Artur Modliński*

TO BOAST OR NOT TO BOAST: THE IMPACT OF ADVERTISING THE USE OF AUTONOMOUS ALGORITHMS TO BANK AND HOSPITAL CUSTOMERS AND EMPLOYEES

ABSTRACT

In the current phase of artificial intelligence development, more and more attention is being paid to technologies that make autonomous decisions. Little attention has been paid to the customers' and job seekers' perceptions of heavily technology-empowered organizations in the management and marketing literature. The purpose of this research is to fill this research gap. A between-subject experiment with fictitious brands was conducted with 239 subjects to answer four hypotheses about customers' attitudes, intention to use the offer, intention to recommend the company to others, and job seekers' intentions. The results show that an autonomous algorithm universally influences job seekers more than customer referral behaviors. People confronted with brochures from banks and hospitals that use autonomous technologies express a higher intention to work in such organizations than in analogous institutions that do not offer such a service. However, only in banks that use autonomous algorithms the customers have a more positive attitude and a higher intention to use or recommend the service. The hospital's unknown brand does not benefit from such an advertising approach. This is the first study ever conducted with fictitious brands of banks and hospitals to investigate the referral towards companies using autonomous technologies. The topic is worth exploring as key market players (such as Oracle) recognize autonomous technologies as the most ground-breaking innovation that will shape business in the coming years.

KEYWORDS: *autonomous systems, intelligent technologies, marketing, innovation, employer branding, customer behavior.*

1. INTRODUCTION

Technology can already make decisions without human intervention due to the progress in artificial intelligence. It has evolved from a human support tool into a decision-maker (Schaefer et al., 2015), even if human consent to its independence is limited. The transfer of the decision-making domain to machines is directly related to techno-empowerment (Modlinski and Gladden, 2021). The phenomenon refers to employee empowerment, which lets human workers decide by delegating responsibility and control over tasks (Hui et al., 2004). Techno-empowerment is spreading through synchronizing several important inventions developed during the fourth industrial revolution, such as IoT or Cyber-Physical Systems

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(Martins et al., 2020). The most popular autonomous technology projects are developing in the automotive and financial industries. However, autonomous technology is predicted to spread in the coming years and be applied to various processes inside and outside companies (Goldbach et al., 2019; Perula-Martinez et al., 2019).

The engine of the fourth industrial revolution is artificial intelligence, defined as programs that can collect, process, and learn from data (Akerkar, 2019). Artificial Intelligence (AI) has made it possible to replace employees performing monotonous tasks. Thus, the organizational space has been 'slimmed down,' non-human agents have emerged and helped humans achieve strategic goals. Artificial intelligence is becoming increasingly important. A report by Fortune Business Insights (2020) reveals that the global market for artificial intelligence was estimated at over 27 billion dollars in 2019 and that this figure will increase tenfold in the coming decade. However, artificial intelligence does not exist in a single form, and not all AI is autonomous technology. It continues to evolve, and its use is changing significantly. Lee (2018) distinguishes four phases in the development of artificial intelligence: Internet AI (IAI), Business AI (BAI), Perceptual AI (PAI), and Autonomous AI (AAI). IAI is based on algorithms that make recommendations and learn users' preferences. BAI is based on algorithms that collect data from companies and look for unique correlations (e.g., between consumer behavior). PAI is based on real-world sensors that monitor the organization's environment and collect data. Finally, AAI is a combination of all previous solutions with a sensory potential that increases the ability of machines to make autonomous decisions (Lee, 2018).

Humanity is only in the early stages of AAI development. In the current phase, AI algorithms collect data and propose solutions that humans should approve. Autonomy in decision-making has been delegated to algorithms to a relatively small extent (cleaning the office and keeping a calendar of meetings). Nevertheless, the number of corporate projects and start-ups that want to deploy autonomous technologies on the market is increasing significantly. Notable examples include cars and investment services. This article aims to answer the following question:

RQ1: *Does indicating that a company uses autonomous algorithms affect the perceptions and intentions of consumers and potential employees?*

This paper's experimental study was designed to test four hypotheses based on the above research question and related to banks and hospitals where the technology may already make autonomous decisions. The decision to select these two organiza-

tions was motivated by current research on autonomous algorithms in the medical and financial sectors (Brooks, 2021; Richens et al., 2020), suggesting that these organizations are already using or may use this technology shortly.

This is the first study to use fictional brands (hospitals and banks) to investigate perceptions of technology-enabled companies. While there are already companies operating under the broad term of self-driving companies, such as Cloudwalk or Stop & Shop, there has been no previous research on how consumers and potential job seekers perceive such organizations. The main contribution of this text is to fill this gap by providing a broader insight into the human perception of companies using autonomous technologies. Most previous publications focus on the perception of a specific autonomous product, i.e., self-driving cars (König and Neumayr, 2017; Hulse et al., 2018; Nazari et al., 2019; Modlinski et al., 2021). A more general perception of the organizations using this technology is surprisingly lacking.

This article will show what autonomous technology is and how it is used. It refers to previous research on consumer and employee perception of autonomous systems. Finally, the research method, results, and contributions are described. The results of an experimental study conducted with two fictitious brands show that the 'self-driving' appeal has a more significant effect on potential employees than consumers. For banks and hospitals that advertise themselves as 'self-driving,' the intention of potential employees to find employment there is significantly higher than for banks and hospitals that do not use such an appeal in their advertising materials. However, the 'self-driving' appeal is only partially effective with consumers. This advertising message works strongly for a bank but not for a hospital. Potential customers of an unknown bank show a more positive attitude, a higher intention to use the offer, and a higher willingness to recommend the company if it uses the 'self-driving' appeal. However, potential hospital patients show no differences in attitudes and intentions when such an appeal appears in the promotional materials. To summarise, this paper shows that the 'self-driving' appeal is more universal when building an 'employer brand' than attracting customers. It could be particularly useful for banks' advertising and marketing strategies.

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2. CONCEPTUAL BACKGROUND

2.1. Non-autonomous artificial intelligence

Artificial intelligence is used in organizations for various purposes. Firstly, it helps to run an organization more sustainably by enabling both cost savings (Ahmad et al., 2021), emissions reductions (Sachs et al., 2019), and more efficient energy use (Vinuesa et al., 2020), leading to a positive image among customers. Secondly, algorithms may provide more innovative services recognised and respected by the company's shareholders (McCarthy, 2017). AI makes it possible to (a) forecast the customers' interactions with the company more accurately, (b) plan and tailor the offering to individual needs (Wedel and Kannan, 2016), and (c) improve service performance (Albrecht et al. l, 2021). Thirdly, thanks to artificial intelligence, organizations can process information faster and adapt to environmental changes. AI provides scope for developing data-driven learning organizations based on a knowledge management approach (Al Mansoori et al., 2021). Algorithms collect and combine data inside and outside the organization and look for meta-patterns that may improve overall performance (Thomas et al., 2001). So far, algorithms have supported managers' decisions rather than completely replacing humans.

Thanks to the patterns found in big data, managers can make decisions faster, which is a significant competitive advantage in a rapidly changing world (Agrawal et al., 2019). Fourthly, AI helps create value for employees and customers (Grundner and Neuhofe, 2021). It protects an organization from cyber-attacks on its data assets, boosting customer confidence in the company using such systems. In addition, AI provides organizations with a significant opportunity to train employees through simulation and repetition. By encountering real cases and interacting with AI, employees are exposed to different scenarios they might face in the workplace. This better prepares them for work and enables them to perform some tasks more effectively (Novichov et al., 2021). Johann Bertram's 2015 experiment with police officers and firefighters showed that the effects of training in virtual reality are comparable to those of training in a real environment. Using intelligent bots that simulate criminals or the reactions of real fire and accident victims allows law enforcement and paramedics to analyse the environment faster, predict outcomes, and prepare for different types of hazards they might expect in the real environment (Bailenson, 2018). Ultimately, algorithms take over monotonous and repetitive tasks that, in the past, were not motivating for humans but led to frustration and burnout (Cheng et al., 2020).

In all of the above cases, the technology is controlled by humans. Only in a few cases has this technology been granted decision-making autonomy. IBM's white paper refers to it as an autonomous agent (AA). It defines it as *software entities that carry out some set of operations on behalf of a user or another program with some degree of independence or autonomy, and in so doing, employ some knowledge or representation of the user's goals or desires.* They are penetrating the defence and automotive industries quickly (Pěchouček et al., 2008). Oracle's report suggests that these types of 'self-driving' algorithms can soon be expected in other industries, including healthcare and banking services (Baum, 2019). Therefore, their social perception becomes particularly interesting when they are used in industries that autonomous agents have hardly explored.

2.2. Social perception of Autonomous Agents (AAs)

Opinions on autonomous agents (AAs) differ. Sofge et al. l (2013) suggest that these differences depend on human perception and the type of decision that machines would ultimately make. Trust, perceived usefulness, and ease of use positively correlate to letting the autonomous agent make independent decisions (Modliński, 2022). In addition, previous experience and education level may influence a person's approval of an agent's autonomy (Madhaven and Wiegmann, 2007). Differences have even been found between men and women regarding intention towards autonomous agents (Modliński & Gladden, 2021). People are still skeptical about letting AAs make decisions, especially when this may impact the lives and survival of other humans (Gogoll and Uhl, 2018). This could be because people do not understand how artificial intelligence works (Buhmann and Fiesler, 2021). Recent research shows that perceived risk correlates positively with the agent's degree of autonomy in the decision-making process. However, at the same time, people value AA more when the relative advantage of their use increases (Rijsdijk and Hultink, 2003). It seems that certain character traits can influence the acceptance of AA. For example, extroverted people seem more willing to let the agent make independent decisions than introverted people (Goldbach et al., 2019). Recent research suggests that people are reluctant to let AAs make decisions in driving, legal matters, medical treatments, and military actions, regardless of their (positive/negative) outcomes, which could be related to human-machine trans role conflict (Modliński et al., 2022). However, the same authors found that this resistance decreases as AAs' perceived experience and expertise increase (Bigman and Gray, 2018). This suggests that portraying technology as a

'competent' agent with a proven track record of success in a particular field may encourage people to delegate decisions. However, there is currently no research evidence on how people respond to the offer of techno-empowered companies. Contemporary researchers have mainly focused on human interaction with autonomous vehicles and the factors determining their acceptance and attitude toward them.

Several factors are responsible for accepting AAs. First, cultural background influences attitudes toward AAs (Xu & Fan, 2019). Recent research suggests that people from different cultures consider different benefits/risks that an autonomous system entails (Yerdon et al., 2017). Secondly, educational background and interest in new technologies (Grewal et al., 2000) correlate with attitudes toward AAs, so the higher the education, the more positive the attitude (Hudson, Orviska, and Hunady, 2019). Third, attitudes towards AA correlate with age, such that younger people have more positive attitudes than older people (Woldeamanuel and Nguyen, 2019; Cirella et al., 2019). Fourth, there will be a more positive attitude toward AAs if their operations are understood (König and Neumayr, 2017) and there is previous usage experience (Penmetsa et al., 2019). In addition, people differ in terms of their confidence in AAs. Kyriakidis et al. (2015) found that people's biggest doubts are the safety and legal consequences of mistakes made by autonomous technologies. Therefore, it is assumed that the higher the risk of serious consequences (e.g., for health and life), the lower the willingness to use the product/service of the techno-empowered company.

2.3. Autonomous technologies and 'self-driving' appeal in customer's perception

One of the strategies companies use to arouse the interest of their customers is the introduction of service or product innovations (Gebauer et al., 2011). Over the past decade, the media has reported on the effectiveness of autonomous agents in certain areas. There has been much press coverage of autonomous algorithms that can secure financial transactions, e.g., as part of Blockchain technology (Minarsch et al., 2020) or provide patients with an accurate diagnosis (Richens et al., 2020). Recently, the concept of 'self-driving' finance has become important. It is based on autonomous algorithms that make independent financial decisions (Brooks, 2021). 'Self-driving' is a colloquial term for autonomous technology that refers to self-driving cars - autonomous vehicles developed by Tesla and Weimo. When talking about 'self-driving' technology, it means that it makes decisions without human intervention. New technologies (including smart solutions) are spreading remarkably

fast in the banking sector. An extensive body of research already demonstrates its high dynamics (Berraies and Hamouda, 2018; Hilal, 2015; Nguyen et al., 2014).

For many years, most banks have been pioneering (a) the ability to use an online service, (b) payment by phone (World Retail Banking Report, 2020), and (c) the help of virtual assistants (Lazarro, 2017). Bank customers are already used to digital innovations such as chatbots (Eren, 2021), gamification apps (Bitrian et al., 2021), or wearables (Steiner and Maas, 2018) and are particularly open to them. In addition, such innovations correlate positively with customer satisfaction and loyalty (YuSheng and Ibrahim, 2019). Banks are pioneers in the implementation of such solutions. For this reason, they could also be natural candidates for implementing innovations such as "self-driving" algorithms in consumers' perception. In contrast, potential patients are less receptive to innovations in medical services and pay more attention to credibility and the relationship with a doctor (Kim et al., 2017). Although they have been sensitized to the possibilities of new technologies by the COVID-19 pandemic (Deloitte 2020 Survey of US Health Care Consumers), their interest in innovation in this area is still low (Rubin, 2020). The following hypotheses have therefore put forward:

H1: *The advertising appeal that shows that a company uses autonomous algorithms influences the attitude of bank customers, not hospital customers.*

H2: *The advertising appeal that shows that a company uses autonomous algorithms influences the intention to use the offer of bank customers but not that of hospital customers.*

H3: *The advertising appeal, which shows that a company uses autonomous algorithms, influences the intention of bank customers to recommend the offer but not the intention of hospital customers.*

2.4. Autonomous technology and 'self-driving' appeal in employees' perceptions

Disclosing a company's innovative strength is one of several employer branding strategies that companies develop to attract the attention of potential employees. Employer branding is *"generalized recognition for being known among critical stakeholders for providing a high-quality employment experience and a distinctive organizational identity which employees value, engage with, and feel confident and happy to promote to others"* (Martin et al. 2011, 3618-9). Their main purpose is to attract and retain the most talented employees who can contribute to the value creation and growth

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of the company (Stahl et al., 2012). In their EBM model, Martin et al. (2011) suggest that an organization invests in human, social, and organizational capital when building an employer brand. All contribute to the company's intellectual capital and help develop innovative products and services, which in turn attract more employees.

Previous case studies confirm that companies endeavor to attract talent by highlighting the innovations used in the company (Rodriguez-Sanchez et al., 2019). In addition, quantitative research on potential employees suggests that innovations, alongside psychological and application values, contribute to a stronger employer brand among potential employees (Sivertzen et al., 2013) and attract potential job seekers (Liao and Cheng, 2019). However, these studies focused on environmental innovations (Ambec and Lanoie, 2008; Marchi, 2012; Liao and Cheng, 2019) and not specific service innovations. The unknown brands did not experimentally test whether such a service innovation as a 'self-driving' algorithm can attract the attention of potential job seekers. However, it is now claimed that AI can be very supportive of employees in areas such as customer service, back-office performance and risk management (Deloitte Report, 2017). However, it is hypothesized that there will be an interest in working for a company where such a solution is used. The following hypothesis is therefore put forward:

H4: *The advertising appeal shows that a company's autonomous algorithms influence job seekers' intentions.*

3. METHODS

3.1. Research design

A between-subjects experiment was conducted to test the four hypotheses. Two fictitious brands (bank and hospital) were used for the study. The idea behind using fictitious brands was to limit the effect of well-known brands on attitudes to dependent variables. The first independent variable manipulated in the study was the type of organization (bank vs. hospital). The second independent variable was the type of organization (techno-empowered vs. non-techno-empowered). Therefore, four experimental cells were distinguished in the experiment: (G1) a techno-empowered bank, (G2) a non-techno-empowered bank, (G3) a techno-empowered hospital, (G4) a non-techno-empowered hospital. Data on gender and age were collected.

3.2. Stimuli and pre-test

The stimuli were created using professional graphics software, similar to the hospital's and bank's advertising materials. The graphic design of the materials for the hospital and the bank did not differ. Both were created on a dark green and grey canvas. The only differences were the company's name (MediCom - for the hospital; Swiss GoldBank - for the bank) and the scope of the offer (medical vs. financial). In the control groups (non-techno-empowered companies), it was emphasized that people make all decisions regarding customers (patients). In the experimental groups (techno-empowered companies), it was emphasized that decisions about finances (bank) or patient diagnoses (hospital) were made by algorithms (robots). The primary idea behind the experiment was to test whether techno-empowerment influences attitudes, purchase intentions, and willingness to recommend the company depending on its services. It was also intended to test whether people prefer to work in companies where techno-empowerment is practiced or in companies where it is not.

After the materials had been created, 40 people were invited to pre-tests. They were asked to give their opinion on who makes the most important decisions in a particular organization. Each leaflet was presented to 10 people. Respondents answered the following single-item question: 'Who makes the decisions about customers' finances/patients' diagnosis in the given company?'. Possible answers were: (a) human personnel, (b) machines, (c) nobody, (d) the customers themselves / the patients themselves. In the case of G1, G2, and G4, all respondents answered as the researcher had intended (techno-empowered bank – 100% for machines; non-techno-empowered bank – 100% for personnel; non-techno-empowered hospitals – 100% for personnel). In G3, only one person gave the unintended response (techno-empowered hospital – 90% for machines). To ensure that the respondents in a regular study understood the materials received as the researcher intended, each participant had to answer the following questions: (1) What does the organization provide to its clients? (medical services/financial services/household goods); (2) Who makes decisions about customers' finances/patients' diagnoses? (human personnel/ machines/ nobody); (3) Did you know the company before? (yes/no). The final analysis did not include people who answered questions contrary to the researcher's intention.

3.3. Experimental procedure

Two hundred and forty-seven respondents were invited to participate in the experiment, and 239 com-

65

TABLE 1. The number of students in each experimental cell depends on their background

	Hospital with an autonomous algorithm	Hospital without an autonomous algorithm	Bank with an autonomous algorithm	Bank without an autonomous algorithm
Students of management	45	41	40	41
Students of sociology	12	11	12	13
Students of anthropology	7	5	5	7
Total	**64**	**57**	**57**	**61**

pleted the questionnaires (50% women). Due to the COVID-19 pandemic, the experiment was conducted online. The data was collected within a single day. Participants were recruited from students majoring in management (167 respondents), sociology (48 respondents), and anthropology (24 respondents). Three online sessions (in Microsoft Teams) were conducted with each group separately to balance the proportions of student backgrounds in each experimental cell. First, the alleged purpose of the research was explained. Then, students were randomized into four rooms corresponding to the four experimental cells (see Table 1). Participants in each room were only given a link to the stimuli and questionnaire corresponding to the experimental cell. All participants received credit points for their contributions. After viewing the stimulus, participants were asked to answer three questions to test the manipulation (see more under 'Stimuli and pre-test') and standard questions to measure dependent variables.

3.4. Measures

Four dependent variables were measured in the study: attitude towards the company, intention to use its services, intention to recommend the company to others, and intention to work for the company. Attitude towards the company was measured using four items on a seven-point scale adapted from Mathwick and Rigdon (2004). The Alpha-Cronbach score was 0.87. Intention to use the company's service was measured using four items on a seven-point scale adapted from Chandran and Morwitz (2005). The Alpha-Cronbach value was 0.91. The intention to recommend a company to others was measured using three items on a seven-point scale adapted from Maxham and Netemeyer (2002). The Alpha-Cronbach value was 0.91. The simple averages were calculated separately for each measurement. Intention

to work for the company was measured with the following one item, a seven-point question: *'Would you like to work for this company if it offered a job that matched your professional background?'*

4. RESULTS

To test the first hypothesis, the independent samples t-tests were run. The results show that people have more positive attitudes towards an unknown bank if it uses an autonomous algorithm appeal (M_T=4,55; SD_T=1.22; N_T=57) than if it does not use it (M_C=3.89; SD_C=1,29; N_C=61). These results are statistically significant as t (117) =2.87 and p < .01. In the case of a hospital using an autonomous algorithm (M_T=4.80; SD_T=1.06; N_T=64) and not using an autonomous algorithm (M_C=4.72; SD_C=1.26; N_C=57) the differences are not statistically significant which confirms H1. The data are shown in Figure 1.

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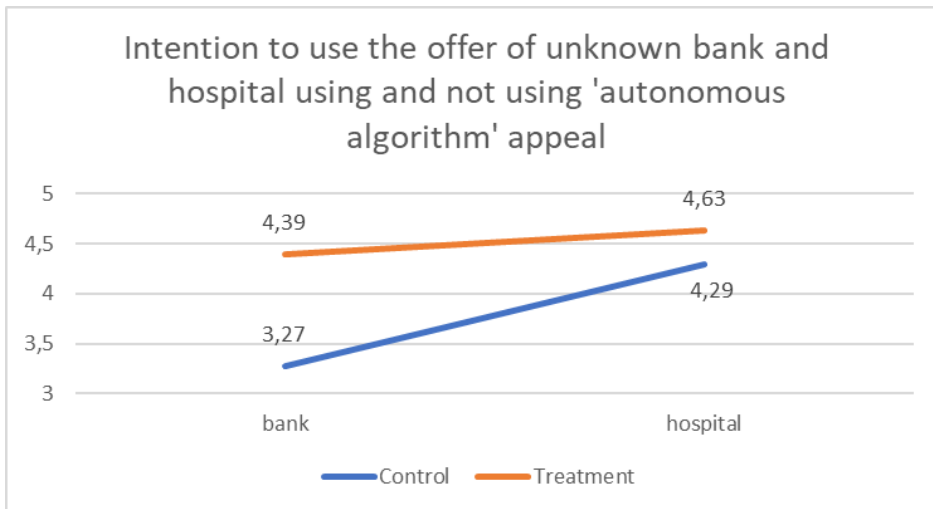TO BANK AND HOSPITAL CUSTOMERS AND EMPLOYEES

FIGURE 1. Attitudes toward the unknown bank and hospital using and not using an autonomous algorithm appeal
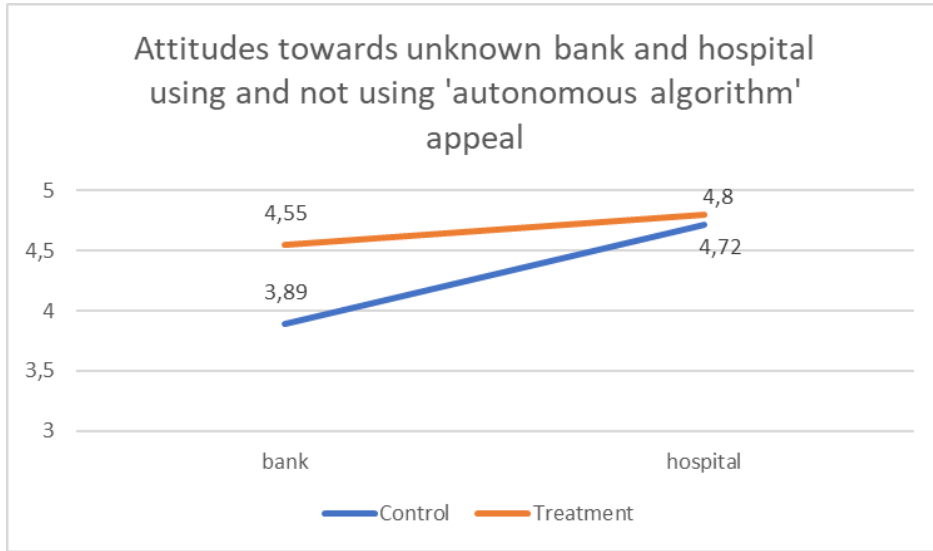
Moreover, people have a higher intention to use the offer of the unknown bank if it uses an autonomous algorithm appeal (M_T=4.39; SD_T=1.30; N_T=57 versus M_C=3.27; SD_C=1.39; N_C=62). As t (117)= 4.57 and p < .01. In the case of a hospital using an autonomous algorithm (M_T=4.63; SD_T=1.25; N_T=64) and not using an autonomous algorithm (M_C=4.29; SD_C=1,46; N_C=57) the differences are not statistically significant which confirms H2. The data are shown in Figure 2.

FIGURE 2. The intention to use the offer of an unknown bank and hospital using and not using an autonomous algorithm appeal

Customers have a higher intention to recommend the unknown bank if an autonomous algorithm appeal appears in its promotional materials (M_T=4.51; SD_T=1.43; N_T=57 versus M_C=2.94; SD_C=1.30; N_C=62) and t(117)= 6.28; p < .01. In the case of a hospital using an autonomous algorithm (M_T=4.65; SD_T=1.37; N_T=64) and not using an autonomous algorithm (M_C=4.33; SD_C=1.65; N_C=57) the differences are not statistically significant which confirms H3. The data are shown in Figure 3.

FIGURE 3. The intention to recommend the unknown bank and hospital using and not using an autonomous algorithm appeal
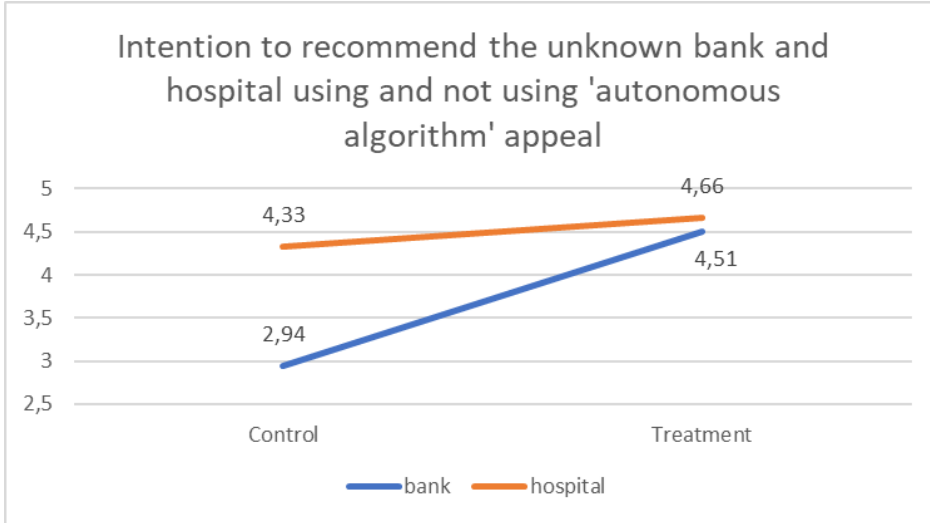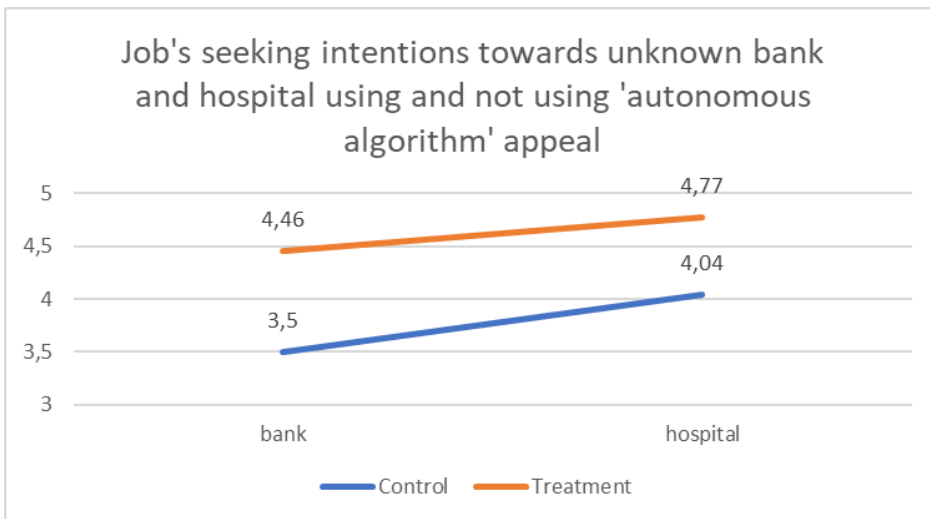
The independent samples t-tests were also run to test the fourth hypothesis. The results show that people would be more willing to work for an unknown bank exposing an autonomous algorithm (M_T=4.46; SD_T=1.89; N_T=57) than for one not exposing this appeal (M_C=3.50; SD_C=1.74; N_C=62). These differences are statistically significant as t (117)= 2.87 and p < .01. In the case of unknown hospitals, the effect is similar (M_T=4.77; SD_T=1.75; N_T=64 versus M_C=4.04; SD_C=1.75; N_C=57), and also statistically significant as t(119)= 2.30 and p < .05, which supports H4. The data is shown in Figure 4.

FIGURE 4. The job seekers' intentions towards an unknown bank and hospital using and not using an autonomous algorithm appeal

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5. DISCUSSION

This paper offers three significant contributions to previous research. First, the experiment results show that autonomous technologies can be important in attracting job seekers. Previous research has focused on environmental innovations and their positive influence on the intention to work for a particular company (Marchi, 2012; Liao and Cheng, 2019). This study shows that service innovations like 'self-driving' algorithms can have a similar function. Interestingly, this is the case for banks and hospitals, suggesting that the effect could be universally applicable. This is an interesting conclusion for the healthcare industry, as talent acquisition and employer branding strategies are underestimated in this sector (Heilmann, 2010). The conclusions from this study are also insightful for banks that are dynamically developing their talent management projects (Dang et al., 2020; Nzewi et al., 2015) to attract and retain the most talented employees (Stewart and Harte, 2010). Previous research shows that a strong employer brand is one of the tools to achieve this goal (Maurya and Agarwal, 2018). This study suggests that an innovative offering and the use of emerging technologies by the bank can attract people to work there. It can be surmised that this relates to job seekers looking for jobs offering them new experiences and development opportunities (Job Seeker Nation Report, 2021).

Experimental studies have shown that customers generally have a more positive attitude towards techno-empowered banks than hospitals. The freshness effect could have influenced this result, which is particularly welcome in the banking sector (YuSheng and Ibrahim, 2019). Respondents coming into contact with a bank's autonomous technology offering for the first time might be curious to check the bank's actual performance. The results of this study support the previous line of research showing that customers of banks value service innovation (Lazarro, 2017; Steiner and Maas, 2018; World Retail Banking Report, 2020; Eren, 2021; Bitrian et al., 2021). However, this is the first research on the unknown brand related to 'self-driving' finance, an emerging concept in the market.

The freshness effect of the 'self-driving' algorithm does not work in the case of hospitals. These findings are consistent with previous research suggesting that people are more accustomed to familiar physicians and therapies when choosing healthcare services (Harris, 2003; Deloitte 2020 Survey of US Health Care Consumers). In addition, people pay more attention to accessibility, staff friendliness, and patient-centredness than to the service's novelty (Kim et al., 2017). Research by Weiss and Blustein (1996)

has shown that when it comes to medical services, people place more value on the relationship with a doctor they know than on novelty. It seems that this situation has not changed three decades later. Using the latest technologies is not incentivizing people to choose a particular clinic. It seems that for a new company offering medical services, building credibility and relationships may be more effective than promoting an unknown innovation to consumers. However, it is interesting that consumers did not reject the hospital's offer to use the self-driving algorithm. Their attitudes and intentions did not differ from those of the hospital clients who did not use this innovation. In other words, the 'self-driving' algorithm neither encourages nor discourages patients from using the healthcare service.

Importantly, the results of this study are based on fictitious brands, meaning that previous attitudes or experiences with specific companies did not influence respondents' perceptions. This seems particularly interesting for the banking sector given the increasing influence of so-called FinTech (Contreras Pinochet et al., 2019) and competition from start-ups offering the latest financial service and product solutions (Mattsson and Helmersson, 2005; Romānova and Kudinska, 2016). From a practical perspective, companies that decide to introduce autonomous technologies in the future should analyze whether or not their level of techno-empowerment is acceptable for their target group. The results obtained in this study suggest that people have relatively little interest in traditional banking offerings, and techno-empowerment increases their enthusiasm. Therefore, the banking sector seems to be a natural area for the expansion of autonomous technologies in the future.

5.1. Research limitations

The study has limitations that should be considered when transferring the results into business practice. The first set of limitations relates to the stimuli, which contain only basic information about the company. The designed brochures can only be used to measure the first impression of the unknown companies. Furthermore, the experimental cells differ in how the employees and the autonomous algorithm are described. While the human employees are described as 'the most experienced,' the autonomous algorithm is described as' the most advanced". An employee's experience can be associated with expertise (Tan, 1997), but whether the human experience and the robot's progress are perceived as equivalent remains unknown. This problem reflects the various heuristics concerning the human/digital workforce. For instance, whether a robot can be experienced and

creative or how to measure its effort in performing certain tasks is unclear.

The second set of limitations relates to measurement. Intention to work for the company was measured with a single, seven-point scale question developed for this study. This was done because no validated scale in the literature can measure such intention towards an unknown company for which no job description is available. As work intention is not a multidimensional construct, a single question was used in the final analysis. Although there are commonly used single-item scales to measure life satisfaction (Schimmack & Oishi, 2005), job satisfaction (Wanous, Reichers, & Hudy, 1997), or self-esteem (Robins, Hendin & Trzesniewski, 2001), it seems reasonable for other researchers to construct and validate the scale to measure intention to work for the organization so that it can be used in similar research in the future.

Attitude towards a brand/company was measured using the scale developed by Gremmler (1995) and popularised by Mathwick and Rigdon (2004). This scale is mainly used to measure attitudes towards a brand/company that is known to customers. The research conducted in this study is based on a fictitious (unknown) brand to eliminate the backward effect – the possibility that the study participants already had a certain attitude towards a particular brand before the study and that this attitude influenced the final results. Avoiding the backward effect meant that no scale measured attitudes towards the company with which the study participants first came into contact. For this reason, the attitudes measured were mainly based on customers' first impressions, and there is a possibility that these may change over time. For this reason, it is highly recommended to check whether a similar effect can be observed with well-known brands promoting their autonomous algorithms and how customers' attitudes and perceptions towards unknown companies change over time.

Finally, the study was conducted with young respondents who studied management, sociology, and anthropology. The fact that the experiment was conducted in the laboratory (under controlled conditions) increased the study's internal validity, which shows the causal relationship between the variables. However, internal validity always increases when external validity decreases. To reduce this effect, participants were randomly assigned to the experimental cell, increasing the study's external validity. Nevertheless, the generalisability of the results is limited to young people with a background in social science. It seems reasonable to compare the results with those of older customers (including senior customers) in the future.

6. CONCLUSIONS

The 'self-driving' appeal has a more universal effect on potential employees than consumers. For banks and hospitals that advertise themselves as 'self-drive,' the intention of potential employees to find employment is significantly higher than for banks and hospitals that do not use such an appeal in their advertising materials. However, the 'self-drive' appeal only works partially with consumers. This advertising message works strongly for a bank but not a hospital. Potential customers of an unknown bank show a more positive attitude and a higher intention to use the offer and to recommend the company to others if it uses the 'self-drive' appeal. However, there is no difference in the attitudes and intentions of potential hospital patients when such an appeal appears in the promotional materials.

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HVALITI SE ILI NE: UTJECAJ OGLAŠAVANJA UPOTREBE AUTONOMNIH ALGORITAMA NA KUPCE I ZAPOSLENIKE BANAKA I BOLNICA

SAŽETAK

U trenutnoj fazi razvoja umjetne inteligencije, sve veća pažnja se posvećuje tehnologijama koje donose autonomne odluke. U literaturi o upravljanju i marketingu nedovoljno se raspravlja o percepcijama kupaca i tražitelja posla o organizacijama, u kojima se uvelike primjenjuje tehnologija. Cilj ovog istraživanja je popuniti tu prazninu. Proveden je eksperiment na subjektima s izmišljenim brendovima sa 239 sudionika kako bi se odgovorilo na četiri hipoteze o stavovima kupaca, namjeri korištenja ponude, namjeri preporuke tvrtke drugima i namjeri tražitelja posla. Rezultati pokazuju da autonomni algoritmi imaju veći utjecaj na tražitelje posla nego na ponašanje kupaca na temelju osobnih preporuka. Osobe koje se susreću s brošurama banaka i bolnica koje koriste autonomne tehnologije izražavaju veću namjeru za rad u takvim organizacijama nego u institucijama, koje ne nude takvu uslugu. Međutim, samo u bankama koje koriste autonomne algoritme kupci imaju pozitivniji stav i veću namjeru korištenja ili preporuke usluge. Nepoznati brend bolnice ne profitira od ovakvog pristupa oglašavanju. Ovo je prvo istraživanje provedeno s izmišljenim brendovima banaka i bolnica kako bi se istražile preporuke prema tvrtkama koje koriste autonomne tehnologije. Tema je vrijedna istraživanja jer ključni tržišni igrači (kao što je Oracle) prepoznaju autonomne tehnologije kao najrevolucionarniju inovaciju koja će oblikovati poslovanje u nadolazećim godinama.

KLJUČNE RIJEČI: *autonomni sustavi, inteligentne tehnologije, marketing, inovacije, brendiranje poslodavaca, ponašanje kupaca.*

APPENDIX I. Measures used in the study

Attitudes towards the company's brand - Mathwick and Rigdon (2004)
(originally from: Gremmler, 1995)
1. I say positive things about XYZ products to other people.
    (definitely yes to definitely no)
2. I have a favorable attitude toward doing business with XYZ over the next few years.
    (definitely yes to definitely no)
3. To me, XYZ is clearly the best company of its kind with which to do business.
    (definitely yes to definitely no)
4. I believe this is a good company.
    (definitely yes to definitely no)

Intention to use the company's service - Chandran and Morwitz (2005)

1. How likely are you are you to buy the product on offer?
    (highly unlikely to highly likely)
2. How probable it is that you will purchase the producton offer?
    (highly improbable to highly probable)
3. How certain it is that you that you will purchase this product?
    (highly uncertain to highly certain)
4. What chance there is that you will buy this product?
    (no chance at all to very good chance)

   Intention to recommend a company - Maxham and Netemeyer (2002)
1. How likely are you to spread positive word-of-mouth about [firm name]?
    (highly unlikely to highly likely)
2. I would recommend [firm name's] banking services to my friends.
    (definitely yes to definitely no)
3. If my friends were looking for a banking service, I would tell them to try [firm name].
    (definitely yes to definitely no)

   Intention to work in the company
1. Would you like to work in this company if it offered a vacancy adequate to your professional background?
    (definitely yes to definitely no)