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The Relationship Between Chatbots & AI Solutions and Human Capital Readiness in The Industry 4.0 Era Towards Customer Experience Satisfaction: A Case Study of Customer Service Talents in Multinational Corporation

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ABSTRACT

Since entering the Indonesian market in 2017, Decathlon Indonesia—a subsidiary of the global sports equipment retailer from France—has faced challenges in enhancing customer satisfaction and engagement in the competitive sports retail industry. This study analyzes the impact of Chatbot and Artificial Intelligence (AI) adoption and human resource readiness in the Industry 4.0 era on customer experience satisfaction. Employing a mixed-methods approach that integrates surveys, focus group discussions, and literature studies, the research applies the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), complemented by Industrial HR Mapping 4.0: Gap and Index. Findings reveal that Chatbots and AI solutions significantly improve customer satisfaction, yet human resource readiness remains a barrier, particularly in unstructured knowledge sharing. These results underscore the need for an integrated knowledge management (KM) system. Accordingly, the study recommends the SECI (Socialization, Externalization, Combination, Internalization) model to enhance cross-functional collaboration and customer service. Theoretically, this research extends TAM and UTAUT within sports retail in developing countries. Practically, it provides strategic insights for Decathlon and similar firms to leverage digital technologies while strengthening HR capacity to deliver superior customer experiences.

ABSTRAK

Sejak memasuki pasar Indonesia pada tahun 2017, Decathlon Indonesia—anak perusahaan ritel peralatan olahraga global asal Prancis—menghadapi tantangan dalam meningkatkan kepuasan dan keterlibatan pelanggan di tengah ketatnya persaingan industri ritel olahraga. Penelitian ini menganalisis pengaruh adopsi Chatbot dan Kecerdasan Buatan (AI) serta kesiapan sumber daya manusia (SDM) pada era Industri 4.0 terhadap kepuasan pengalaman pelanggan. Dengan menggunakan pendekatan mixed-methods melalui survei, diskusi kelompok terarah, dan studi literatur, penelitian ini menerapkan kerangka teori Technology Acceptance Model (TAM) dan Unified Theory of Acceptance and Use of Technology (UTAUT), serta melibatkan konsep Industrial HR Mapping 4.0: Gap and Index. Hasil triangulasi data menunjukkan bahwa solusi Chatbot dan AI berkontribusi signifikan terhadap peningkatan kepuasan pelanggan. Namun, kesiapan SDM masih menjadi kendala, terutama pada aspek berbagi pengetahuan yang belum terstruktur. Temuan ini menegaskan pentingnya sistem manajemen pengetahuan (KM) yang terintegrasi. Oleh karena itu, penelitian merekomendasikan penerapan model SECI (Socialization, Externalization, Combination, Internalization) untuk memperkuat kolaborasi lintas fungsi dan kinerja layanan pelanggan. Secara teoretis, penelitian ini memperluas aplikasi TAM dan UTAUT dalam konteks ritel olahraga di negara berkembang. Secara praktis, penelitian ini memberikan arahan strategis bagi Decathlon dan perusahaan sejenis untuk mengoptimalkan teknologi digital sekaligus memperkuat kapasitas SDM dalam menciptakan pengalaman pelanggan yang unggul.

INTRODUCTION

Central Asia is experiencing significant acceleration in economic growth, especially in countries such as China, India, and the Southeast Asian region. Gross Domestic Product (GDP) growth and rising people's incomes have given birth to a large new middle class with high purchasing power (Seong et al., 2023). This condition drives demand for lifestyle, technology, and sports products, thus attracting the attention of global companies such as Decathlon to expand their markets to the Asian region, including Indonesia.

Indonesia, within the framework of *the Golden Indonesia 2045* vision, targets to become a high-income country. Digital transformation is one of the main pillars to achieve this vision, focusing on the use of cutting-edge technologies such as Artificial Intelligence (AI) and improving the quality of human resources (HR) that are adaptive to technological developments. In the context of the Industrial Revolution 4.0, the use of AI in public and private services is considered a strategic innovation to improve efficiency and user satisfaction. However, technology integration also poses challenges, especially related to concerns about the shift of human roles by machines. Therefore, the readiness of human resources in terms of technical skills, interpersonal abilities, knowledge, and adaptive attitudes towards technology is crucial in ensuring the success of this transformation.

PT Decathlon Sports Indonesia, as part of the global network of Decathlon based in France, is taking strategic steps to support the national digital transformation agenda. One of its initiatives is the implementation of chatbot and AI solutions in customer service, which not only aims to improve operational efficiency, but also provide a superior customer experience. However, the success of this innovation relies heavily on the digital readiness of employees, who are at the forefront of service interactions. On the other hand, Decathlon Indonesia's customer service performance is measured through *Net Promoter Score* (NPS), which serves as the main indicator of customer satisfaction and loyalty (Reichheld, 2011). Although technology has begun to be adopted, achieving optimal NPS still faces challenges, especially as not all teams are equally ready to embrace the digital change.

Previous literature has extensively discussed the benefits of AI adoption in improving efficiency and service quality, but studies that simultaneously integrate chatbot use, HR readiness, and its impact on customer experience satisfaction in a single comprehensive model are still limited. In addition, Indonesia's local context, especially in the sports retail sector which has a cross-functional operational structure, has not been widely used as an in-depth object of study. Thus, there is a research gap in understanding the integrative relationship between technology, human resource readiness, and customer satisfaction, especially in the initial implementation of AI in the retail sector. To answer this gap, this study asks two main questions: first, how does the implementation of chatbots and AI solutions affect customer experience satisfaction at Decathlon Indonesia. Second, how human resource readiness moderates the relationship between technology integration and customer satisfaction in the context of digital transformation.

RESEARCH METHOD

This study adopts a mixed-methods research design, combining quantitative data from surveys and qualitative insights from focus group discussions. This approach offers a comprehensive examination of how chatbots and AI solutions interact with human capital readiness and influence customer experience satisfaction, particularly within the customer service context. Fifure 1 shows the conceptual framework in this research.

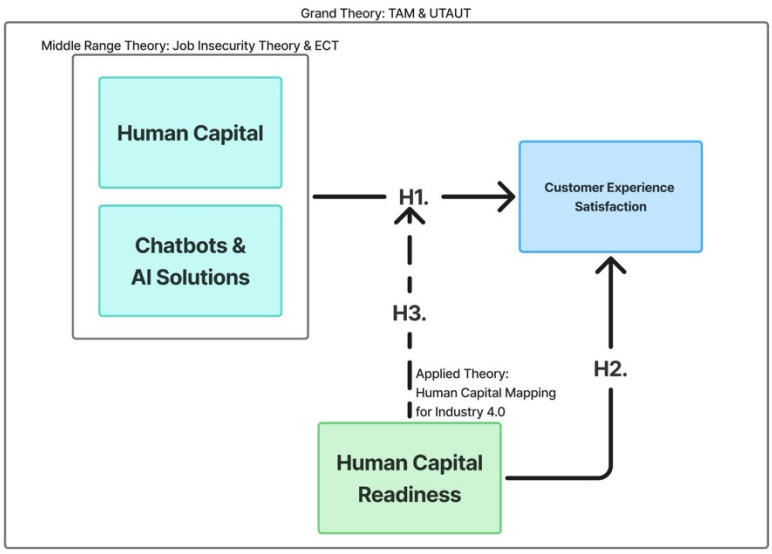

Figure 1 *Conceptual Framework (Author, 2025)*

Data Collection Methods

Data for this study is collected using both quantitative and qualitative methods. The quantitative data is gathered through surveys that focus on chatbot and AI solutions implementation, as well as human capital readiness among Decathlon Indonesia's customer service employees. The survey uses a 6-point Likert scale to measure employee attitudes (Table 1). The qualitative data is obtained through focus group discussions, providing deeper insights into employees' concerns regarding AI integration and its impact on customer satisfaction metrics. The sample size determination follows the Slovin's Formula, with 34 customer service employees selected for the quantitative approach. For the qualitative approach, 4 customer service supervisors and 8 senior agents are included, chosen for their in-depth knowledge of day-to-day customer service operations.

Table 1 *Chatbots & AI Solution Score Indicators*

Range	Level
0.00 - 0.20	Very Low
0.21 - 0.40	Low
0.41 - 0.60	Intermediate
0.61 - 0.80	High
0.81 - 1.00	Very High

Data Analysis Methods

The data analysis integrates both quantitative and qualitative methods to understand the relationship between AI solutions, human capital readiness, and customer experience satisfaction. The quantitative data is analyzed using multiple linear regression in SPSS, with trust, expertise, predictability, human-likeness, and ease of use as independent variables, and customer experience satisfaction as the dependent variable. Key statistical metrics such as R-squared values and p-values will be examined. Qualitative data is analyzed using thematic analysis with NVIVO 15, focusing on key themes related to technology, training, customer satisfaction, and performance metrics. A triangulation process is employed to cross-reference the quantitative and qualitative findings, enhancing the reliability and validity of the research results. This approach provides a comprehensive understanding of the research problem.

RESULT and DISCUSSION

Quantitative Analysis

To identify the business issues experienced by Decathlon Indonesia, a quantitative analysis was conducted using survey data from 37 customer service staff processed through SPSS. The survey aims to test the relationship between the variables of Chatbots & AI Solutions, Human Capital Readiness, and Customer Experience Satisfaction. Before hypothesis testing, data is prepared through statistical procedures to ensure the accuracy and reliability of the results. The validity of the instrument was tested by Pearson correlation analysis, while reliability was measured using Cronbach's Alpha with a threshold of 0.70. The results showed that the instruments for Chatbots & AI Solutions and Human Capital Readiness were valid and reliable with Alpha values of 0.857 and 0.961, respectively. Furthermore, Exploratory Factor Analysis (EFA) is used to ascertain the dimensional structure of the instrument, eliminating invalid items. From EFA, 17 items remain for Chatbots & AI Solutions and 30 items for Human Capital Readiness. The average score of Chatbots & AI Solutions indicates a positive perception of the usability and interaction quality of AI features.

Before multiple linear regression is applied, tests of important assumptions such as normality, multicollinearity, and linearity are performed to ensure the validity of the model. The normality test showed that the residual model was not normally distributed for both variables, but the model could still be used with caution. The multicollinearity test showed no problem because the Tolerance value was > 0.1 and VIF < 10 for both variables. A linearity test with ANOVA confirmed the linear relationship between Chatbots & AI Solutions, Human Capital Readiness, and Customer Experience Satisfaction with a significance value above 0.05. Thus, even if there is a violation of the assumption of normality, the regression model can still be used for further analysis. Multiple linear regression was then used to assess the influence of the two independent variables on Customer Experience Satisfaction. Two models were tested: Model 1 without control variables, and Model 2 with gender control variables. The results of the analysis aim to see the contribution of each variable in predicting customer satisfaction. Table 2 shows Chatbots & AI Solutions Survey Score.

Table 2 *Chatbots & AI Solutions Survey Score*

Variable	Indicator	Average Value	Score	Remarks
Chatbots & AI Solutions	Trust	3.06	0.61	High
	Expertise	3.45	0.69	High
	Predictability	3.73	0.75	High
	Human-likeness	3.12	0.62	High
	Ease of use	3.83	0.77	High
Subtotal		3.45	0.69	High

Table 3 *Multiple Linear Regression Model Summary (Author)*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.279a	.078	.004	6.63952
2	.287b	.082	-.033	6.76036

a. Predictors: (Constant), CA, HCR
b. Predictors: (Constant), CA, HCR, Gender
c. Dependent Variable: CSAT

In Model 1, the analysis yielded an R value of 0.279 and an R-squared value of 0.078, indicating that approximately 7.8% of the variance in Customer Experience Satisfaction can be explained by the combined influence of Chatbots & AI Solutions and Human Capital Readiness. The adjusted R-squared of 0.004 suggests that the predictive strength is minimal when adjusted for model complexity.

Meanwhile in Model 2, after introducing Gender as control variable, the R value slightly increased to 0.287, and the R-squared rose to 0.082, meaning that 8.2% of the variance in Customer Experience Satisfaction was explained. However, the adjusted R-squared declined to -0.033, indicating that the inclusion of the control variable did not meaningfully improve the model's explanatory power.

Table 4 *Multiple Linear Regression ANOVA Table (Author)*

	Model	Sum of Squares	df	Mean Square	F	Itself.
1	Regression	92.925	2	46.463	1.054	.364b
	Residual	1102.079	25	44.083		
	Total	1195.004	27			
2	Regression	98.144	3	32.715	.716	.552b
	Residual	1096.861	24	45.703		
	Total	1195.004	27			

a. Dependent Variable: CSAT
b. Predictors: (Constant), CA, HCR
c. Predictors: (Constant), CA, HCR, Gender

The ANOVA test returned a significance value of 0.364, which is well above the standard threshold of 0.05. Therefore, it is considered a failure to reject the hypothesis, meaning that there is no statistically significant simultaneous effect of Chatbots & AI Solutions and Human Capital Readiness in Industry 4.0 on Customer Experience Satisfaction.

Table 5 *Multiple Linear Regression Coefficients Table (Author)*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Itself.
		B	Std. Error	Beta		
1	(Constant)	76.939	11.606		6.629	.000
	CA	.238	.169	.318	1.413	.107
	HCR	-.065	.145	-.102	-.452	.655
2	(Constant)	78.549	12.742		6.165	.000
	CA	.235	.172	.313	1.362	.186
	HCR	-.065	.147	-.102	-.444	.661
	Gender	-.868	2.570	-.066	-.338	.738

a. Dependent Variable: CSAT

These Coefficients indicate the direction and magnitude of the relationship between the independent variables and the dependent variable. A one-unit increase in Chatbots & AI Solutions is associated with a 0.238 increase in Customer Experience Satisfaction. Meanwhile, a one-unit increase in Human Capital Readiness in Industry 4.0 is associated with a 0.065 decrease in Customer Experience Satisfaction. However, given the low R Square and lack of statistical significance for Human Capital Readiness in Industry 4.0.

In this regression analysis results shown in Table 4, Chatbots & AI Solutions had a strong exploratory significant effect on Customer Experience Satisfaction, with p-values of 0.107 and Human Capital Readiness in Industry 4.0 had a statically non significant effect on Customer Experience Satisfaction with p-values of 0.655.

In summary, the validity and reliability of the survey instrument were largely confirmed. Assumption checks for linearity and multicollinearity supported the application of multiple linear regression. However, the regression model itself revealed that the independent variables Chabots & AI Solutions and Human Capital Readiness in Industry 4.0 explain only a 7.8% and 8.2% portion of variance in Customer Experience Satisfaction, respectively, and lack statistical significance as Chatbots & AI Solutions resulting in a strong exploratory significant effect on Customer Experience Satisfaction with non significant effect of Human Capital Readiness in Industry 4.0 on Customer Experience Satisfaction, this may caused by the small sample respondent that. These findings suggest a need for further investigation into other potential drivers of Customer Experience Satisfaction. Consequently, a qualitative approach is conducted and explores deeper insights beyond the limitations of the current quantitative model in the next subchapter.

Qualitative Analysis

The qualitative analysis in this study was based on the transcript of the directed group discussion (FGD) which was analyzed using NVivo 15 software and WordClouds visualization. The main focus of this analysis is to explore how customer service talents interpret the integration of Chatbots and AI solutions technology as well as human capital readiness in the Industry 4.0 era. The findings are structured in the form of key themes and stakeholder perspectives to deepen understandings that are not reached by quantitative approaches. Figure 2 shows the Focus Group Discussion Cluster Summary from Nvivo.

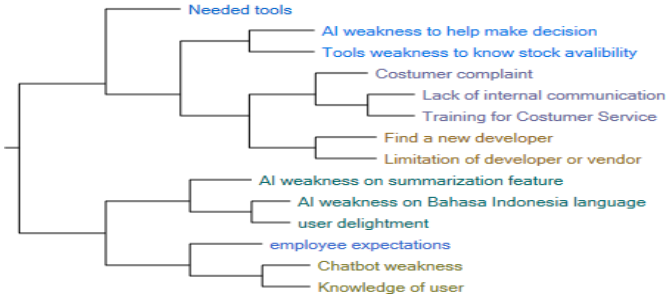

Figure 2 *FGD Cluster Summary*

Through a thematic analysis approach based on the Braun and Clarke (2006) method, a number of important patterns were successfully identified. The themes were developed inducively to capture real-world experiences from customer service agents, particularly those related to chatbot implementation, digital readiness, and service transformation. The results of the discussion revealed that the application of Chatbots & AI Solutions technology in Decathlon Indonesia's customer service division became a broad issue, where each participant submitted feedback, complaints, and basic needs in order to achieve the Customer Experience Satisfaction target set by the company. One of the main issues is the limitations of AI in understanding the language and context of Indonesian, especially in the summarization feature which is often inaccurate when translating or refining customer conversations from Indonesian to English.

As stated by the participants, the empathy feature in AI can indeed detect customer emotions, but the limited understanding of Indonesian causes the summary results to not reflect the true intentions of the customer. This makes it difficult for agents to capture customer needs appropriately. Furthermore, expectations for AI Solutions are quite high, such as helping in the process of handover tickets between teams, but these expectations are not met due to language barriers. The results of the analysis with NVivo show that the dominant themes include the weaknesses of AI in Indonesian, the weaknesses of the summarization feature, limitations in supporting decision-making, as well as issues related to Chatbots, customer complaints, employee expectations, and weak internal communication. Figure 3 shows *the Focus Group Discussion Participant Salience Model.*

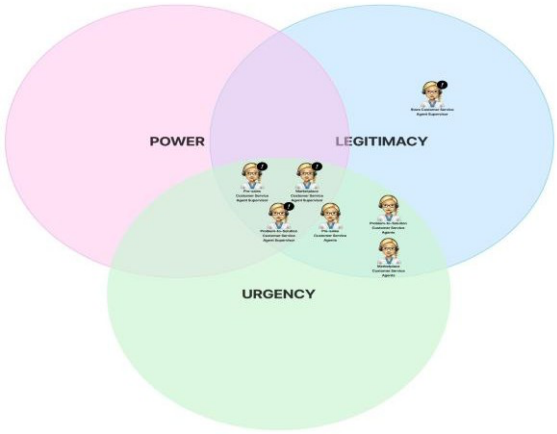

Figure 3 *Focus Group Discussion Participant Salience Model*

On the other hand, there is also an aspiration from customer service agents for companies to consider replacing developers or vendors, given the limitations of existing technology. In addition, special training for agents is felt to be urgently needed, especially those adapted to the Indonesian cultural context. The absence of shared guidelines, unified training modules, and effective internal communication channels leads to information disparities between CRM teams, marketing teams, and customer service agents. This triggers miscommunication that has a direct impact on service quality.

A number of agencies also admitted to starting to use other AI technologies, such as ChatGPT, to answer customer questions that are not covered by the official website, because this AI is considered to provide more relevant and easy-to-understand information. This condition shows that agents do not reject technology, but instead try to adapt and use it creatively. The WordClouds generated from the FGD transcripts also

reinforced these findings with the most frequently cited keywords such as "AI", "Indonesian", "training", "information", and "communication". The cluster analysis further groups responses based on similarities in content or sentiment, such as the need for new tools, weaknesses in summarization features, and employee expectations. This provides a deeper understanding of the segmentation of HR readiness within the organization. In general, qualitative findings show that Chatbots and AI Solutions technologies are indeed considered helpful, but have not been able to provide optimal support for customer service agents. This is due to the need to manually verify the results of AI work, which actually prolongs work time and decreases trust in the technology.

In terms of human capital readiness in the Industry 4.0 era, customer service agents no longer feel afraid of being replaced by AI technology. Instead, they realize that human interaction is still needed by customers for more meaningful communication. What agents need most is clarity of SOPs (Standard Operating Procedures) and a consistent tone of voice in conveying information. In addition, more structured internal communication related to promotions, campaigns, and marketing activities needs to be improved so that there is no information gap between the support team and the frontline who interact directly with customers.

Triangulation Analysis and Business Solution

Data from Decathlon Indonesia's customer service division shows that Customer Experience Satisfaction achieved a Net Promoter Score (NPS) score of 89.75%, with the highest score range of 96.13% and the lowest score range of 60.78%. This achievement reflects the excellent level of service, where some of the best-performing stores recorded scores between 70% to 80%, setting a new standard in the industry as revealed by Tamir (2025). Exploratorily, the variables of Chatbots & AI Solutions show a positive and significant relationship to customer experience satisfaction. Within the framework of the Technology Acceptance Model (TAM), there are two main subfactors that influence this relationship, namely perceived usefulness and perceived ease of use. The perceived usefulness factor includes the perception of the usability of technology as measured through trust, expertise, predictability, and similarity to humans, all of which are categorized at a high level. This shows that customer service agents value this technology as a useful tool in supporting their work. Qualitatively, traditional chatbots are considered to be very helpful in reducing the number of tickets and speeding up response times, thereby increasing customer satisfaction. However, current AI solutions, while helpful, are not fully optimal, mainly due to limitations in Indonesian language compatibility that lead to the need for manual verification by agents, thus increasing workload and hindering efficiency. These findings are in line with the aspects of performance expectancy, social influence, and facilitating conditions in the Unified Theory of Acceptance and Use of Technology (UTAUT), provided by Yellow.ai strategic partners. In terms of perceived ease of use, the quantitative results showed the highest score compared to other subfactors, indicating that traditional chatbots are considered very easy to use by customer service agents. In contrast, AI solutions add to the workload because they require re-verification of customer conversations, in accordance with the concept of effort expectancy in the UTAUT model.

Meanwhile, the Human Capital Readiness variable in the Industry 4.0 era does not show a positive and quantitatively significant relationship with customer experience satisfaction. This is due to the limited digital knowledge of service agents and the lack of training and guidance that supports the development of their soft skills. Although the agents' hard skills and attitude are considered 'Receptive' and 'Optimal', this is not enough to make a significant contribution to customer satisfaction performance. Decathlon Indonesia's organizational culture that emphasizes the value of 'Freedom' gives employees the freedom to make decisions autonomously and proactively, but without clear development guidance, this leads to significant variations in understanding and optimal use of technology between individuals. In the context of TAM, the two main subfactors that affect the readiness of human resources are behavioral intention to use technology and attitude towards using technology. Knowledge as well as hard skills and soft skills affect the intention of using Chatbots & AI Solutions, where small initiatives from some employees to try other AI solutions show the limitations of technological knowledge. Attitudes towards the use of technology in general are considered optimal, supported by employees' enthusiasm for training and development of work modules as guidelines in optimizing technology, as revealed from the focus group discussions (FGDs).

Overall, the triangulation results support the first hypothesis (H1) that the implementation of Chatbots & AI Solutions is positively and significantly related to Customer Experience Satisfaction, with factor analysis in the high category. The second hypothesis (H2) was not quantitatively proven due to negative and insignificant relationships, but remained qualitatively relevant based on respondent statements and literature studies. The third hypothesis (H3) is not quantitatively proven that HR readiness in the Industry 4.0 era can increase customer satisfaction through technology, but qualitatively it is found that employee perception and willingness to learn are very important in increasing customer satisfaction, which can be achieved with mature HR management and organizational culture that supports digital transformation. Table 21 shows *Decathlon Indonesia SECI Situation*.

Table 6 *Decathlon Indonesia SECI Situation*

Socialization (Tacit-to-Tacit):	Externalization (Tacit-to-Explicit):
• The "70% practical learning, 20% peer exchange, 10% formal training" approach emphasizes hands-on experience and mentorship. • Informal knowledge transfer occurs through shadowing and team collaborations	• Trainer validation ensures standardized knowledge codification.. • Challenges include inconsistent documentation of feedback and best practices.
Internalization (Explicit-to-Tacit):	Combination (Explicit-to-Explicit):
• Post-training monitoring is ad hoc; annual evaluations may not sustain knowledge retention	• Limited centralized systems for storing training materials or customer feedback

Based on these results, although human capital readiness has not shown statistical

significance, the main focus in the preparation of strategic solutions must be directed towards strengthening Human Capital Readiness. Chatbots & AI Solutions variables also have the potential to be improved through planning for gradual technology adoption to support business efficiency and improve customer satisfaction. The SECI (Socialization, Externalization, Combination, Internalization) model from Nonaka and Takeuchi (1995) is an important framework in knowledge creation that will strengthen knowledge management (KM) and support cross-functional integration in organizations. Knowledge management has proven to play a major role in creating a conducive work environment, better decision-making, and performance improvement, as revealed by Alhadi (2002) who stated that 98% of respondents viewed KM as the key to organizational competitive advantage. Figure 4 shows *Accenture's Code of Business Ethics Chatbots Guide (Rubenfeld,2018).*

Figure 4 *Accenture's Code of Business Ethics Chatbots Guide (Rubenfeld, 2018)*

KM's initiatives are focused on improving the quality of customer service with a human-centered approach, developing the communication skills of empathy and authenticity of agents and reducing reliance on rigid template responses. Strengthening critical thinking skills and the use of AI such as Google Gemini is expected to provide more precise and valuable solutions for customers. A structured internal training module will be developed, with one service agent who has already undergone external training appointed as an internal trainer to disseminate knowledge across divisions.

In addition, increasing the effectiveness of services also requires the adoption of simple yet sophisticated AI technology, given the limited support of Indonesian in today's digital conversation platforms. Therefore, the development of a centralized knowledge platform, inspired by Accenture's COBE system, is proposed as a solution to integrate various organizational knowledge sources in a standardized and contextual manner. This platform not only strengthens agents' capabilities in providing consistent and empathetic information, but also supports an internal KM system that is integrated across functions, thereby strengthening Decathlon Indonesia's competitiveness in the digital and industry 4.0 era. Figure 5 shows Implementation Plan Roadmap.

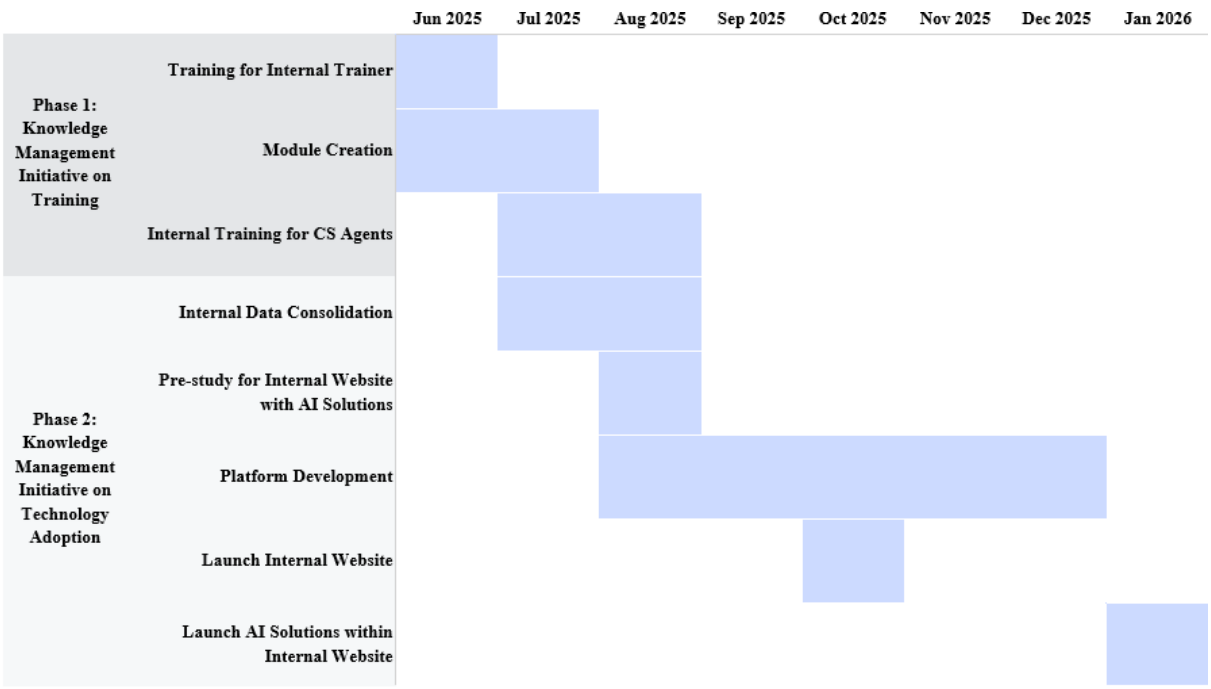

Figure 5 *Implementation Plan Roadmap (Author)*

Discussion

The results of this study show that the adoption of technology, especially Chatbots and Artificial Intelligence (AI) solutions, has made a significant contribution to improving customer experience satisfaction at Decathlon Indonesia. This is reflected in the achievement *of a high Net Promoter Score* (NPS), with an average of 89.75% and a peak of 96.13%. This achievement supports the theory of *Technology Acceptance Model* (TAM) and *Unified Theory of Acceptance and Use of Technology* (UTAUT) which emphasize the importance of perceived *usefulness* and *perceived ease of use* in encouraging technology adoption.

These findings are in line with previous studies, such as those conducted by Gnewuch et al. (2017) and Brandtzaeg & Følstad (2018), which found that chatbots can improve service efficiency and user satisfaction when implemented appropriately. However, this study also found that the limitations of chatbots in understanding the local linguistic context, especially Indonesian, are the main obstacles that impact communication effectiveness and increase agent workload due to the need for manual verification. These findings enrich the literature by emphasizing the importance of linguistic and cultural compatibility as a factor in the success of AI technology in the context of developing countries.

On the other hand, the readiness of human resources in facing digital transformation has not shown quantitatively satisfactory results. While there is potential in terms of *soft skills* and *hard skills*, there is a gap in digital knowledge and the technological competencies needed. This reinforces the results of other studies such as those by Margherita & Braccini (2020), which affirm that digital transformation does not only depend on the adoption of

technology, but also on the readiness of human resources and organizational learning infrastructure.

The failure of the Human Capital Readiness variable to show a significant relationship to customer satisfaction in quantitative tests can be traced to the absence of a structured knowledge management system in the work environment. Despite the enthusiasm for individual learning, the absence of a collective framework such as the SECI (Socialization, Externalization, Combination, Internalization) model causes the learning process to be sporadic and has less systemic impact. The theoretical implications of these findings are the need to expand the TAM and UTAUT models to include organizational variables and local cultural contexts in explaining the dynamics of technology adoption in the service sector.

The practical implication of this research is that the success of digital transformation is not enough just by presenting new technologies, but also needs to be supported by strengthening the capacity of human resources. Reinforcement strategies can include the design of training modules based on *human-centered design*, the involvement of in-house trainers, and the use of supporting technologies such as Google Gemini in the training process and customer problem-solving. Meanwhile, technology strategies need to be directed at the development of AI systems that are contextual and culturally and linguistically inclusive. The development of centralized knowledge management platforms such as COBE (adopted by Accenture) is a potential step to support knowledge integration between divisions, enrich customer databases, and provide a standardized reference for all service agents.

However, this study has a number of limitations that need to be noted. First, this study was only conducted in one company, namely Decathlon Indonesia, so the results have limitations in terms of generalization to other sectors or companies. Second, the sampling method used was *purposive*, which although effective in capturing the experiences of key participants, still contained potential selection bias and was not representative of the population as a whole. Third, the implementation of AI studied is still in the early stages, so it does not fully reflect the long-term impact of digital transformation as a whole.

Therefore, further research is recommended to use longitudinal design and involve more cross-sector organizations to gain a more generalist and in-depth understanding of the relationship between technology, HR, and customer experience in the context of the Industrial Revolution 4.0. Overall, the study confirms that successful digital transformation requires a holistic approach that combines technological innovation, human readiness, and adaptive and contextual organizational learning systems.

CONCLUSIONS and SUGGESTION

The results showed that Chatbots & AI Solutions had an exploratory positive relationship to customer experience satisfaction, with a standard coefficient of 0.314 and a significance of 0.107. Although not statistically significant, the qualitative approach and theory of *the Technology Acceptance Model* (TAM) support these findings, suggesting that the technology is considered useful and easy to use by customer service agents.

In contrast, Human Capital Readiness in the context of Industry 4.0 shows a weak and insignificant negative relationship (coefficient -0.102; significance 0.655). These findings are consistent with qualitative data indicating the lack of preparedness of most employees to the demands of modern technology. In the quantitative model, the two variables did not show a significant influence on customer satisfaction. However, the qualitative approach emphasizes that employee perception and readiness remain key factors that can be improved through proper HR management and an adaptive organizational culture.

Future studies should consider expanding the sample size to enhance statistical power and generalizability. Additionally, future researchers are encouraged to incorporate other variables that may influence Customer Experience Satisfaction, such as Emotional Intelligence of agents, Response Time, and Personalized Service Strategies. A mixed-methods approach, conducting larger-scale surveys with deeper qualitative investigations could offer more comprehensive insights into the relationship between Chatbots & AI Solutions, Human Capital Readiness in Industry 4.0, and Customer Experience Satisfaction.

For Decathlon Indonesia and similar organizations:

1. Investing in Human Capital Readiness in Industry 4.0 through structured training programs and a well managed Knowledge Management (KM) system for all employees is essential.
2. Doing better sourcing for the development of Chatbots & AI Solutions that are better suited to the local language and customer context are also important. Especially for AI Solutions, since AI for conversational use is using a Large Language Model (LLM). LLM is a specific subset of machine learning called deep learning that excels at processing, understanding, and generating human language.
3. Creating an internal KM website with AI Solutions adaptation, modeled after best practices such as Accenture's COBE can facilitate the capture and sharing of expertise across teams.

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