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ARTIFICIAL INTELLIGENCE AND THE FUTURE OF COMMUNICATION IN BUSINESS ADMINISTRATION: A COMPREHENSIVE REVIEW

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ABSTRACT

As steam engines were introduced and the Industrial Age began, Mesopotamian manufacturing processes underwent significant changes. The mechatronics business is now experiencing a technological boom, thanks to recent breakthroughs in the internet, cellphones, electronics, nanotechnology, healthcare, digital applications, and other related technologies. Robotics and artificial intelligence were prominent topics during the last World Economic Forum, with major economists such as Stiglitz and Roubini making significant contributions to the discussion. The objective of the study is to determine the impact of artificial intelligence on communication sources related to business. The purpose of the research is also to find the answers of the following questions: How well do professionals know and use artificial intelligence? What influence does artificial intelligence have on communication management, say experts? What challenges do professionals face with artificial intelligence communication? What threats do the artificial intelligence use they see? The study has used the data set of a quantitative cross-national survey of 2375 European communication professionals. The study has applied the One-way ANOVA analysis with post-hoc Scheffé, Kendall rank correlation, Pearson product-moment correlation, and Pearson's chi-square tests. The results show that communication managers have driven artificial intelligence implementation and educate themselves and their workforce. There is a significant positive relationship between the use of artificial intelligence and business communication sources. The results the artificial intelligence has make a lot of improvement in communications systems and shows how the experts evaluate the technology. Research indicates that individuals employed in the field of communication have a limited understanding of artificial intelligence, although they possess a higher level of anticipation regarding its influence on their profession compared to its impact on their personal life.

INTRODUCTION

Artificial intelligence is becoming increasingly integrated into all areas of our lives, spanning from everyday activities to industries such as manufacturing, service, and retail. Language-based assistants like Siri and Alexa, as well as algorithms used in news sites and e-commerce platforms, are just a few examples of the advancements in artificial intelligence. An increase in patents related to artificial intelligence, a rise in job opportunities in the field, and a boost in positive media attention surrounding AI concerns (Dwivedi et al., 2021). There has been a noticeable increase in academic conferences, course enrollments, and research focused on artificial intelligence and its effects in various fields. AI has the potential to greatly influence the field of communication management (Salas-Pilco & Yang, 2022). Several uses of artificial intelligence have been highlighted by experts and trade publications. These include analytics, targeting, content generation, chatbots, assessment procedures, strategy formulation, and crisis management (Enholm et al., 2022). Although AI technologies have the potential to improve professional operations, there are those who believe that humans cannot be replicated or substituted by technology (Benbya et al., 2020). It is valuable to take into account the viewpoints of professionals in the field of communication. How knowledgeable are they in the field of artificial intelligence? Is the level of adoption of this technology satisfactory? How do they perceive the challenges and dangers that AI poses to the field? The aim of study is to evaluate the

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existing literature on AI in communication management and present the findings of a quantitative survey conducted among 2375 practitioners in European countries. The study attempts to address these concerns and communication professionals' perspectives by answering these research questions: How much do professionals know about AI and how much do they use it daily? How do experts estimate AI's influence on communication management? What are professionals' AI communication management challenges? What threats do they see? The study provides the theoretical foundation and ongoing research in two steps: First, to define artificial intelligence in corporate information and computer science literature. The study will then present communication management and examine AI research in this field. Using these approaches will reveal research gaps that the empirical investigation addresses.

LITERATURE REVIEW

The term "artificial intelligence" was coined by John McCarthy, an American computer scientist, in the 1950s, specifically in a proposal for the 1956 Dartmouth Conference. This symposium is considered the inception of artificial intelligence as a formal discipline, aimed at studying the development of computers capable of performing tasks that need human-like ability (Bhutani & Sanaria, 2023). McCarthy's proposal emphasized the development of computational frameworks that might imitate aspects of human learning and understanding. This distinguished the area from current studies in artificial intelligence and laid the groundwork for future research in computer-based intelligence (Anderson, 2024). Computer scientists David Poole and Alan Mackworth at the University of British Columbia describe AI as “computational agents that act intelligently. They define intelligence as competent action responding to circumstances and goals, adapting to changing environments and goals, learning from experience, and making good decisions (Mackworth & Zhang, 2001).

Cluster of Technologies

The artificial intelligence as a “cluster of technologies” that includes “natural language processing” and “machine learning (Goldfarb et al., 2023). The analytics and machine learning as AI components, while AI encompasses data perception. Machine learning is often viewed as a meta-concept that includes knowledge representation (Brown, 2021). AI may be defined as flexible decision-making processes and behaviors of software-driven agents, by considering several definitional methods. They adapt to shifting objectives and unpredictable environments, learn from experience, seek logic, and persevere despite perceptual and computational limits (Subramaniam, 2020). Natural language processing, data retrieval, knowledge representation, semantic reasoning, and machine learning underpin AI. Knowledge representation is a subset of machine learning, while software-driven agents may respond depending on their environment or prior experiences. However, integrating both abstract and physical AI features makes this definition theoretically broad and easy to grasp for non-IT professionals. Guiding all organizational messages is a crucial aspect of communication management (Yu, 2023). This material primarily focuses on the potential impact of artificial intelligence on communication management and professional responsibilities.

Transformation of AI Technology

The transformative impact of AI assistants on how corporations engage with their customers. AI-based marketing has the potential to enhance communications, enhance targeting, and utilize bots for consumer communication (Haleem et al., 2022). A significant portion of communication skills, 32%, can be accomplished without the need for technological assistance. Additionally, 27% of these skills do require some level of tech support. This suggests that despite advancements in technology, human involvement is still crucial in this area. The technology will have a minimal impact on the job market for communications professionals, accounting for only 1.5% of job losses. As indicated by human practitioners set themselves apart from robots by leveraging their creativity, critical thinking skills, and the trust they build with stakeholders (Van Laar et al., 2017). Few businesses have integrated AI into their communication departments, despite the potential. Only 3% of Swiss corporations utilize AI for communications, according to a study conducted by Chief Communication Officers (Zerfass et al., 2020; Pande et al., 2024).

Technological Administration

Further investigation is necessary as communication professionals appear to encounter significant challenges when integrating AI. The adoption of technical advances by administrations is contingent upon their inherent qualities and resources, such as communication procedures and structures, as well as their external environment, which includes legislative restrictions and technology infrastructure (Melville et al., 2004). AI in communications may encounter challenges at the meso-, department-, and agency levels in addition to the macro-level social barriers. It is uncertain if practitioners are as sanguine about AI as industry journals and practitioner literature are, or if they are more afraid that AI will replace them in many activities and lead to lower pay, more unemployment, and a loss of professional identity. Administrations and their members may be in risk when new technology is introduced (Ernst et al., 2019). These five criteria—which account for a substantial 54% of the total—carry the most weight, and they include the concepts of leadership and service (Javed, 2024). One risk associated with managing IT projects personally is "lack of ability, training, motivation and experience of staff, AI may diminish human abilities, responsibilities, control, and self-determination. Understanding AI influences how it is viewed and what it means for the communications industry. The paucity of scientific literature and experience sometimes leads to variable and imprecise knowledge levels among practitioners (Lebovitz et al., 2021).

Unified Theory of Adoption and Usage of Technology (UTAUT)

It is necessary to look into this baseline and any variations related to the organizational histories of practitioners and their usage of AI devices. Theoretically, organizational technology adoption is influenced by disparities in experience, age, and

gender. These variables are used as moderators by the Unified Theory of adoption and usage of Technology (UTAUT) and its sequel, UTAUT2, to explain how various factors influence the adoption and usage of new information systems (Touray et al., 2013). The opinions on AI will differ between men and women, between younger and older professionals, and between those who have used AI devices and those who haven't. It is also assumed by the TOE paradigm that the way different types of administrations perceive AI in communication management may differ (Fristedt et al., 2021).

MATERIALS AND METHODS

The study questions were incorporated in a quantitative, cross-national online survey of European communication professionals. Most of the 2375 practitioners have more than 10 years of communications experience and hold key positions.

Data Collection Process

The AI survey has 6 questions. All of our research instrument questions came from the literature review. The Total poll's demographic questions were analyzed. To engage participants, the research employed a 5-point Likert scale from 1 to 5 to assess how AI affected their job, division, agency, and work style (micro, meso, or macro). A definitional question assessed AI knowledge: We provided participants eight AI traits—four right and four wrong—and had them choose their preferences based on the information. Proper definition eliminated knowledge difference bias. The perceived hurdles of reaching human (practice competencies and motivation), organizational (top-level management, leaders, and clients' support), and societal (users' and external stakeholders' tolerance) AI in communications standards. Each level had cognitive or motivational challenges after structural ones. On a 5-point Likert scale, 1 was "not likely" and 5 was "very likely. “Not likely" and "very likely" were Likert scale extremes. Independent factors include responder gender, age, and country of origin, firm type, and management level.

Survey

The online survey ran for five weeks between January and March 2024. The academics, students, and practitioners from various locations were excluded from the population, 2375 responses out of 2670 were used for data analysis. Females made up 55.16% of 1,523 participants and males 43.2% of 1,156. The average age was 75.7% of the population (N = 2,570) had an academic degree, with 63.2% having a master's or postgraduate degree (N = 1575) and 6.2% a PhD. 67.6% (N = 1,617) had more than 10 years of communications experience, and 67.6% (N = 1,620) were unit or team leaders or agency CEOs. The communication departments of seven out of ten professionals were employed by joint stock corporations (17.7%, N = 541), private corporations (25.1%, N = 618), governmental administrations (16.6%, N = 447), or non-profit administrations (10.6%, N = 270). The remaining professionals (27.5%) were employed by communication consultancies, PR firms, or independent Total communication (36.2%, N = 1,027), strategy and coordination (31.7%, N = 652), media relations/press spokesperson (30.7%, N = 630), online/social media 26.2%, N = 705), and marketing/brand/consumer communication 24.7%, N = 665 were the most frequently mentioned communication management subdisciplines. Southern Europe (31.4%, N = 645) and Western Europe (27.0%, N = 761) represented the bulk of responders, followed by Northern and Eastern Europe.

Data Evaluation

Data analysis was done with SPSS. Depending on the variable, one-way ANOVA with post-hoc Scheffé, Kendall rank correlation, Pearson product-moment correlation, and Pearson's chi-square test identified significant differences and (inter-)dependencies.

RESULTS AND DISCUSSIONS

Professionals in communication generally exhibit a fairly narrow grasp of artificial intelligence. They anticipate a bigger influence on the profession Total than on how their company or they operate. Key risks and obstacles include unclear duties and varying degrees of proficiency across businesses, as well as a lack of individual capabilities.

AI Communication Specialist

The 16.7% of the participants were classified as adopters of AI, indicating that they make use of both intelligent equipment in their homes and offices and intelligent assistants on their smartphones. Table 1 represents the considered "AI experts," 15.4% of the professionals polled accurately identified seven or all eight of the stated features of AI as either true. The majority only had a rather hazy idea of what artificial intelligence is, and 7.1% of respondents, or "AI greenhorns," avoided the definitional issue entirely by saying they had no idea. Compared to female experts (16.7%), there are more male experts (16.3%). Adoption and skill in AI are unrelated; interestingly, we discovered that those who do not yet utilize the technology in their daily life have higher levels of AI expertise (15.7% versus 13.7%).

Table 1. Represents the AI communication specialists’ details

Agents operated by software make decisions and take actions.	66.76%
Acquiring knowledge through experience	56.60%
Human-assisted computer activities	54.73%
Adjusting to shifting objectives and erratic circumstances	35.70%
Comprehending normal language (Meaningful moods)	41.60%
The whole range of human abilities	15.50%
(Going through emotions)	10.70%
The process of learning by doing	6.60%

As a percentage, the frequency is determined by the selection process. When people talk about "Artificial Intelligence," they often use different definitions. Pick out all the definitions that you believe fit the bill. When we talk about AI, it is referring about 15.4% of the total sample and 16.6% of the definition-selecting population are experts in artificial intelligence. Most of the people (36.5%) have gotten 5 out of 6 things right. Among those working in the field of communication, 41% anticipate that AI will impact PR and communications in general (M = 2.70, SD = 2.37, N = 2,566). The influence on the profession will be substantial, according to every second responder (50.6%). Distinct differences exist between the micro and meso levels of impact perception, which is an intriguing observation: Even fewer professionals (33.7%) think that artificial intelligence would drastically alter their own work processes (M = 2.73, SD = 1.20), and only 29.2% expect that AI will cause major changes to the way their agency's or department's communication department operates (M = 3.05, SD = 2.01). There were noticeable variations among the different kinds of corporations and the respondents' varying degrees of hierarchy. Working professionals in joint stock firms report a higher degree of organizational and personal effect compared to practitioners in other types of administrations. Specifically, 40.3% of them estimate a high or very high level of influence at the meso level, and 29.1% at the micro level. When comparing communication leaders to their colleagues in lower-ranking positions, the same holds true.

Projects of AI Organization

According to Table 2, the projected effects of AI on macro, meso, and micro levels are ranked from highest to lowest by organizational hierarchy.

Table 2. The effect that communication experts anticipate AI will have on the field.

Artificial intelligence will have impact on	Head of communication department / Agency CEO	Unit leader / Team leader	Team member / Consultant	Total
The profession of public relations and communications as a whole *	2.76	2.73	2.73	2.63
	-2.34	-2.36	-2.36	-2.36
The way our department / agency works **	5.11	3.02	2.74	3.03
	-2.36	-2.37	-1.35	-2.01
The way I personally work *	2.63	2.71	2.65	2.72
	-1.18	-2.36	-2.36	-2.01

Note. P-value < 0.01.

More than half of the respondents considered organizational infrastructure and communication practitioners' competencies (M = 3.56, SD = 1.04, N = 2,566) to be major barriers to implementing AI in communication management (M = 3.54, SD = 2.35). The subsequent tier is distinguished by support from leaders, consumers, and senior management (M = 3.25, SD = 2.36), approval from users and external stakeholders (M = 2.73, SD = 1.02), and encouragement to apply AI from communication practitioners (M = 3.27, SD = 2.36). It is uncommon (M = 2.63, SD = 2.36) to identify social infrastructure.

AI Administration Problems

Table 3 illustrates two areas where they score significantly higher: organizational infrastructure ($F = (4; 2561) = 4.736$; $p < 0.01$) and assistance from leaders, clients, and senior management ($F = (4; 2,561) = 3.666$; $p < 0.01$). However, it's important to note that compared to individuals who have not used AI frequently, those who have used AI have reported fewer issues.

Table 3. The challenges different administrations expect adopting AI in communications

	Cooperative stock	Secluded	Legislative	Non-profit	Consultancy	Total
	Corporations	Corporations	Administrations	Administrations	& Agencies	
Competencies of communication practitioners to use AI	3.61	3.5	3.61	3.6	3.57	3.56
	-1.03	-1.04	-1	-0.76	-1.06	-1.04
Motivation of communication practitioners to use AI	3.27	4.29	2.73	2.73	2.76	3.27
	-2.33	-2.33	-1.07	-1.06	-2.35	-2.36
Organisational infrastructure (e. g. IT, budgets, responsibilities) **	2.76	3.5	3.66	3.76	2.63	3.54
	-1.35	-2.34	-2.3	-1.06	-2.37	-2.35
Support by top management, leaders, and clients **	5.13	3.35	2.71	2.73	3.27	3.25
	-2.35	-2.31	-2.33	-1.06	-2.36	-2.36
Societal infrastructure (e. g. high-speed internet, legal rules)	3.04	2.73	3.03	3.04	2.63	2.63
	-1.2	-2.37	-2.35	-2.35	-1.18	-2.36
Acceptance by users and external stakeholders	2.76	2.76	2.76	2.63	2.7	2.73
	-1.03	-1.02	-1.02	-0.76	-1.04	-1.02

Note: The Scheffé post-hoc test showed significant results ($p < 0.01$).

Major barriers to incorporating AI into communications include organizations with uneven staff expertise (M = 2.74, SD = 2.33, N = 2,566) and jobs that are not clearly defined (M = 3.61, SD = 1.35). Disillusionment with identity (M = 1.99, SD = 1.25), a reduction in one's essential abilities (M = 1.97, SD = 1.20), and a drop in pay (M = 2.44, SD = 2.36) are additional risks. Table 4 represents the professionals view these obstacles as possible hazards. With an index score of 2.60 as opposed to 2.67 and 2.75 for team leaders and members, respectively, top communicators had a more positive view.

Meanwhile, 46.7% of nonprofit professionals anticipate issues with unclear responsibilities and 61.5% of nonprofit professionals foresee challenges with different staff capability.

AI Communication Risk

Changes in work responsibilities might account for the second piece of information. Planning and review with AI assistance increases CEO time. In this era of data-driven communication, stakeholder participation and news story authoring and interpretation may become outdated.

Table 4. Represents the AI-facilitated intergenerational communication risks.

	27 or younger	30 - 29	40 - 47	50 - 57	60 or older	Total
Statement pros are suffering job losses **	2.65	2.16	2.33	2.43	2.33	2.41
	-1.33	-2.36	-2.35	-1.2	-1.35	-1.2
Communiqué GPs	2.62	1.97	2.43	2.46	2.32	2.44
wages will decrease	-1.3	-2.34	-2.35	-2.33	-1.24	-2.36
Organisations will encounter challenges	2.63	2.76	3.51	2.73	2.71	2.74
miscellaneous operate proficiency	-1.07	-2.35	-2.33	-2.31	-1.18	-2.33
Businesses will face challenges	5.15	3.06	5.15	5.16	4.29	3.61
whose roles are not clearly defined	-1.24	-1.18	-1.23	-2.01	-1.31	-1.35
In the field of communications	2.63	2.17	1.97	1.96	2.17	1.97
Determination drops fundamental competencies **	-1.26	-2.34	-2.01	-1.2	-1.3	-1.2
The infrastructures occupation	2.61	2.32	2.36	2.33	1.97	1.99
will lose its distinctiveness	-1.29	-1.23	-1.18	-1.35	-1.31	-1.25

Note: ** Highly significant at $p < 0.01$ using Pearson correlation.

The respondents were categorized based on the indices of all questions that assess the impact and all things that assess the risks. Approximately 67.7% of practitioners expect to have some degree of impact, however they score low or neutral on the risk scale (with a risk index value of less than 3, reflecting a predominantly optimistic outlook within the profession. However, a small fraction of just 14.7% of those who oppose AI predict that the technology would have a substantial adverse impact and present several risks with both indices being more than 3.

DISCUSSIONS

There is a still significant untapped potential for artificial intelligence in the field of communication management. Based on our findings, experts in the industry believe that AI has the capacity to transform their work, and like the third-person effect of media influence (Perloff, 2009). A cognitive bias when we inquired about the anticipated impact in depth from professionals: they anticipate that AI would revolutionize their field, but not their specific organization. Although professionals may have stayed informed about the latest developments in their sector, they have not yet utilized artificial intelligence in their professional or personal endeavors. Currently, AI does not have significant attention in the field of communication management. The study pioneering quantitative research examined the impact of artificial intelligence on public relations and marketing research (Berente et al., 2021). The responsibility of communication executives is to integrate artificial intelligence into their department, and communicators themselves should acquire knowledge on the issue. Although there is extensive discussion about AI in trade periodicals, the bulk of public relations specialists still lack knowledge about this subject. The limited comprehension of big data, a technology linked to artificial intelligence, among communication professionals (Smith, 2020). Moreover, the effectiveness of 'learning by doing' approaches should be evaluated as the use of AI-based gadgets in daily activities does not lead to proficiency. The practitioners should acquire new technologies in a methodical manner. The primary obstacle to integrating AI into communication management is the proficiency level of individual specialists, which presents a substantial threat to enterprises (Alshahrani et al., 2024).

CONCLUSIONS

Despite AI's inability to replicate every skill of a human communicator, practitioners of AI can nonetheless achieve mastery. Despite challenges at the human and organizational levels, meeting societal needs appears to be occurring. High-speed internet, adherence to AI rules, and the endorsement of external stakeholders are of little concern to anybody in the communication business. While there may be some disagreement among practitioners, it is necessary to fully adopt and accept artificial intelligence at this point in time. There is a significant proportion of individuals do not harbor significant fears or concerns regarding artificial intelligence. Experts in the field of communication, who anticipate the most beneficial influence of AI on employment may need to educate and involve colleagues with varying levels of AI expertise and apprehension. A significant proportion of the research sample consists of individuals in their twenties and those who anticipate significant repercussions and several hazards. Paradoxically, the individuals who were labelled as "digital were the ones who expressed the highest level of concern regarding artificial intelligence. The biggest expected Organisational threats were concerns around worker competence and uncertainty surrounding positions and tasks. Effective team staffing and organization of AI work are essential tasks for communication executives. The support of top-level management and the presence of a designated project champion are essential for an organization to adopt technology. Multiple factors should be considered while assessing the outcomes of our inquiry. Due to the lack of information about the Total number of communication professionals in Europe and the low response rate from Eastern Europe, our sample cannot be used to accurately represent the communication profession from a statistical standpoint. Our technique exclusively assessed the

perspectives of communication experts. Although we included our AI definition in the poll, it is possible that other variables influenced participants' perception of risks and challenges, despite our efforts to prevent this. We refrained from inquiring about the extent of AI use in communication departments or agencies due to our expectation that a significant number of respondents would lack knowledge on the subject. The intricate technology adoption models offered in the literature analysis were too intricate for us to examine. The study primary goal was to provide individuals with an early advantage in AI for communication management. To advance both theoretically and practically, future study should expand the viewpoint on potential challenges and hazards, incorporate other elements, and establish connections with empirical evidence.

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