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# How AI is Shaping Skill Demands: Insights from an Insurance Company Case Study

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**Abstract**

This study examines the core competencies needed for AI integration in the insurance industry, focusing on the skill gap that has emerged between employee capabilities and the demands of an AI-driven workplace. Using Crawford's Integrated Model of Competence as a framework, the study employs a qualitative case study approach—including interviews, focus group discussion (FGD), document analysis, and observations—to explore competencies in an AI-enabled environment. Three main competency areas were identified: knowledge, skills, and abilities, encompassing seven categories such as digital and English language literacy, human-machine collaboration, complex problem-solving, personal management, flexibility, and resilience. The study concluded that critical AI-related skills for insurance professionals, with recommendations for future research to include cross-sectoral studies in Malaysia and longitudinal analyses across different employee levels to track how these competencies adapt and grow with advancing technology.

**Keywords**: Core Competencies, Artificial Intelligent, Case Study, Insurance

## Introduction

As industries increasingly incorporate AI, a growing disparity is emerging between the skills employees possess and those demanded by employers (Dos Santos et al., 2023). This gap can result in workforce inefficiencies and potential job displacement (Bukartaite & Hooper, 2023), creating challenges for seamless AI integration across sectors. The impact of advanced technologies on the labor market and skill requirements has long been a topic of debate (Brynjolfsson et al., 2018; Li, 2022; Jaiswal et al., 2021). Since the advent of the first industrial revolution, numerous technologies have been developed to enhance the efficiency and effectiveness of various work processes. Consequently, the workforce landscape has been

continuously reshaped (Chakma & Chaijinda, 2020; Grzybowska & Lupicka, 2017). Prifti et al. (2017), assert that any technological transformation in the workplace inevitably alters job profiles and necessitates the acquisition of new competencies. Similarly, the World Economic Forum (2017), highlights that due to the rapid adoption of AI and automation systems, employees who rely solely on specific skills may struggle to maintain long-term careers unless they adapt by learning new competencies

The Fourth Industrial Revolution (Industry 4.0) poses even greater challenges than previous revolutions, particularly concerning the skills and competencies required (Kaivo-Oja et al., 2017; Umar Baki et al., 2023). AI, as a key component of Industry 4.0, not only enhances organizational efficiency by automating routine and non-routine cognitive tasks (Lane & Saint-Martin, 2021; Parteke et al., 2018; Szabo-Szentgroti et al., 2021) but also replaces human cognitive functions in decision-making (Chernov & Chernova, 2019; Javaid et al., 2022; Sharma & Pandey, 2020). AI's ability to sense, comprehend, and learn from experiences elevates automation to a new level where machines can perform tasks with minimal human intervention (Mehrotra, 2019). This makes AI particularly valuable in service-based industries, such as insurance, by improving customer service and operational efficiency (Huang & Rust, 2018).

AI's growing role in customer service and data processing further underscores its significance in service-based industries. Kruse et al. (2019), observe that industries like insurance, where data plays a central role, have seen considerable returns on their AI investments, with many insurance companies reporting that AI has exceeded their expectations (Sandquist, 2022). Although other sectors, such as healthcare and manufacturing, may have adopted AI earlier, the insurance industry has seen rapid growth in its use of AI, with the Ministry of International Trade and Industry (MITI) reporting a rise in the insurance sector's AI adoption from 4% in 2017 to 11% in 2018 (MITI, 2019). As AI adoption expands, it is expected that approximately half of the global workforce will need to learn new skills by 2025 to remain employable (Li, 2022).

Despite concerns about job displacement due to AI, it presents an opportunity for employees to acquire new competencies and transition into more advanced roles (Mirbabaie et al., 2022; Umar Baki et al., 2023). AI integration may automate certain tasks, but it also frees employees to focus on more complex, value-added tasks, requiring higher expertise and strategic thinking (Ismail & Hassan, 2019). Competencies, both technical and behavioral, are critical in defining job roles and ensuring employees' effectiveness in adapting to AI-driven changes (Jacobs, 2019). As the integration of AI continues to evolve, employers must manage these changes strategically, ensuring that employees develop the competencies necessary to navigate the evolving workplace landscape (Sedyastuti et al., 2020). This study will explore how AI integration impacts the competencies required in the insurance industry and the policies governing these changes. Considering this, the article purposes the following research question; what specific knowledge, skills, and abilities are essential for insurance agents to effectively integrate AI technologies into their work?

## Literature Review

*AI Shaping the Skill Demand in Insurance Industry*

The integration of AI into the workplace is reshaping the skillsets required of employees across various sectors. As organizations increasingly adopt AI technologies, there is a growing recognition of the need for employees to develop new competencies that align with these advancements. This shift goes beyond technical proficiency and encompasses a broader spectrum of skills, such as critical thinking, creativity, emotional intelligence, and adaptability. The insurance industry is a prime example of this transformation, where AI is significantly altering the skillsets required of insurance agents.

As AI automates various tasks and processes such as underwriting, claim processing, and customer communication (Eling et al., 2022)—insurance agents are required to shift from traditional roles toward more value-added responsibilities. With AI handling routine tasks, agents are now expected to focus on fostering customer relationships and providing specialized recommendations, leveraging the time saved by automation to enhance their service (Simon, 2019). The claims process, for instance, can now be completed much faster, with AI analyzing large volumes of data quickly and reducing errors as illustrated in Figure 1.

Moreover, the role of the insurance agent is evolving to that of a process facilitator and product educator. AI allows agents to spend less time on routine tasks, empowering them to optimize their workload, support a larger client base, and provide clients with comprehensive portfolio management across life, personal property, and health insurance (Balasubramanian et al., 2018; OECD, 2020). AI-enhanced systems also improve human-to-human interactions, enabling agents to access real-time information and offer personalized recommendations during conversations with prospects. This shift allows agents to seize upsell and cross-sell opportunities more effectively (OECD, 2020; Sandquist, 2022; Zaidi, 2017).

As AI continues to transform the insurance industry, agents must adapt by developing both technical and interpersonal skills. These include leveraging AI technologies for efficiency while maintaining the emotional intelligence and creativity required to build stronger client relationships. Overall, the integration of AI in the insurance sector exemplifies how automation and technological advancements are reshaping the competencies needed for success in a rapidly evolving workplace.

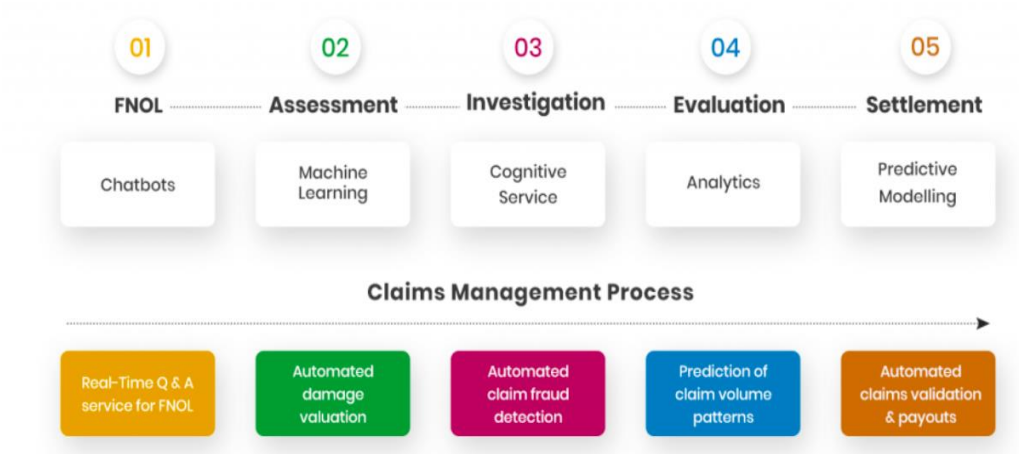


Figure 1: Intelligence claims automation process

*Note: From Intelligent Claims Automation Is Reshaping Malaysia's Insurance Industry by N. Simon, 2019, Mantralabs Global. (retrieved from https://www.mantralabsglobal.com/blog/intelligent-claims-automation-is-reshaping-malaysian-insurance-sector/).*

*Crawford's Integrated Model of Competence*

Crawford introduced an integrated model of competence in 1999 (cited in Crawford, 2005) that combines the original competency model developed by Boyatzis in the early 1980s with the competency characteristics outlined by (Spencer and Spencer, 1993). Crawford's model explains the competencies professionals and organizations need to meet competency standards. Unlike other models and frameworks, this integrated model was designed to adapt to rapidly changing technology and workplace environments that demand skills many employees may lack (Crawford, 2005). Crawford (2005), categorizes competencies into three main types: (i) input competencies, which encompass the knowledge, understanding, skills, and abilities that a person brings to a job; (ii) personal competencies, which refer to the core personality characteristics that determine a person's capability to perform a job; and (iii) output competencies, which relate to the ability to perform tasks within a specific occupational area to meet expected performance standards. Figure 2 illustrates the combination of these models and frameworks of competencies.

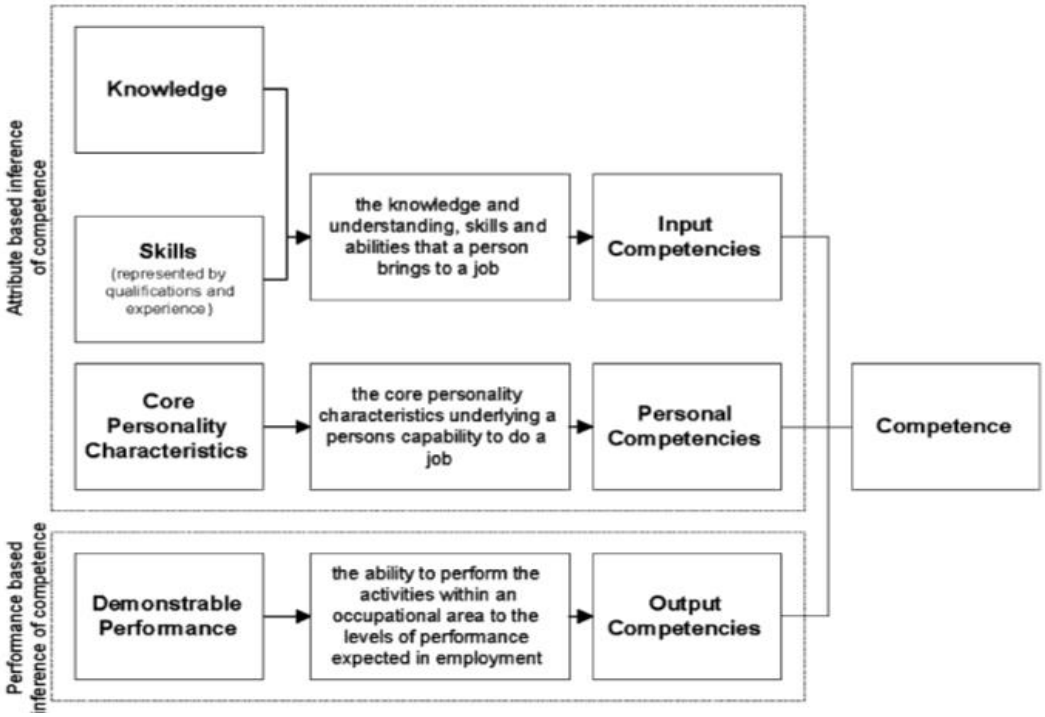

Figure 2: Integrated model of competence (Crawford, 2005)

**Methodology**

This study adopts a qualitative single-case study approach within the insurance industry to examine the "case" comprehensively within its real-world context, especially in instances where the boundaries between the phenomenon and its context are indistinct. Given that employee competencies during AI integration are unique, novel, and have not been extensively studied, the case study method is particularly apt for this research. Single-case studies, while insightful, come with certain limitations, such as limited generalizability to larger populations, smaller sample sizes, and potential biases in objectivity. However, they also offer substantial benefits, including an in-depth, holistic view of the phenomenon and the opportunity to uncover unique, unanticipated insights that may not emerge in other study types (Gustafsson, 2017).

The study employed criterion-based selection combined with snowball sampling to choose participants, focusing on three main selection criteria. First, only insurance service organizations that had implemented AI in their operations were considered. The intent was to ensure that data collected would accurately reflect competencies related to AI integration in real-world business settings. Second, the study targeted managers who were responsible for planning, operating, and utilizing AI technologies (such as AI-based applications and systems). Finally, participants needed a minimum of five years of experience within the organization to confirm familiarity with AI systems integrated into daily operations. This experience threshold ensured that participants had substantial exposure to the organization's AI-driven processes and could offer informed insights.

To enhance validity and trustworthiness, this study employed triangulation through multiple data sources and methods, including in-depth interviews, FGD, document analysis, and observations. Data collection was conducted in two phases: first, individual in-depth interviews were carried out, and once these data were collected and analysed, researchers

proceeded with FGD to gather richer, more comprehensive insights. Reflexivity and an audit trail were maintained throughout the research process to ensure transparency and rigor. The collected data were analysed using thematic and comparative approaches to systematically identify, organize, analyse, describe, and report key themes within the dataset.

**Findings and Discussion**

The managers for this study were drawn from four agencies within a single insurance company. The interviews were designed to extract information about the competencies needed during AI integration. The next part provides information about the involved managers, along with a table (refer to Table 1) summarising their demographic information with the pseudonym used.

Table 1
*Demographic Profile of Participants*

| No | Unit manager | Age (years old) | Education | Year of experience |
|---|---|---|---|---|
| 1 | Mr Shah | 33 | Bachelor's Degree in Computer Science | 8 years |
| 2 | Miss Jane | 34 | Diploma in Public Administration and Science Policy | 6 years |
| 3 | Miss Nisa | 30 | Bachelor's Degree in Automotive Engineering | 6 years |
| 4 | Mr Steve | 37 | Professional certificate | 6 years |

*Sources:* Data collected by the researcher

*Competencies Requirements*

A total of seven themes and categories emerged, as outlined in Table 2. The findings and discussion are organized according to three core competency areas: (i) knowledge required during AI integration, (ii) essential skills, and (iii) core abilities. These themes were derived primarily from data gathered through interviews and FGDs.

Table 2
*Summary of the Themes and Categories*

| Competency Area | Theme | Categories |
|---|---|---|
| Knowledge | (i) Technological and digital literacy | - Knowledge of basic operating systems<br>- Application-based knowledge<br>- Familiarity with digital tools and digital knowledge management systems<br>- Knowledge of data management systems<br>- Proficiency with virtual communication tools |
| | (ii) English language literacy | - Effective communication with English-speaking clients<br>- Ability to use AI applications and systems, often primarily in English |
| Skills | (i) Human-machine social integration skills | - Advanced communication skills tailored to AI-driven environments<br>- Personalized client service-oriented skills<br>- Content marketing skills leveraging digital and AI-based platforms |
| | (ii) Complex problem-solving skills | - Analytical decision-making with AI-generated insights<br>- Skills for managing and resolving conflicts |
| | (iii) Personal management skills | - Digital leadership for team and task management<br>- Time management using AI tools<br>- Ethics in client relationship maintenance |
| Abilities | (i) Flexibility and openness to experience | - Adaptability to changing circumstances<br>- Willingness to embrace new opportunities and challenges |
| | (ii) Resilience in facing obstacles | - Ability to manage rejections and setbacks<br>- Coping with ongoing technological advancements |

***Knowledge Required During AI Integration***

The integration of AI in the insurance industry has fundamentally shifted the knowledge requirements for insurance agents. As the industry becomes more digitally oriented, agents are expected to possess a foundational understanding of technological and digital literacy. This includes from the basic knowledge of operating systems, application-based tools, and digital knowledge management systems crucial for managing data and workflows in AI-enhanced environments. Such literacy ensures agents can navigate and optimize the use of AI systems to improve efficiency and service quality (Jarrahi et al., 2023 Lai, 2023). Miss Jane and Mr. Shah agreed on this matter went to say:

*Previously, we had multiple apps, each requiring separate logins before we could even start using them. Now, we have a centralized system – it's like one big umbrella that connects us to various other systems. For example, I can access App A and App D directly through this centralized platform. I'd recommend getting familiar with all of these apps because each one*

*has a unique function. Personally, I want to make my life easier so I can give more to my clients than any other agent. I'd prefer if all the technology we use streamlined my work so I could spend less time on tasks that technology can handle and more time focusing on my clients.*

*I agree with that (refer to the Miss Jane's statements). As agents, we're involved at the beginning of the process—let's call it the 'A' phase—and then again at the end, during the 'Z' delivery. The apps manage everything in between. So, the output that technology produces really depends on our initial step in the 'A' phase.*

Moreover, knowledge of virtual communication tools is increasingly vital as agents interact with clients and colleagues in remote and hybrid work settings, enabling seamless, technology-driven communication. Communication tools are divided into three categories: messaging and conferencing platforms, collaboration software (such as Google Drive, Dropbox, and others), and social media channels (such as Facebook, Twitter, Instagram, and others). These tools are really in demand in the current business situation, where a team or entire organization is working remotely either full-time or in a hybrid manner. The pandemic has speed up the whole process of the AI integration. As said by Miss Nisa during the interview:

*Typically, most of us met with clients face-to-face, but when the MCO (Movement Control Order) was implemented and travel restrictions were enforced, we were advised to find alternative ways to reach clients. That's when I started using platforms like Zoom, WhatsApp video calls, FaceTime, and Google Meet. It was a new experience for many of us… meeting and presenting through all these different online communication tools. And this method has remained till now.*

English language literacy has also emerged as a key component, particularly as many AI applications and systems operate predominantly in English (Audrin & Audrin, 2022). Agents need proficiency in this language to fully engage with AI tools, many of which rely on English for interface instructions and data input/output. English literacy not only facilitates effective use of these tools but also enhances agents' ability to communicate with English-speaking clients, expanding their reach in a globalized market. Thus, the required knowledge for AI integration spans both technical and linguistic competencies, allowing agents to operate confidently within an AI-supported framework. This category has been approved by all four managers during the interviews and FGD. Mr Shah went to say:

*From my perspective, English language competency is essential and should be included in any knowledge mapping. As agents, we often need this skill, especially when submitting cases. There are many technical terms we have to explain to clients, and I find it much easier to do so in English. It simplifies communication for both agents and clients and helps minimize misunderstandings…especially most of the system available in English language*

*Essential Skills*

The integration of AI has redefined the skill set required for insurance agents, with emphasis on both interpersonal and analytical competencies. There were three categories of essential skills during AI integration such as: (i) human-machine social integration skills; (ii) complex problem-solving; (iii) personal management skills. Human-machine social integration skills

refer to a new type of cooperation relationship between humans and machines that has an impact on individual vitality and allows individuals to share goals and situation awareness as well as the capability to communicate directly with one another (Leyer & Schneider, 2021; Snow et al., 2017). This skill set includes advanced communication techniques suited to a digital context, along with personalized client service skills that maintain a human touch even as technology mediates the interaction. Additionally, content marketing skills have gained prominence, as agents leverage AI and digital platforms to reach clients more effectively, creating a seamless blend of human service and digital outreach. As said by Mr Steve:

*I can't ignore the fact that AI or digitalisation is important. However, our insurance company, along with others, has yet to successfully implement tools like chatbots… Many companies like Company A (name of the company) and Company B, also in the service industry struggled to meet human needs with fully automated AI systems. Miscommunication often happens ... Miscommunications are common, and as insurance agents, we deal with personal areas like health, finances, and end-of-life matters. Currently, no app can grasp the complexities of human interaction as effectively as a person. We know how to connect, ask the right questions, and uncover important details. I'm not sure if technology will ever fully replace that human touch.*

Complex problem-solving skills are equally important. In an AI-driven environment, agents rely on data and AI-generated insights to make decisions beyond traditional judgment, requiring agents to interpret and integrate AI outputs effectively (i.e., Rampersad, 2020; Memmert & Bittner, 2022). Conflict management skills are also vital, as AI systems may lead to client misunderstandings or service issues that need careful resolution. By combining analytical and conflict-resolution abilities, agents can respond adeptly to both the opportunities and challenges presented by AI. While managers like Mr. Shah and Miss Nisa acknowledged that conflict resolution skills complement technology, Mr. Steve added a more comprehensive perspective, stating:

*I agree that decision-making skills are essential today, but it's not quite the same as it used to be. I've experienced the shift from proposing medical plans on paper to using entirely digital platforms. In the past, you would gather all the client's details yourself and recommend a tailored plan. Now, you just enter information into an app, and it instantly generates options – the plan, budget, and pros and cons all laid out. So, the decision-making role for agents has shifted. It's not just about making a choice; it's about complex, critical decisions, helping clients envision the impact of their choices over the next decade. Currently, these apps are still in the early stages, and with four to six years in the industry, you often know more than the technology does, allowing you to make strategic decisions. Perhaps one day, when technology truly surpasses us, human input in decision-making may no longer be needed.*

Lastly, the findings indicate that while AI provides valuable support for handling repetitive tasks and organizing workflows, personal management skills—such as digital leadership, effective time management, and a strong commitment to ethical standards — remain crucial. As AI takes over more routine tasks, employees are expected to oversee AI operations, ensuring adherence to ethical standards and social norm (Presbitero et al., 2022). Aside from that, leadership also valued across industries, especially in roles that involve teamwork and client engagement, underscoring the enduring importance of human-centered

competencies that technology cannot replicate. Additionally, approaches to time management vary, with some agents favouring traditional planners while others rely on AI-driven digital tools that sync with organizational systems. This diversity highlights the need for adaptable time management solutions that accommodate individual preferences. Although AI tools streamline planning and automate reminders for client needs, the ultimate responsibility for task execution lies with the agents themselves. This finding underscores that while technology can enhance efficiency, it cannot substitute for the personal follow-through, insight, and commitment essential to fostering effective client relationships and delivering high-quality service. Miss Jane emphasised this, adding:

*Honestly, I think skills like leadership are crucial, with or without AI. As long as we're working with people—whether it's in teams or directly with clients—that kind of skill isn't going away. It's important not just in insurance but in every industry… AI-based tools are definitely helpful for planning our day and taking care of repetitive tasks, like reminding us about client needs or birthdays. That way, we can focus on work that adds more value. But, at the end of the day, no matter how many reminders an app gives, it's still up to us to make things happen. Technology can only go so far; the follow-through is on us.*

*Core Abilities*

The shift of AI integration highlights the need for a workforce that is not only technically proficient but also capable of navigating the complexities introduced by AI. In the fast-evolving landscape of AI integration, two personal abilities are paramount for insurance agents to thrive including: (i) flexibility and openness to experience; and (ii) resilience in facing obstacles. In the present study, agents face technological changes where many processes in insurance procedures have changed to digital, such as obtaining a quotation, policy details, and claim processes. Consequently, agents must be capable of quickly adapting to these technological changes, adopting new tools, and adjusting to evolving role expectations. This finding aligns with Santoso et al. (2021), who observed that employees in the financial sector must adapt rapidly and respond effectively to dynamic and rapidly changing environments to maintain competitiveness. Similarly, Zhang et al. (2020) note that individuals who can adjust to new circumstances are better able to stay motivated when navigating the challenges of digital transformation (Ariffin et al., 2020). This openness supports a growth mindset, enabling agents to view AI advancements as opportunities for professional development rather than obstacles. Such flexibility is key to sustaining high levels of service quality and personal job satisfaction in a continuously changing industry. Miss Nisa, during the in-depth interview, went on to say:

*The insurance industry is full of surprises and constant changes—whether it's the technologies we use for marketing, our daily tasks, or new regulations coming from our organization or outside sources like Bank Negara Malaysia. And don't forget the products; they're always evolving too. Agents need to have a high level of adaptability. If your client is on social media, then you have to be there too. If your competitor starts using a new technology, well, you'd better get on it as well.*

Mr. Shah shared his perspective during the FGD, observing that some agents can be quite conservative and hesitant to embrace change, which complicates the adaptation process for new technology—particularly among the older workforces. He went on to say:

*Some agents are skeptical about digital systems, probably because they're unfamiliar and find them challenging to use, especially the older ones… They often see learning new systems as difficult, which is why being open-minded is so essential… Openness helps us be more resilient to technological advancements because we start to see that change can actually bring us benefits.*

Finally, resilience in facing obstacles is essential as AI integration introduces both opportunities and challenges. Resilience competencies in the AI era refer to the capacity of individuals to cope despite AI barriers or limited resources and are willing and able to overcome fears of AI integration by tapping into their emotional strength (Oosthuizen, 2022). This study defines resilience as the ability to persevere toward long-term goals or passions, facing challenges and setbacks along the way. It involves a blend of personal qualities such as optimism, self-efficacy, and perseverance, which can be developed over time. Because the insurance industry is always expanding and changing, agents will face various challenges and obstacles in order to survive. It is undeniable that when AI was introduced into insurance operations, agents struggled to adjust to the new systems or apps. According to Miss Nisa, agents often encounter clients dealing with misfortunate events can be challenging, hence, it is essential for agents to be able resolved the issues regardless of the rejections they encountered. During the FGD session, Miss Jane echoed this concern, by giving the example of the certain cases that could not be solved by AI, which need human abilities. She explained:

*Just because someone has a pre-existing condition—like hypertension or diabetes—doesn't mean they can't get health coverage. It's our job as agents to keep working with them, no matter their health status, and find a way to help them get the right policy. We can't just give up and say there's nothing available for them. There's always a procedure, a way to make it work. Yes, it can be time-consuming and difficult, but at the end of the day, it's about doing our best to support them.*

This example illustrates the resilience required in this role as agent often have to navigate complex cases and overcome obstacles to serve their clients, demonstrating the crucial role of resilience in meeting the demands of a challenging and technology-driven industry.

**Conclusion and Recommendation**

This study highlights the specific competencies required for effectively integrating AI into business processes. The findings highlight that while technology plays a crucial role, human connection remains indispensable, particularly in client interactions. Consistent with research indicating that advancing technology demands specialised skills, this study further emphasizes the importance of aligning employee capability development with the level of AI automation in the industry. Importantly, AI should not be viewed as a replacement for human workers; rather, it serves as a tool to automate routine tasks, allowing employees to focus on strategic, high-value activities.

AI is changing the role of insurance agents, requiring more advanced skills, such as personalized client care and effective human-machine collaboration. Based on the findings as well, it can be concluded that despite the training provided by organizations, some agents

resist AI adoption, mainly due to (i) a lack of skills and familiarity with AI, (ii) a preference for current practices, (iii) distrust in the technology, and (iv) dissatisfaction with AI tools that do not meet their needs or are difficult to use. To address these challenges, human resource practitioner and insurance companies should invest in ongoing development and training to ensure employees are well-equipped with the skills necessary for success in this new digital era.

This research has provided valuable insights into the competencies required for employees integrating AI within the insurance industry. Nonetheless, further studies are needed to address ongoing challenges and improve best practices in this evolving field. Based on the findings, the researchers recommend several areas for future research. First, future studies should explore AI integration in other sectors or industries within Malaysia, particularly those with higher rates of AI adoption and more mature integration processes, to offer a comparative perspective on employee competencies across different fields. Second, longitudinal studies and cross-sectional analyses examining employees across organizational levels—from top management to frontline staff—could provide a more comprehensive view of how competencies evolve over time. As Li (2022) points out, competencies in the industry shift approximately every five years due to technological advancement, highlighting the importance of ongoing research to keep pace with change. Finally, future research should investigate how employees acquire these competencies, focusing on mechanisms such as peer mentorship, knowledge transfer, continuous learning, and structured training. Understanding these processes could assist organizations in designing effective training programs and fostering a culture of lifelong learning, enabling employees to remain adaptable and capable in an increasingly AI-driven environment.

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