choices to use an e-ticketing service. Similar to the above, let's suppose that a person's choice to utilise an e-ticketing service will be greatly impacted by their perception of the merits of the service. These authors contend that when issues with e-ticketing systems occurred, consumers' perceptions of a corporation were influenced by the quality of the customer care provided. To this, add the claim that consumers' opinions about the quality of the services they get directly influence their behaviour (Ismail and Hussain, 2016). Customers are more likely to engage in AI-based tickets if they have faith in the company's capacity to address and meet their demands.

4.7 Chapter Summary

This chapter has been effectively conducted as it has helped in conducting the data analysis which has identified such results that have answered the research questions. A quantitative analysis has been conducted which has represented significant results regarding the research topic. For instance, results have identified that an AI-based ticketing system has been quite helpful in resolving customer issues and increased employee and organisation performance as well. This chapter has discussed major themes in which prior literature has been assessed and linked with the current results.

Chapter 5: Conclusion and Recommendation

5.1 Conclusion

The researchers wanted to know how content and effective the workers of the AI ticketing system were. A questionnaire was created for the study, and data were gathered via interviews with human resources (HR) specialists and the use of quantitative methods. The research shows that firms have mostly adopted AI technology, which makes it simpler for support workers to write tickets that address customers' questions and concerns. The use of artificial intelligence (AI) in customer care enables the autonomous processing of basic assistance or customisation requests. It's extremely convenient for practically any work that might be enhanced by automation and machine learning. Automated ticketing systems are only one example of potential uses. It would make more brain room available for contemplating and talking about more difficult problems. After we have a good understanding of the fundamentals of reporting, we may start developing financial and consumer prediction models. Using an automated ticketing system enables employees to concentrate more on difficult activities and provides a firm foundation for future planning.

Systems for tracking support tickets are crucial in contemporary businesses. In an attempt to reduce the mistake rate and related expenses of delivering customer service, it is becoming more and more alluring to deploy ML-based solutions for automated support ticket help desks. This literature review sought to examine the body of knowledge about the use of machine learning to automate support ticket processing. We utilise Request to manage customer support enquiries and operate a business chatbot service on the Azure cloud. This category includes the Requested support ticket system, a commercial chatbot, and the Microsoft Azure cloud.

Additionally, several studies have shown that the general public is sceptical of AI and ML, and there have been cases of ML solutions in business having negative effects, such as customers being 80% less satisfied and less likely to purchase when they realise, they are speaking with a chatbot. The shortcomings of ML-automated STSs, such as customers' lack of trust in the technology and support staff members' inability to comprehend the system's conclusions, are seldom mentioned. Model failures are sometimes recorded, though. Given the potential downsides of ML-driven automation of STSs, we thus advise greater awareness and, in particular, propose that unpleasant experiences be recorded alongside positive ones. We argue that organisations outside of the service sector may find interest in the area due to the potential for cost savings,

increased customer satisfaction, and higher staff satisfaction through the automation of various STSs using ML. According to a recent industry study, user counselling during ticket manufacturing may greatly improve training data quality, customer satisfaction, and ticket classifier accuracy.

5.2 Implications/Recommendations

The research examines the potential effects of AI on organisations in the widest sense by examining the connections between AI and employee turnover, productivity, and satisfaction. The need for perfection affects both professionals and researchers. This research makes a substantial addition to knowledge by demonstrating how several forms of intelligence each affect an organisation's success as measured by employee behaviour (retention and performance). According to this study, human intelligence has a greater impact than artificial intelligence in industries that depend heavily on human labour. The link between organisational production and human intelligence is moderated by AI.

Additionally, the results of this research demonstrate that AI is a reliable predictor of employee attitudes and behaviours in the hospitality sector, including work performance, organisational engagement, and employee retention. The potential effects of artificial intelligence (AI) on service delivery are highlighted in this research, which adds to the expanding body of literature on consumer loyalty. This study applies artificial intelligence research—which until now has mostly focused on technical and functional efficiency—to an organisational environment to examine how it affects both individual and group productivity. The conclusions provide light on how productivity and organisational culture are impacted by AI. Beyond the hotel industry, professionals in the services sector may benefit from the findings. Results provide management and the appropriate AI experts advice on what should be prioritised to maximise company success via the control of employee and consumer behaviour. Even if artificial intelligence (AI) has become a buzzword for improving corporate operations, human intelligence in terms of emotional qualities still plays a much more important role in managing staff and consumers. Although it may seem strange at first, customers prefer human connection over that with computers or robots. According to the results, AI could supplement human labour but is not expected to completely replace it.

Companies must invest in their workers' emotional intelligence (EI) via training given the huge influence that AI will have on enterprises and consumers. Since emotional work is often performed by front-line personnel in the service sector, AI training may help lessen the negative

consequences of this kind of labour on workers in addition to improving their performance. Perhaps the most revolutionary aspect of AI is its capacity to complement and enhance human intelligence. One of the most striking features of modern AI is its capacity to independently adjust itself via the examination of enormous data sets. Promoting to certain people has just become a lot simpler. The most critical traits for marketing success are emotional intelligence and cerebral sharpness. Up until now, technology hasn't been much of a help with these issues. Due to AI's quick progress, it would soon be feasible for it to do numerous marketing activities that need some amount of inventiveness. AI will eventually be able to replace a lot of the work now performed by human marketers in terms of appealing to customers' emotions as AI grows further. Researchers are already working on projects of this kind.

The current research has identified the results that almost all the respondents are satisfied with using the AI-based ticketing software which can be helpful for customers in resolving their queries. Therefore, the recommendations are given that organisations should enhance their technology and develop such useful skills/expertise as well. The skills can be developed based on the concept that organisations provide training programmes through which employees can get the necessary knowledge/education regarding the AI ticketing system. Also, it is recommended to the organisations to invest financially in their technological aspect in which utilising such software can be effective and efficient for the employees. Similarly, such investments can allow organisations to become competitive based on enhanced technology and eventually increase their performance.

Furthermore, it is also recommended to practitioners/organisations that assessing the ticketing system is necessary as identifying the success/failure rate can only help in improving the overall performance of the software. This process can be conducted based on creating a compliance department for the ticketing system that can help in identifying any errors, lagging, and failures within the system. Besides, it is also recommended that practitioners develop a user-friendly system because it can help the customers in filing their tickets based on their issue and eventually will be given/resolved by the appropriate department. Also, another recommendation is to develop such a ticketing system that can allow or face a high number of tickets by the customers as it is necessary to maintain the load/balance for significant utilisation of the ticketing system. At last, it is recommended to develop a fast resolution-based ticketing system that can only help in resolving the query in a relatively short period.

References

Agarwal, S., Aggarwal, V., Akula, A.R., Dasgupta, G.B. and Sridhara, G., 2017. Automatic problem extraction and analysis from unstructured text in IT tickets. *IBM Journal of Research and Development*, *61*(1), pp.4-41.

Agarwal, S., Sindhgatta, R. and Sengupta, B., 2012. SmartDispatch. *Proceedings of the 18th ACM SIGKDD international conference on Knowledge discovery and data mining - KDD '12*,.

Al-Alawi, A.I., Sanosi, S.K. and Althawadi, A.H., 2021, December. Effects of Technology and Digital Innovations on the Human Resources Ecosystem. In *2021 International Conference on Decision Aid Sciences and Application (DASA)* (pp. 502-510). IEEE.

Al-Hawari, F. and Barham, H., 2021. A machine learning based help desk system for IT service management. *Journal of King Saud University-Computer and Information Sciences*, *33*(6), pp.702-718.

Al-Saadi, H., 2014. Demystifying Ontology and Epistemology in research methods. *Research gate*, *1*(1), pp.1-10.

Andhale, V., More, D. and Nair, A., 2019. A mobile application for bus e-ticketing system. *International Journal of Trend in Scientific Research and Development (IJTSRD)*, *3*(4), pp.752-754.

Andrews, J.E., Ward, H. and Yoon, J., 2021. UTAUT as a model for understanding intention to adopt AI and related technologies among librarians. *The Journal of Academic Librarianship*, *47*(6), p.102437.

Baars, H. and Kemper, H.G., 2008. Management support with structured and unstructured data—an integrated business intelligence framework. *Information systems management*, *25*(2), pp.132-148.

Baines, T., Bigdeli, A.Z., Bustinza, O.F., Shi, V.G., Baldwin, J. and Ridgway, K., 2017. Servitization: revisiting the state-of-the-art and research priorities. *International Journal of Operations & Production Management*, *37*(2), pp.256-278.

Bansal, S.P., Singh, R. and Gangotia, A., 2014. Measuring the impact of sales promotion, service quality and customer experience: A case of e-ticketing. *Transnational Corporations Review*, *6*(4), pp.419-428.

Barnett, T., Pearson, A.W., Pearson, R. and Kellermanns, F.W., 2015. Five-factor model personality traits as predictors of perceived and actual usage of technology. *European Journal of Information Systems*, *24*(4), pp.374-390.

Bartolini, C., Stefanelli, C. and Tortonesi, M., 2009, June. Business-impact analysis and simulation of critical incidents in IT service management. In *2009 IFIP/IEEE International Symposium on Integrated Network Management* (pp. 9-16). IEEE.

Beerbaum, D.O., 2022. Artificial Intelligence Ethics Taxonomy-Robotic Process Automation (RPA) as business case. *Available at SSRN*.

Bhatiasevi, V. and Naglis, M., 2020. Elucidating the determinants of business intelligence adoption and organizational performance. *Information Development*, *36*(1), pp.78-96.

Blaj, R., Coiciu, A. and Bălan, T., 2019. Incident management assistant using artificial intelligence chatbots. *Scientific Bulletin" Mircea cel Batran" Naval Academy*, *22*(1), pp.1-10.

Bolton, C., Machová, V., Kovacova, M. and Valaskova, K., 2018. The power of human-machine collaboration: Artificial intelligence, business automation, and the smart economy. *Economics, Management, and Financial Markets*, *13*(4), pp.51-57.

Boyer, K.K., Hallowell, R. and Roth, A.V., 2002. E-services: operating strategy—a case study and a method for analyzing operational benefits. *Journal of Operations management*, *20*(2), pp.175-188.

Burnett, J.R. and Lisk, T.C., 2019. The future of employee engagement: Real-time monitoring and digital tools for engaging a workforce. *International Studies of Management & Organization*, *49*(1), pp.108-119.

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D. and Walker, K., 2020. Purposive sampling: complex or simple? Research case examples. *Journal of research in Nursing*, *25*(8), pp.652-661.

Chagnon, C.J., Trapp, A.C. and Djamasbi, S., 2017. Creating a decision support system for service classification and assignment through optimization.

Chatterjee, S., Rana, N.P., Khorana, S., Mikalef, P. and Sharma, A., 2021. Assessing Organizational Users' Intentions and Behavior to AI Integrated CRM Systems: A Meta-UTAUT Approach. *Information Systems Frontiers*, pp.1-15.

Choy, L.T., 2014. The strengths and weaknesses of research methodology: Comparison and complimentary between qualitative and quantitative approaches. *IOSR journal of humanities and social science*, *19*(4), pp.99-104.

Chung, M., Ko, E., Joung, H. and Kim, S.J., 2020. Chatbot e-service and customer satisfaction regarding luxury brands. *Journal of Business Research*, *117*, pp.587-595.

Conlon, M.J., 2007, October. Overhaul your helpdesk ticketing system. In *Proceedings of the 35th annual ACM SIGUCCS fall conference* (pp. 37-40).

D'silva, G.M., Scariah, A.K., Pannapara, L.R. and Joseph, J.J., 2017, February. Smart ticketing system for railways in smart cities using software as a service architecture. In *2017 International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud)(I-SMAC)* (pp. 828-833). IEEE.

Ehsan, U., Liao, Q.V., Muller, M., Riedl, M.O. and Weisz, J.D., 2021, May. Expanding explainability: Towards social transparency in ai systems. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1-19).

Etikan, I., Musa, S.A. and Alkassim, R.S., 2016. Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, *5*(1), pp.1-4.

Ferreira, D.R. and Da Silva, M.M., 2008, April. Using process mining for ITIL assessment: a case study with incident management. In *Proceedings of the 13th Annual UKAIS Conference, Bournemouth University*.

Fountaine, T., McCarthy, B. and Saleh, T., 2019. Building the AI-powered organization. *Harvard Business Review*, *97*(4), pp.62-73.

Fuchs, S., Drieschner, C. and Wittges, H., 2022. Improving Support Ticket Systems Using Machine Learning: A Literature Review.

Goertzen, M.J., 2017. Introduction to quantitative research and data. *Library Technology Reports*, *53*(4), pp.12-18.

Gope, S., Elia, G. and Passiante, G., 2018. The effect of HRM practices on knowledge management capacity: a comparative study in Indian IT industry. *Journal of Knowledge Management*.

Górriz, J.M., Ramírez, J., Ortíz, A., Martínez-Murcia, F.J., Segovia, F., Suckling, J., Leming, M., Zhang, Y.D., Álvarez-Sánchez, J.R., Bologna, G. and Bonomini, P., 2020. Artificial intelligence within the interplay between natural and artificial computation: Advances in data science, trends and applications. *Neurocomputing*, *410*, pp.237-270.

Gupta, M., Asadullah, A., Padmanabhuni, S. and Serebrenik, A., 2018. Reducing user input requests to improve IT support ticket resolution process. *Empirical Software Engineering*, *23*(3), pp.1664-1703.

Han, J., Goh, K.H., Sun, A. and Akbari, M., 2018, October. Towards effective extraction and linking of software mentions from user-generated support tickets. In *Proceedings of the 27th ACM International Conference on Information and Knowledge Management* (pp. 2263-2271).

Hecklau, F., Galeitzke, M., Flachs, S. and Kohl, H., 2016. Holistic approach for human resource management in Industry 4.0. *Procedia Cirp*, *54*, pp.1-6.

Hmoud, B., 2021, March. The adoption of artificial intelligence in human resource management and the role of human resources. In *Forum Scientiae Oeconomia* (Vol. 9, No. 1, pp. 105-118).

Huang, M.H. and Rust, R.T., 2021. A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, *49*(1), pp.30-50.

Huang, M.H. and Rust, R.T., 2021. Engaged to a robot? The role of AI in service. *Journal of Service Research*, *24*(1), pp.30-41.

İşcen, E.S. and Gürbüz, M.Z., 2019, September. A Comparison of Text Classifiers on IT Incidents Using WEKA. In *2019 4th International Conference on Computer Science and Engineering (UBMK)* (pp. 510-515). IEEE.

Ismail, N.A.B. and Hussin, H.B., 2016, November. The effect of E-CRM features on customers satisfaction for airline e-ticket services in Malaysia. In *2016 6th International Conference on Information and Communication Technology for The Muslim World (ICT4M)* (pp. 336-343). IEEE.

Jäntti, M., 2021 Studying Digital Literacy and AI Adoption in Software Engineering & Technology Companies.

Jin, Y., Duffield, N., Gerber, A., Haffner, P., Hsu, W.L., Jacobson, G., Sen, S., Venkataraman, S. and Zhang, Z.L., 2011, April. Making sense of customer tickets in cellular networks. In *2011 Proceedings IEEE INFOCOM* (pp. 101-105). IEEE.

Khare, H.S. and Burris, D.L., 2010. A quantitative method for measuring nanocomposite dispersion. *Polymer*, *51*(3), pp.719-729.

Koski, A., Kuusinen, K., Suonsyrjä, S. and Mikkonen, T., 2016, August. Implementing continuous customer care: First-hand experiences from an industrial setting. In *2016 42th Euromicro Conference on Software Engineering and Advanced Applications (SEAA)* (pp. 78-85). IEEE.

Kos-Łabędowicz, J., 2014, October. Integrated E-ticketing system–possibilities of introduction in EU. In *International Conference on Transport Systems Telematics* (pp. 376-385). Springer, Berlin, Heidelberg.

Kotha, V., 2017. Customer-Centric Service Management Using Servicenow.

Labanauskaitė, D., Fiore, M. and Stašys, R., 2020. Use of E-marketing tools as communication management in the tourism industry. *Tourism Management Perspectives*, *34*, p.100652.

Lee, J., Suh, T., Roy, D. and Baucus, M., 2019. Emerging technology and business model innovation: The case of artificial intelligence. *Journal of Open Innovation: Technology, Market, and Complexity*, *5*(3), p.44.

Li, S.H., Wu, C.C., Yen, D.C. and Lee, M.C., 2011. Improving the efficiency of IT help-desk service by Six Sigma management methodology (DMAIC)–a case study of C company. *Production Planning & Control*, *22*(7), pp.612-627.

Lichtenthaler, U., 2019. Extremes of acceptance: employee attitudes toward artificial intelligence. *Journal of Business Strategy*.

Lyons, G., Hammond, P. and Mackay, K., 2019. The importance of user perspective in the evolution of MaaS. *Transportation Research Part A: Policy and Practice*, *121*, pp.22-36.

Malik, A., Budhwar, P., Mohan, H. and NR, S., 2022. Employee experience–the missing link for engaging employees: Insights from an MNE's AI-based HR ecosystem. *Human Resource Management*.

Malik, A., Budhwar, P., Patel, C. and Srikanth, N.R., 2022. May the bots be with you! Delivering HR cost-effectiveness and individualised employee experiences in an MNE. *The International Journal of Human Resource Management*, *33*(6), pp.1148-1178.

Mandal, A., Agarwal, S., Malhotra, N., Sridhara, G., Ray, A. and Swarup, D., 2019, October. Improving IT Support by Enhancing Incident Management Process with Multi-modal Analysis. In *International Conference on Service-Oriented Computing* (pp. 431-446). Springer, Cham.

Mandal, A., Malhotra, N., Agarwal, S., Ray, A. and Sridhara, G., 2019, July. Automated dispatch of helpdesk email tickets: Pushing the limits with AI. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 33, No. 01, pp. 9381-9388).

McGrath, J. and Kostalova, J., 2020. Project Management Trends and New Challenges 2020+. *Hradec Economic Days*,.

Montasari, R., Carroll, F., Macdonald, S., Jahankhani, H., Hosseinian-Far, A. and Daneshkhah, A., 2021. Application of artificial intelligence and machine learning in producing actionable cyber threat intelligence. In *Digital Forensic Investigation of Internet of Things (IoT) Devices* (pp. 47-64). Springer, Cham.

Montgomery, L. and Damian, D., 2017, September. What do support analysts know about their customers? on the study and prediction of support ticket escalations in large software organizations. In *2017 IEEE 25th international requirements engineering conference (RE)* (pp. 362-371). IEEE.

Nuruzzaman, M. and Hussain, O.K., 2018, October. A survey on chatbot implementation in customer service industry through deep neural networks. In *2018 IEEE 15th International Conference on e-Business Engineering (ICEBE)* (pp. 54-61). IEEE.

Paramesh, S.P. and Shreedhara, K.S., 2019. Building Intelligent Service Desk Systems using AI. *International Journal of Science, Technology, Engineering and Management-A VTU Publication*, *1*(2), pp.1-8.

Pathak, S. and Solanki, V.K., 2021. Impact of internet of things and artificial intelligence on human resource development. In *Further advances in internet of things in biomedical and cyber physical systems* (pp. 239-267). Springer, Cham.

Pearl, J., 2014. The deductive approach to causal inference. *Journal of Causal Inference*, *2*(2), pp.115-129.

Prentice, C., Dominique Lopes, S. and Wang, X., 2020. Emotional intelligence or artificial intelligence–an employee perspective. *Journal of Hospitality Marketing & Management*, *29*(4), pp.377-403.

Qamili, R., Shabani, S. and Schneider, J., 2018, October. An intelligent framework for issue ticketing system based on machine learning. In *2018 IEEE 22nd International Enterprise Distributed Object Computing Workshop (EDOCW)* (pp. 79-86). IEEE.

Qteishat, M.K., Alshibly, H.H. and Al-ma'aitah, M.A., 2014. The impact of e-ticketing technique on customer satisfaction: an empirical analysis. *Jistem-journal of information systems and technology management*, *11*, pp.519-532.

Quinn, J.B., Anderson, P. and Finkelstein, S., 2009. Managing professional intellect: making the most of the best. In *The strategic Management of Intellectual capital* (pp. 87-98). Routledge.

Rachmawati, E., Kom, M. and Kom, M., 2018. Web-Based Ticketing System Helpdesk Application Using CodeIgniter Framework (Case Study: PT Commonwealth Life). *International Journal of Computer Science and Mobile Computing*, *7*(12), pp.29-41.

Rahi, S., 2017. Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences*, *6*(2), pp.1-5.

Renkema, M., 2021. AI, Digitalisation, and HRM: Foundations, Extensions, and New Directions on AI, Digitalisation, and HRM. In *New Directions in the Future of Work*. Emerald Publishing Limited.

Roopa, S. and Rani, M.S., 2012. Questionnaire designing for a survey. *Journal of Indian Orthodontic Society*, *46*(4_suppl1), pp.273-277.

Ryan, G., 2018. Introduction to positivism, interpretivism and critical theory. *Nurse researcher*, *25*(4), pp.41-49.

Sarstedt, M. and Mooi, E., 2019. Regression analysis. In *A Concise Guide to Market Research* (pp. 209-256). Springer, Berlin, Heidelberg.

Scheer, A., Abolhassan, F., Jost, W. and Kirchmer, M., 2004. *Business Process Automation*. Berlin, Heidelberg: Springer Berlin Heidelberg.

Singh, A., Ramasubramanian, K. and Shivam, S., 2019. Introduction to microsoft Bot, RASA, and google dialogflow. In *Building an Enterprise Chatbot* (pp. 281-302). Apress, Berkeley, CA.

Smith, K., 2016. Managing electronic resource workflows using ticketing system software. *Serials Review*, *42*(1), pp.59-64.

Sohn, K. and Kwon, O., 2020. Technology acceptance theories and factors influencing artificial Intelligence-based intelligent products. *Telematics and Informatics*, *47*, p.101324.

Stoilova, E., 2021. AI chatbots as a customer service and support tool. *ROBONOMICS: The Journal of the Automated Economy*, *2*, pp.21-21.

Taherdoost, H., 2016. How to design and create an effective survey/questionnaire; A step by step guide. *International Journal of Academic Research in Management (IJARM)*, *5*(4), pp.37-41.

Tang, L., Li, T., Shwartz, L. and Grabarnik, G., 2013, May. Recommending resolutions for problems identified by monitoring. In *2013 IFIP/IEEE International Symposium on Integrated Network Management (IM 2013)* (pp. 134-142). IEEE.

Venkatesh, V., 2022. Adoption and use of AI tools: a research agenda grounded in UTAUT. *Annals of Operations Research*, *308*(1), pp.641-652.

Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., Domisch, S., Felländer, A., Langhans, S.D., Tegmark, M. and Fuso Nerini, F., 2020. The role of artificial intelligence in achieving the Sustainable Development Goals. *Nature communications*, *11*(1), pp.1-10.

Votto, A.M., Valecha, R., Najafirad, P. and Rao, H.R., 2021. Artificial intelligence in tactical human resource management: A systematic literature review. *International Journal of Information Management Data Insights*, *1*(2), p.100047.

Wang, W. and Siau, K., 2019. Artificial intelligence, machine learning, automation, robotics, future of work and future of humanity: A review and research agenda. *Journal of Database Management (JDM)*, *30*(1), pp.61-79.

Williams, M.D., Rana, N.P. and Dwivedi, Y.K., 2015. The unified theory of acceptance and use of technology (UTAUT): a literature review. *Journal of enterprise information management*.

Wilson, D., Bridge, T., Deasy, P. and Whelan, A., 2001. That's the ticket! Redesigning an online customer support system in an Internet company. *AMCIS 2001 Proceedings*, p.177.

Xie, M., Tomlinson, M. and Bodenheimer, B., 2004, April. Interface design for a modern software ticketing system. In *Proceedings of the 42nd annual Southeast regional conference* (pp. 122-127).

Xu, J., He, R., Zhou, W. and Li, T., 2018. Trouble ticket routing models and their applications. *IEEE Transactions on Network and Service Management*, *15*(2), pp.530-543.

Zarqan, I.A. and Sukarni, S., 2017. Human Resource Development in the Era of Technology; Technology's Implementation for Innovative Human Resource Development. *Journal of theory & Applied Management*, *10*(3).

Zhou, W., Li, T., Shwartz, L. and Grabarnik, G.Y., 2015, November. Recommending ticket resolution using feature adaptation. In *2015 11th International Conference on Network and Service Management (CNSM)* (pp. 15-21). IEEE.