MARKETING SCIENCE & INSPIRATIONS

Marketing Science & Inspirations ——— Vedecký časopis zameraný na problematiku marketingu a marketingového manažmentu. | *Scientific journal is aimed at the area of marketing and marketing management.*
Ročník XIX, 2024, číslo 4 | *Volume XIX, 2024, Number 4*
Dátum vydania | *Date of Issue* ——— December 2024 | *December 2024*
ISSN 1338-7944
Registračné číslo MK SR | *Registration Number* ——— EV 3360/09
Periodicita: štyri riadne vydania | *Periodicity: four periodical issues*
Vydavateľ a adresa redakcie | *Publisher and Address of Editor* ——— Univerzita Komenského v Bratislave, Fakulta managementu, Odbojárov 10, P. O. Box 95, 820 05 Bratislava 25, Slovensko/Slovakia | tel.: **421 (2) 90 21 2003
e-mail: redakcia@mins.sk | www.mins.sk, msijournal.com Časopis je vydávaný v spolupráci so ŠKODA AUTO VYSOKÁ ŠKOLA o. p. s., Mladá Boleslav, Česká republika | *The journal is published in co-operation with ŠKODA AUTO VYSOKÁ ŠKOLA o. p. s., Mladá Boleslav, Czech Republic*
IČO vydavateľa | *Publisher Id Number* ——— 00 397 865
Redakčná rada | *Editorial Board* ——— Predseda | *Editor-In-Chief*: Peter Štarchoň | Členovia | *Members:* Radim Bačuvčík, Gabriela Pajtinková Bartáková, Viera Cibáková, Boguslawa Dobek–Ostrowska, Miroslav Foret, Marie Hesková, Chinnappa Jayachandran, László Józsa, Martina Juříková, Vanda Lieskovská, Štefan Majtán, Andrej Miklošík, Theodor Valentin Purcarea, Patricia L. Rees, Magdaléna Samuhelová, Jaroslav Světlík, Róbert Štefko, Peter Štetka, Pavel Štrach, Hans van der Velden
Grafická úprava | *Graphic Design* ——— Martina Figusch Rozinajová
Jazyková úprava | *Editing* ——— Miloslav Vojtech & Dagmar Weberová
Tlač | *Printer* ——— DMC, s. r. o.
Hlavný sekretár | *Secretary-Genera*l ——— František Olšavský
Cena za číslo | *Price Per a Piece* ——— 10,50 EUR
Objednávky a predplatné | *Orders and Subscription* ——— redakcia@mins.sk

Články z časopisu Marketing Science & Inspirations bude možné vyhľadať prostredníctvom výskumných databáz EBSCOhost, ERIH PLUS, Ulrichsweb, EconBiz a GoogleScholar. | *Articles from the journal Marketing Science & Inspirations will be discoverable through EBSCOhost research databases, ERIH PLUS, Ulrichsweb (Ulrich's Periodicals Directory), EconBiz and Google Scholar.*

www.linkedin.com/company-beta/18012483

OBSAH | *CONTENT*

VÝSKUMNÉ PRÁCE | *RESEARCH PAPERS*

MARKETING BRIEFS

ZAUJALO NÁS | *SHORT COMMUNICATIONS*

DICTIONARY OF USEFUL MARKETING TERMS

DOI: https://doi.org/10.46286/msi.2024.19.4.1

CUSTOMERS' INTENTIONS TO ADOPT DIGITAL HEALTH SERVICES: AN EXTENDED TAM

This study explores the factors influencing customers' intentions to adopt digital health services in Algeria, focusing on an extended Technology Acceptance Model (TAM). Given the growing importance of digital health solutions in enhancing healthcare accessibility and efficiency, understanding the determinants of adoption is crucial. Using a convenience sample of 132 respondents and an 18-item questionnaire, the research employs multiple regression analysis to examine the effects of perceived usefulness, perceived ease of use, attitude, and electronic word-of-mouth (eWOM) on adoption intentions. The findings reveal that all four factors significantly impact customers' intentions to adopt digital health services. Specifically, perceived usefulness and high perceived ease of use, along with positive attitudes, and favorable eWOM, are crucial in shaping adoption decisions. This study contributes to the literature by providing empirical evidence on the factors driving digital health adoption in an Algerian context, offering valuable insights for policymakers and service providers to enhance digital health strategies and address adoption barriers effectively.

1 Introduction ——— Technology offers a strategic advantage in enhancing operations and achieving organizational goals across various sectors, including healthcare (Edo et al. 2023). In recent years, the digital health industry has witnessed rapid growth, driven by advances in technology and increasing consumer demand for accessible and effective healthcare solutions (Abdelwahed et al. 2024). According to Zhou et al. (2019), the relationship between digital health systems and traditional health services is mutually supportive, not substitutional. Digital health services, including telemedicine, health apps, mobile health (mHealth), and electronic health records, promise to revolutionize the way individuals manage their health and interact with healthcare providers (Mouloudj et al. 2023; Safi et al. 2019). Although digital health services have great potential, there is still a lack of comprehensive understanding regarding how customers perceive and adopt these services (Goel et al. 2024), leading to inconsistent adoption rates. Therefore, understanding the factors that influence customers' intentions to adopt digital health services is critical for stakeholders (e.g., „telehealth system developers, governments, investors, and hospitals") in order to enhance user engagement and maximize the benefits of these innovations (Zhou et al. 2019).

Digital health services in Algeria are increasingly recognized as vital to improving healthcare accessibility and efficiency, especially in a country with diverse geographical and socio-economic challenges (Mouloudj et al. 2023). The Algerian government has initiated several projects to integrate digital health solutions, such as telemedicine and electronic health records, into the national healthcare system. These efforts aim to address disparities in healthcare access between urban and rural areas and streamline healthcare management. However, the adoption of these services is uneven, influenced by factors such as infrastructure limitations, digital literacy, and regulatory hurdles. As digital health solutions continue to evolve, addressing these challenges is essential for maximizing their potential benefits and ensuring equitable access to quality healthcare across Algeria.

The technology acceptance model (TAM) provides a foundational framework for examining technology adoption. Originally developed by Davis (1989), TAM posits that perceived usefulness and perceived ease of use are primary determinants of technology acceptance (Venkatesh and Bala 2008). Perceived usefulness refers to „the degree to which a person believes that using a technology will enhance their job performance or personal life", while perceived ease of use pertains to „the extent to which a person believes that using the technology will be free of effort" (Davis 1989). While TAM has been instrumental in understanding technology adoption in various contexts (Bouarar et al. 2023), the digital health system presents unique challenges and opportunities that necessitate an extension of the model (Al-Sulimani and Bouaguel 2024; Mouloudj et al. 2023).

In the context of digital health, it is essential to consider additional constructs beyond the original TAM framework (Ahmad et al. 2020; Almazroi et al. 2022; Tsai et al. 2019). Attitude toward adopting digital health services is a significant factor influencing adoption (Al-Sulimani and Bouaguel 2024). Attitude encompasses users' overall evaluations and feelings towards digital health technologies (Mouloudj et al. 2023), which can affect their willingness to engage with these technologies (Kim et al. 2023). Additionally, electronic word-of-mouth (eWOM) plays a crucial role in shaping users' perceptions and adoption intentions (Koo 2016; Ngo et al. 2024). eWOM refers to „the information and opinions shared by other users online, which can influence potential adopters' attitudes and decisions" (Cheung and Thadani 2012). In the digital age, where information is easily disseminated and accessed, eWOM can significantly impact users' trust and willingness to adopt new technologies (Akdim 2021; Kim et al. 2018; Zulkiffli et al. 2022).

This study aims to investigate how perceived usefulness, perceived ease of use, attitude, perceived value, and eWOM impact customers' intentions to adopt digital health services. By extending the TAM framework to include additional constructs, the research will provide a more comprehensive understanding of the factors that drive adoption in the digital health sector (Al-Sulimani and Bouaguel 2024; Zin et al. 2023). The findings will offer valuable insights for digital health service providers, policymakers, and technology developers seeking to enhance user engagement and improve the effectiveness of their services.

Understanding these factors is crucial for designing and implementing strategies that can effectively address barriers to adoption and leverage enablers (Almazroi et al. 2022; Tsai et al. 2019). For instance, if perceived usefulness is found to be a significant predictor of adoption, providers may focus on demonstrating the tangible benefits of their services to potential users. Similarly, if eWOM is identified as a key influence, strategies to encourage positive user reviews and manage online reputation may be prioritized. Accordingly, the primary objective of this study is to assess the effects of perceived usefulness, perceived ease of use, attitude, perceived value, and

eWOM on customers' intentions to adopt digital health services in the Algerian context. This research will contribute valuable insights into the factors that drive digital health adoption and provide actionable recommendations for enhancing the uptake of these services. By addressing these objectives, the study aims to advance both theoretical understanding and practical applications in the realm of digital health.

2 Literature review and research hypotheses ——— 2.1 Digital health services ——— Digital health technology involves utilizing information and communication tools, along with technological devices, to oversee and manage patient care through digital means; it includes, „record management systems, health monitoring systems, medical dispensing devices, prescribing systems, and other software that support and improve patient care process management“ (Edo et al. 2023, p. 1). The COVID-19 pandemic has significantly increased the demand for remote healthcare services (Goel et al. 2024; Katsaliaki 2024). According to Tsai et al. (2019), digital health can facilitate the creation of innovative healthcare services aimed at improving medical quality and efficiency. By centering the healthcare delivery process on customers, these services have the potential to provide tailored and more effective health solutions, contributing to a stronger and more resilient health system (Goel et al. 2024). Digital health technology offers a solution to numerous accessibility issues encountered by ethnic and racial minorities, rural areas, and economically disadvantaged groups (Ghaddar et al. 2020). In addition, it offers substantial advantages, such as enhanced quality of care, increased efficiency, and cost savings, particularly benefiting individuals with chronic conditions and the elderly (Al-Sulimani and Bouaguel 2024; Jokisch et al. 2022; Zin et al. 2023). Safi et al. (2019) suggest that widespread adoption of digital health apps could enhance personalized healthcare solutions and „warrants governance“. On the other hand, despite recent advancements in digital health services, major challenges persist, especially concerning customer acceptance and the adoption of digital health service systems (Zhou et al. 2019). In this context, Klaver et al. (2021) discovered that „performance risk“, „legal concern“, and „privacy risk“ were negatively associated with the willingness to adopt mHealth apps.

2.2 Developing hypotheses ——— 2.2.1 Perceived usefulness of digital health services ——— Perceived usefulness, a core component of the TAM, significantly influences users' intentions to adopt new technologies, including digital health technologies (Edo et al. 2023). This construct refers to „the degree to which a user believes that using a particular technology will enhance their job performance or improve their overall well-being“ (Mouloudj et al. 2023). In the context of digital health services, perceived usefulness encompasses the perceived benefits these services offer, such as improved access to healthcare, more accurate health monitoring, and enhanced convenience (Al-Sulimani and Bouaguel 2024). Research indicates that when individuals perceive digital health as beneficial to their health management and daily life, they are more likely to exhibit a positive intention toward adopting these technologies (Almazroi et al. 2022; Jokisch et al. 2022; Katsaliaki 2024; Tsai et al. 2019). For instance, if customers believe that digital health platforms can provide personalized health insights or streamline communication with healthcare providers, they are more inclined to integrate these tools into their routines (Zin et al. 2023). Kim et al. (2023) found that perceived usefulness of a „robotic health advisor“ positively affects customers' attitudes and their intentions to use this technology. Yuen et al. (2020) found that perceived value impacts customers' willingness to adopt telehealth. Ahmad et al. (2020) discovered that perceived usefulness affects „patients' continuance intention to use digital health wearables“. However, Bahanan and Alsharif (2023) found that perceived usefulness was not a significant predictor of customers' willingness to accept teledentistry. Building on these considerations, we put forward the following hypothesis:

| H1: Perceived usefulness of digital health services has a positive effect on customers' intentions to adopt digital health services.

2.2.2 Perceived ease of digital health services use ——— Perceived ease of use, a fundamental element of the TAM, plays a critical role in shaping customers' intentions to adopt digital health services (Mouloudj et al. 2023). This construct refers to „the extent to which a user believes that utilizing a technology will be free of effort or complexity“ (Davis, 1989). In the realm of digital health services, perceived ease of use encompasses the simplicity and user-friendliness of the interface, the clarity of instructions, and the overall accessibility of the service (Almazroi et al. 2022). When users find digital health platforms intuitive and easy to navigate, they are more likely to have a favorable attitude toward using these services (Zin et al. 2023). Research supports that ease of use directly influences attitude toward using „digital health services“ (Al-Sulimani and Bouaguel 2024; Zin et al. 2023), adoption intentions (Katsaliaki 2024; Zhou et al. 2019), and continuance intention (Ahmad et al. 2020). So, customers are more inclined to embrace digital health solutions if they perceive them as straightforward and hassle-free. For example, an app with a seamless on boarding process and minimal technical issues will likely attract more users. Abdelwahed et al. (2024) discovered that challenges in using digital health tools undermine both the attitudes towards and the intentions to embrace digital health services. However, Edo et al. (2023) found that perceived ease of use was not a significant predictor of health workers' willingness to adopt digital health technologies. A similar result was observed by Almazroi et al. (2022) and Bahanan and Alsharif (2023) in the context of adopting electronic health (e-health) services and teledentistry, respectively. Hence, we propose the following hypothesis:

| H2: Perceived ease of use of digital health services has a positive effect on customers' intentions to adopt digital health services.

2.2.3 Attitude toward adopt digital health services ——— Attitude toward adopting digital health services is a pivotal factor influencing customers' intentions to use these technologies. This construct reflects „an individual's overall evaluative judgment about digital health services, encompassing their positive or negative feelings and beliefs about these tools“ (Mouloudj et al. 2023). Customer attitudes toward digital health technology may improve with higher perceived usefulness and compatibility, while they may be adversely affected by transition costs (Tsai et al. 2019). A positive attitude is characterized by the perception that digital health services offer significant benefits, such as convenience, improved health management, and better communication with healthcare providers. When customers hold favorable attitudes and perceive these services as valuable and beneficial, their intention to adopt and use them increases (Al-Sulimani and Bouaguel 2024). Empirical studies suggest that individuals with positive attitudes and enthusiasm for the potential advantages of

digital health services – "such as improved accessibility to healthcare information or personalized health monitoring" are more likely to adopt these technologies (Ghaddar et al. 2020; Kim et al. 2023; Tsai et al. 2019; Zin et al. 2023). Conversely, negative attitudes, influenced by concerns over usability, privacy, or effectiveness, can hinder adoption. Consequently, the following hypothesis is proposed:

> H3: Attitude toward adopting digital health services has a positive effect on customers' intentions to adopt digital health services.

2.2.4 Electronic word-of-mouth (eWOM) ——— eWOM describes the continuous and evolving process of information sharing over the Internet among current, prospective, or past consumers about a „product, service, brand, or company" (Ismagilova et al. 2020). In digital health, eWOM refers to online reviews, ratings, and recommendations shared by users about their experiences with digital health services across various platforms, such as social media, forums, and review sites. Positive eWOM can enhance the credibility and attractiveness of services, such as digital health services, by providing prospective users with real-life testimonials and success stories (Akdim 2021). When individuals encounter favorable feedback and recommendations from trusted sources or peers, they are more likely to perceive the services as reliable and effective, thereby increasing their willingness to adopt them (Cheung and Thadani 2012; Kim et al. 2018; Koo 2016). Conversely, negative eWOM can deter potential users by highlighting possible shortcomings or issues. Jin and Ryu (2024) discovered that customers' attitudes and the quality of information are key factors in boosting customer satisfaction, promoting continued use, and enhancing eWOM for digital health service systems. Research supports that eWOM acts as a powerful social influence, impacting users' attitudes and intentions (Ismagilova et al. 2020; Ngo et al. 2024; Xiao et al. 2022; Zulkiffli et al. 2022) by leveraging the experiences of others. In the medical tourism sector, Abubakar and Ilkan (2016) discovered that eWOM has a positive impact on both customer trust and intention. Shan et al. (2024) suggest that in online health communities, patients' decision-making is positively influenced by both the volume and the quality of eWOM. As a result, it is hypothesized that:

> H4: eWOM has a positive effect on customers' intentions to adopt digital health services.

3 Research metholodogy ——— **3.1 Instrument development** ——— In this investigation, a self-administered questionnaire was employed to gather data from participants. The questionnaire was structured into two main sections. The first section collected demographic information, including respondents' age, age group, educational level, monthly income level, and marital status. The second section focused on evaluating the constructs of the study model (see Table 1). For measuring perceived usefulness of digital health services, an adapted scale from Tsai et al. (2019) was utilized. Perceived ease of use was assessed using the scale developed by Tsai et al. (2019) and Zhou et al. (2019). Attitudes towards behavior were measured with the scale proposed by Bouarar et al. (2023) and Mouloudj et al. (2023), while eWOM was gauged using Abubakar and Ilkan's (2016) scale. Customers' intentions to adopt digital health services were evaluated through a scale derived from Mouloudj et al. (2023) and Yuen et al. (2023). Each construct was measured with three items on a five-point Likert scale to capture the intensity of respondents' perceptions and intentions accurately.

To ensure the validity and reliability of the questionnaire, it was first developed in English and then translated into Arabic using a reverse translation method to maintain accuracy. Additionally, three marketing studies experts reviewed the questionnaire to confirm the relevance and clarity of the items. A pilot study involving 17 respondents was conducted to test the clarity of the questions and make necessary adjustments before the full-scale distribution of the questionnaire. This rigorous instrument development process aimed to ensure that the data collected would be both reliable and valid for analyzing the adoption of digital health services in Algeria.

Constructs and items	References
Perceived Usefulness (PU)	Tsai et al. (2019)
PU1. Utilizing digital health services increases my effectiveness by allowing me to access personal health data (such as „blood pressure and glucose levels").	
PU2. Digital health services can „enhance my overall quality of life".	
PU3. I consider digital health services to be beneficial to my daily life.	
Perceived Ease of Use (PE)	Tsai et al. (2019); Zhou et al. (2019)
PE1. Learning how to use digital health services is „easy for me".	
PE2. Digital health services are user-friendly.	
PE3. I find that digital health services offer flexible usage.	
Attitude toward adopt digital health services	Bouarar et al. (2023); Mouloudj et al. (2023)
AT1. I believe that adopting digital health services is a smart choice.	
AT2. I think the use of digital health services to be enjoyable.	
AT3. I think the adoption of digital health services positively.	
Electronic word-of-mouth (eWOM)	Abubakar and Ilkan (2016)
eWOM 1. I often read customer reviews of digital health services to understand the features that positively shape their impressions.	
eWOM 2. I often collect information from online reviews of digital health services to make informed decisions.	
eWOM 3. Reviews of digital health services from other customers enhance my confidence in choosing these services.	
Intentions to adopt digital health services (IN)	Mouloudj et al. (2023); Yuen et al. (2023)
IN1. I intend to utilize digital health services in the future.	
IN2. I am willing to adopt digital health services going forward.	
IN3. I predict that I will engage with digital health services in the future.	

TABLE 1: MEASUREMENT ITEM
SOURCE: AUTHORS

3.2 Sample and data collection ——— For this study, we employed a convenience (non-random) sampling method to gather data on the adoption of digital health services. A total of 200 questionnaires were distributed to respondents at several points

such as pharmacies, private clinics, and locations in front of public hospitals from May to July 2024. Out of these, 138 responses were collected. Six questionnaires were deemed invalid due to incomplete responses. Therefore, only 132 questionnaires were analyzed with a response rate of 66%. The data collection targeted individuals aged 18 and older, ensuring a diverse representation of potential digital health service users. The questionnaires were distributed in three cities: Medea, Algiers, and Blida, to capture a broad regional perspective. Participants were thoroughly informed about the study's objectives and their rights, including the option to decline participation or withdraw at any stage. The completion time for each questionnaire was approximately ten minutes, allowing respondents to provide thoughtful and considered answers. This approach aimed to ensure a reliable and representative sample while accommodating participants' convenience and privacy.

4 Research results and discussion —— **4.1 Descriptive statistics** —— Table 2 outlines the demographic details of the survey participants. The sample comprised 52.27% males and 47.73% females. The largest age group was 31 to 40 years old, making up 31.06% of the respondents, followed by those aged 41 to 50 years at 28.79%. Respondents aged 51 and older and those between 18 and 30 years constituted 22.73% and 17.42% of the sample, respectively. Regarding educational attainment, 50.76% had completed high school or less, 39.39% held a postgraduate degree, and 9.85% had completed a postgraduate degree. For monthly household income, 43.94% earned between 40,000 and 60,000 DZD, 32.57% earned less than 40,000 DZD, 12.88% earned between 60,000 and 80,000 DZD, and 10.61% had an income exceeding 80,000 DZD. Finally, regarding the marital status, 49.24% were married, 43.94% were single, and 6.82% were either divorced or widowed.

Characteristics	Frequency	(%)
Gender		
Male	69	52.27
Female	63	47.73
Age category (years)		
18 and 30	23	17.42
31-40	41	31.06
41-50	38	28.79
> 50	30	22.73
Education level		
High school or less	67	50.76
Undergrad degree	52	39.39
Postgrad degree	13	9.85
Monthly household income		
< 40000 ZDZ	43	32.57
40000-60000 ZDZ	58	43.94
60001-80000 ZDZ	17	12.88
> 80000 ZDZ	14	10.61
Marital status		
Single	58	43.94
Married	65	49.24
Others (Divorced or widowed)	9	6.82

TABLE 2: PARTICIPANTS' CHARACTERISTICS (N = 132)
SOURCE: AUTHORS

Mean scores and „standard deviations" (SDs) were computed for each construct (refer to Table 3). The analysis revealed that respondents had strong intentions to adopt digital health services (M = 3.87), high perceived usefulness (M = 3.59), substantial perceived ease of use (M = 3.75), favorable attitudes towards adopting digital health services (M = 3.31), and significant eWOM (M = 3.62). Cronbach's Alpha values varied from 0.870 (for intention) to 0.937 (for perceived usefulness), all surpassing the 0.7 threshold recommended by Hair et al. (2013).

Constructs	Mean	S.D.	Alpha	Skewness	Kurtosis
PU	3.59	0.67	0.937	-0.526	-0.027
PE	3.75	0.70	0.927	-1.051	0.689
AT	3.31	0.65	0.894	-0.633	0.246
eWOM	3.62	0.65	0.875	-0.955	0.757
IN	3.87	0.61	0.870	-1.301	1.907

Note: Perceived usefulness (PU), Perceived ease of use (PE), Attitude (AT), Electronic word of mouth (eWOM).
TABLE 3: MEAN, CRONBACH'S ALPHA, KURTOSIS, AND SKEWNESS
SOURCE: AUTHORS

To assess normality, skewness and kurtosis were calculated for each construct (see Table 3). Skewness values for all constructs were within ±2, and kurtosis values were within ±7, indicating that the normality condition was satisfied, allowing for multiple regression analysis (Mouloudj et al. 2013).

4.2 Hypotheses testing —— To evaluate multicollinearity, the „variance inflation factor" (VIF) and tolerance levels were computed (see Table 4). All VIFs were below the recommended maximum of 5, and tolerance exceeded the recommended minimum of 0.2 (Hair et al. 2013), suggesting no multicollinearity issues.

Model	B	t	Sig.	Tolerance	VIF
(constant)	0.592	2.815	0.006		
PU	0.162	2.675	0.008	0.576	1.736
PE	0.321	5.257	0.000	0.519	1.925
AT	0.255	3.633	0.000	0.454	2.204
eWOM	0.181	3.128	0.002	0.678	1.475
F = 67.844, sig 0.000, R^2= 0.681, Adjusted R^2=0.671					

TABLE 4: REGRESSION ANALYSIS FOR INTENTIONS TO ADOPT DIGITAL HEALTH SERVICES
SOURCE: AUTHORS

Table 4 summarizes the results of the extended TAM model, revealing that perceived usefulness (β = 0.161, p < 0.01), perceived ease of use (β = 0.321, p < 0.001), attitude (β = 0.255, p < 0.001), and eWOM (β = 0.181, p < 0.01) all have a positive and significant impact on customers' intentions to adopt digital health services. This supports hypotheses H1, H2, H3, and H4.

The R2 value for the extended TAM model was 0.671, which means that the four factors-perceived usefulness, perceived ease of use, attitudes, and eWOM – accounted for 67.10% of the variation in predicting customers' intentions to adopt digital health services. Moreover, perceived ease of use emerged as the strongest predictor of behavioral intentions, followed by positive attitudes towards the use of digital health services.

Extending the TAM proves highly feasible, as demonstrated by the results of the multiple regression analysis. The significant positive effects of all constructs on customers' intentions to adopt digital health services highlight the model's robustness when supplemented with additional constructs. Furthermore, the data show that attitudes and eWOM are the second and third most influential predictors, respectively, underscoring the extended model's effectiveness in capturing key antecedents of technology acceptance in digital health. The strong support for the hypotheses suggests that incorporating these constructs enhances the model's explanatory power in predicting customer adoption behaviors. This underscores the importance of expanding TAM with additional factors, making it a more comprehensive tool for investigating and predicting technology acceptance in digital health environments.

4.3 Discussion ——— The results indicate that perceived usefulness significantly influences customers' intentions to adopt digital health services in Algeria. This finding aligns with existing research on the TAM, which consistently highlights perceived usefulness as a crucial determinant of technology adoption. For instance, Davis's foundational studies (1989) and subsequent research by Venkatesh and Davis (2000) underscore that perceived usefulness drives users' acceptance and utilization of technology. In the context of digital health, the positive effect of perceived usefulness suggests that customers are more likely to adopt these services when they believe that the technology will enhance their health management or provide tangible benefits (Ahmad et al. 2020; Kim et al. 2023; Zin et al. 2023). Comparatively, this result corroborates similar findings in different geographic and cultural settings, such as the studies by Almazroi et al. (2022), Edo et al. (2023), Jokisch et al. (2022), Katsaliaki (2024), and Tsai et al. (2019), which demonstrate that perceived usefulness significantly impacts the adoption of health technologies. However, the specific context of Algeria introduces unique cultural and systemic factors that may further influence this relationship. For example, while perceived usefulness is a strong predictor universally, the level of perceived usefulness might be shaped by personal factors such as „privacy concerns and self-efficacy“ (Jokisch et al. 2022), and/or regional factors such as healthcare infrastructure, digital literacy, and local health needs. This suggests that while the core relationship between perceived usefulness and adoption intention remains robust, local contextual factors may modulate its impact. In addition, this relationship suggests that enhancing the perceived usefulness of digital health services can effectively drive higher adoption rates, making it a crucial focus for developers and healthcare providers aiming to encourage widespread use of digital health innovations.

Moreover, the findings demonstrate that perceived ease of use positively impacts customers' intentions to adopt digital health services in Algeria. This supports the TAM, where perceived ease of use is recognized as a significant predictor of technology acceptance. According to Davis (1989) and Venkatesh and Bala (2008), ease of use contributes to a user's willingness to embrace new technologies, as it lowers the perceived effort and complexity associated with their use. This result is consistent with prior studies that highlight the importance of perceived ease of use in technology adoption and intention to continue using it (Ahmad et al. 2020). For instance, research by Katsaliaki (2024) and Zhou et al. (2019) demonstrates that when customers find technology easy to use, their likelihood of adoption increases. In the context of digital health services in Algeria, this finding suggests that customers are more inclined to adopt these services if they perceive them as user-friendly and straightforward to navigate (Mouloudj et al. 2023). However, the impact of perceived ease of use might be influenced by Algeria's specific socio-cultural and technological environment. Compared to more technologically advanced regions, users in Algeria might place a higher value on ease of use due to varying levels of digital literacy and access to technology. This highlights the necessity of designing digital health services that are intuitive and accessible, particularly in regions with diverse levels of technological familiarity. In this context, by focusing on enhancing the ease of use, developers can reduce user resistance and facilitate higher adoption rates, ultimately contributing to the broader acceptance of digital health technologies.

In addition, the findings indicate that attitude toward adoption has a positive effect on customers' intentions to adopt digital health services in Algeria. This result reinforces the extended TAM, which incorporates attitude as a critical mediator between perceived attributes of technology and actual adoption behavior (Davis 1989). The positive relationship between attitude and adoption intentions is consistent with the work of Bouarar et al. (2023), who assert that attitudes shape behavioral intentions by „reflecting an individual's favorable or unfavorable evaluation of a behavior“. This finding also aligns with studies such as those by Al-Sulimani and Bouaguel (2024), Ghaddar et al. (2020), Kim et al. (2023), Tsai et al. (2019), and Zin et al. (2023), which highlight that a positive attitude towards technology is a significant predictor of adoption. Ghaddar et al. (2020) emphasize that increasing awareness of digital health technology and enhancing eHealth literacy are crucial for cultivating favorable attitudes towards telehealth and boosting its adoption. In the Algerian context, where digital health services are relatively new, a favorable attitude likely plays a crucial role in overcoming initial resistance and fostering acceptance (Mouloudj et al. 2023). This suggests that efforts to improve the public perception of digital health services-through awareness campaigns, positive user experiences, and demonstrating benefits-could enhance overall adoption rates. However, this effect might vary depending on cultural and social factors unique to Algeria. For example, societal attitudes toward technology and healthcare might influence how attitudes towards digital health services are formed. Understanding these contextual factors can provide deeper insights into how attitudes towards adoption are shaped in specific regions. Safi et al. (2019) suggest that understanding potential users' attitudes toward these technologies is crucial for their eventual success in the market. In this context, by fostering a positive attitude through clear communication of benefits and addressing potential concerns, stakeholders can enhance users' willingness to in-

tegrate digital health services into their lives, thereby promoting wider acceptance and utilization of these innovative tools.

Lastly, the findings reveal that eWOM has a positive effect on customers' intentions to adopt digital health services in Algeria. This outcome highlights the significant role of social influence and online recommendations in shaping adoption behaviors (Akdim 2021; Ngo et al. 2024; Zulkiffli et al. 2022), aligning with established research on the impact of eWOM in technology adoption. Studies such as those by Cheung and Thadani (2012), Ismagilova et al. (2020), Kim et al. (2018), and Xiao et al. (2022) demonstrate that eWOM can effectively enhance customers' perceptions of technology by providing credible, user-generated information that influences attitudes and behaviors. In the context of digital health services in Algeria, the positive influence of eWOM suggests that recommendations, reviews, and shared experiences on digital platforms significantly affect potential users' intentions to adopt these services. This is particularly relevant in a market where direct experiences with the technology might be limited, and individuals often rely on peer opinions and online reviews to gauge its effectiveness and reliability. Comparatively, while the role of eWOM is well-documented globally (Abubakar and Ilkan 2016), its impact in Algeria might be influenced by the local digital landscape and social media usage patterns. Given the increasing penetration of internet access and social media in Algeria, eWOM could be a powerful tool for spreading information and fostering trust in digital health services. However, the effect of eWOM might also be moderated by factors such as the message credibility (Koo 2016); as well as review popularity and reviewer reputation on social networking sites (Shan et al. 2024).

5 Conclusion ——— This study highlights the essential factors influencing customers' intentions to adopt digital health services in Algeria, revealing that perceived usefulness, perceived ease of use, attitude, and eWOM all significantly impact adoption intentions. The results underscore the importance of enhancing the perceived benefits and user-friendliness of digital health services, as well as cultivating positive attitudes and demonstrating clear value to drive adoption. Additionally, eWOM emerges as a crucial element, indicating that user experiences and recommendations are significant in shaping the perceptions of potential adopters. From a theoretical perspective, this study extends the TAM by integrating eWOM into the adoption framework for digital health services. By doing so, it provides a more comprehensive understanding of the factors that influence adoption intentions in this specific context. Practically, the findings offer valuable implications for digital health service providers, policymakers, and technology developers. Service providers can leverage these insights to enhance their offerings by focusing on improving the perceived usefulness and ease of use of their digital platforms. Additionally, fostering positive user attitudes and clearly demonstrating the value of digital health services can further drive adoption. Given the significant role of eWOM, providers should also consider strategies to encourage and manage positive user reviews and testimonials, as these can significantly influence potential users' perceptions. Policymakers and technology developers can use these findings to tailor their strategies and interventions, ensuring that digital health services meet the needs and expectations of the target population, thereby facilitating greater adoption and utilization.

5.1 Practical implications ——— For digital health service providers and policymakers in Algeria, the study offers several actionable insights. To enhance adoption rates, it is crucial to focus on improving the perceived usefulness and ease of use of digital health solutions. Providers should prioritize user-friendly designs and clearly communicate the tangible benefits of their services to potential users. Cultivating positive attitudes towards digital health through educational initiatives and user engagement can further support adoption. Additionally, leveraging eWOM by encouraging satisfied users to share their experiences and managing online reputations effectively can amplify positive perceptions and influence others. Policymakers can facilitate this process by developing supportive regulations and infrastructure to address barriers and promote the integration of digital health solutions.

5.2 Limitations and future research ——— While this study offers valuable insights into the factors influencing customers' intentions to adopt digital health services in Algeria, several limitations must be acknowledged. First, the sample size of 132 respondents may not fully capture the diversity of perspectives across different demographics and regions. As the sample is convenience-based, it may not be representative of the broader population, potentially limiting the generalizability of the findings. Second, the study focuses solely on perceptions related to usefulness, ease of use, attitude, and eWOM, without accounting for other potentially significant variables. Therefore, future research should consider incorporating additional variables such as customer confidence and prior experience with digital health services. These factors could provide a more comprehensive understanding of adoption intentions and potentially reveal new insights into user decision-making processes. Third, future research could delve into how contextual elements, such as healthcare infrastructure and socioeconomic conditions, interact with perceived usefulness and ease of use to influence the adoption of digital health services. Understanding these interactions could provide deeper insights into how contextual factors shape user perceptions and decisions. Fourth, future studies should examine how cultural perceptions and societal norms impact attitudes toward digital health services. By understanding these influences, researchers can better grasp how cultural factors shape adoption intentions and identify strategies to address potential cultural barriers. Lastly, further exploration of different dimensions of eWOM, such as source credibility and content quality, could reveal how these aspects affect adoption intentions in the digital healthcare context. This research could help identify which eWOM characteristics are most influential in shaping user attitudes and behaviors.

Literatúra | *List of References* ——— [1] Abdelwahed, N. A. A., Al Doghan, M. A., Saraih, U. N. and Soomro, B. A., 2024. Digital technology and intentions to adopt digital e-health practices among health-care professionals. In: International Journal of Human Rights in Healthcare. 2024, ahead-of-print. ISSN 2056-4902. Available at:<https://doi.org/10.1108/IJHRH-08-2023-0073> | [2] Abubakar, A. M. and Ilkan, M., 2016. Impact of online WOM on destination trust and intention to travel: A medical tourism perspective. In: Journal of Destination Marketing & Management. 2016, 5(3), 192-201. ISSN 2212-5752. Available at: <https://doi.org/10.1016/j.jdmm.2015.12.005> | [3] Ahmad, A., Rasul, T., Yousaf, A. and Zaman, U., 2020. Understanding factors influencing elderly diabetic patients' continuance intention to use digital health wearables: extending the technology acceptance model (TAM). In: Journal of Open Innovation: Technology, Market, and Complexity.

2020, 6(3), 81. ISSN 2199-8531. Available at: <https://doi.org/10.3390/joitmc6030081> | [4] Akdim, K., 2021. The influence of eWOM. Analyzing its characteristics and consequences, and future research lines. In: Spanish Journal of Marketing – ESIC. 2021, 25(2), 239-259. ISSN 2386-3897. Available at: <https://doi.org/10.1108/SJME-10-2020-0186> | [5] Almazroi, A. A., Mohammed, F., Al-Kumaim, N. H. and Hoque, M. R., 2022. An empirical study of factors influencing e-health services adoption among public in Saudi Arabia. In: Health Informatics Journal. 2022, 28(2), 1-16. ISSN 1741-2811. Available at: <https://doi.org/10.1177/14604582221102316> | [6] Al-Sulimani, T. S. and Bouaguel, W., 2024. Understanding factors influencing diabetic patients' intention to use digital health services in Saudi Arabia using the technology acceptance model. In: International Journal of Environmental Research and Public Health. 2024, 21(7), 889. ISSN 1660-4601. Available at: <https://doi.org/10.3390/ijerph21070889> | [7] Bahanan, L. and Alsharif, M., 2023. Factors affecting the acceptance of teledentistry determined using the technology acceptance model: A cross-sectional study. In: Digital Health. 2023, 9, 1-10. ISSN 2055-2076. Available at: <https://doi.org/10.1177/20552076231158034> | [8] Bouarar, A. C., Mouloudj, S., Umar, T. P. and Mouloudj, K., 2023. Antecedents of physicians' intentions to engage in digital volunteering work: an extended technology acceptance model (TAM) approach. In: Journal of Integrated Care. 2023, 31(4), 285-299. ISSN 1476-9018. Available at: <https://doi.org/10.1108/JICA-03-2023-0017> | [9] Cheung, C. M. and Thadani, D. R., 2012. The impact of electronic word-of-mouth communication: A literature analysis and integrative model. In: Decision Support Systems. 2012, 54(1), 461-470. ISSN 1873-5797. Available at: <https://doi.org/10.1016/j.dss.2012.06.008> | [10] Davis, F. D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. In: MIS Quarterly. 1989, 13(3), 319-340. ISSN 2162-9730. Available at: <https://doi.org/10.2307/249008> | [11] Edo, O. C., Ang, D., Etu, E. E., Tenebe, I., Edo, S. and Diekola, O. A., 2023. Why do healthcare workers adopt digital health technologies-A cross-sectional study integrating the TAM and UTAUT model in a developing economy. In: International Journal of Information Management Data Insights. 2023, 3(2), 100186. ISSN 2667-0968. Available at: <https://doi.org/10.1016/j.jjimei.2023.100186> | [12] Ghaddar, S., Vatcheva, K. P., Alvarado, S. G. and Mykyta, L., 2020. Understanding the intention to use telehealth services in underserved Hispanic border communities: Cross-sectional study. In: Journal of Medical Internet Research. 2020, 22(9), e21012. ISSN 1438-8871. Available at: <https://doi.org/10.2196/21012> | [13] Goel, A., Singh, A., Taneja, U. and Jain, S., 2024. Consumer adoption of digital health services: A systematic literature review and research agenda. In: International Journal of Consumer Studies. 2024, 48(4), e13070. ISSN 1470-6423. Available at: <https://doi.org/10.1111/ijcs.13070> | [14] Hair, J. F., Hult, G. T. M., Ringle, C. and Sarstedt, M., 2013. A primer on partial least squares structural equation modeling (PLS-SEM). Thousand Oaks, CA: Sage Publications, 2013. ISBN 978-1452217444. | [15] Ismagilova, E., Slade, E. L., Rana, N. P. and Dwivedi, Y. K., 2020. The effect of electronic word of mouth communications on intention to buy: A meta-analysis. In: Information Systems Frontiers. 2020, 22, 1203-1226. ISSN 1572-9419. Available at: <https://doi.org/10.1007/s10796-019-09924-y> | [16] Jin, J. and Ryu, M. H., 2024. Sustainable healthcare in China: Analysis of user satisfaction, reuse intention, and electronic word-of-mouth for online health service platforms. In: Sustainability. 2024, 16(17), 7584. ISSN 2071-1050. Available at: <https://doi.org/10.3390/su16177584> | [17] Jokisch, M. R., Schmidt, L. I. and Doh, M., 2022. Acceptance of digital health services among older adults: Findings on perceived usefulness, self-efficacy, privacy concerns, ICT knowledge, and support seeking. In: Frontiers in Public Health. 2022, 10, 1073756. ISSN 2296-2565. Available at: <https://doi.org/10.3389/fpubh.2022.1073756> | [18] Katsaliaki, K., 2024. Factors influencing use of eHealth services during and after the COVID-19 pandemic. In: Health Services Management Research. 2024. ISSN 1758-1044. Available at: <https://doi.org/10.1177/09514848241275777> | [19] Kim, J., Merrill Jr, K., Xu, K. and Collins, C., 2023. My health advisor is a robot: Understanding intentions to adopt a robotic health advisor. In: International Journal of Human-Computer Interaction. 2023, 40(19), 1-10. ISSN 1532-7590. Available at: <https://doi.org/10.1080/10447318.2023.2239559> | [20] Kim, S., Kandampully, J. and Bilgihan, A., 2018. The influence of eWOM communications: An application of online social network framework. In: Computers in Human Behavior. 2018, 80, 243-254. ISSN 1873-7692. Available at: <https://doi.org/10.1016/j.chb.2017.11.015> | [21] Klaver, N. S., Van de Klundert, J. and Askari, M., 2021. Relationship between perceived risks of using mHealth applications and the intention to use them among older adults in the Netherlands: cross-sectional study. In: JMIR mHealth and uHealth. 2021, 9(8), e26845. ISSN 2291-5222. Available at: <https://doi.org/10.2196/26845> | [22] Koo, D. M., 2016. Impact of tie strength and experience on the effectiveness of online service recommendations. In: Electronic Commerce Research and Applications. 2016, 15, 38-51. ISSN 1873-7846. Available at: <https://doi.org/10.1016/j.elerap.2015.12.002> | [23]

Mouloudj, K., Bouarar, A. C., Asanza, D. M., Saadaoui, L., Mouloudj, S., Njoku, A. U., Evans, M. A. and Bouarar, A., 2023. Factors influencing the adoption of digital health apps: An extended technology acceptance model (TAM). In: Bouarar, A., Mouloudj, K. and Asanza, D. M. (Eds.), 2023. Integrating digital health strategies for effective administration. 2023, 116-132. ISBN 9781668483381. Available at: <https://doi.org/10.4018/978-1-6684-8337-4.ch007> | [24] Ngo, T. T. A., Bui, C. T., Chau, H. K. L. and Tran, N. P. N., 2024. Electronic word-of-mouth (eWOM) on social networking sites (SNS): Roles of information credibility in shaping online purchase intention. In: Heliyon. 2024, 10(11), e32168. ISSN 2405-8440. Available at: <https://doi.org/10.1016/j.heliyon.2024.e32168> | [25] Safi, S., Danzer, G. and Schmailzl, K. J., 2019. Empirical research on acceptance of digital technologies in medicine among patients and healthy users: questionnaire study. In: JMIR Human Factors. 2019, 6(4), e13472. ISSN 2292-9495. Available at: <https://doi.org/10.2196/13472> | [26] Tsai, J. M., Cheng, M. J., Tsai, H. H., Hung, S. W. and Chen, Y. L., 2019. Acceptance and resistance of telehealth: The perspective of dual-factor concepts in technology adoption. In: International Journal of Information Management. 2019, 49, 34-44. ISSN 1873-4707. Available at: <https://doi.org/10.1016/j.ijinfomgt.2019.03.003> | [27] Shan, W., Wang, J., Shi, X. and Evans, R. D., 2024. The impact of electronic word-of-mouth on patients' choices in online health communities: A cross-media perspective. In: Journal of Business Research. 2024, 173, 114404. ISSN 1873-7978. Available at: <https://doi.org/10.1016/j.jbusres.2023.114404> | [28] Venkatesh, V. and Bala, H., 2008. Technology acceptance model 3 and a research agenda on interventions. In: Decision Sciences. 2008, 39(2), 273-315. ISSN 1540-5915. Available at: <https://doi.org/10.1111/j.1540-5915.2008.00192.x> | [29] Venkatesh, V. and Davis, F. D., 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. In: Management science. 2000, 46(2), 186-204. ISSN 1526-5501. Available at: <https://doi.org/10.1287/mnsc.46.2.186.11926> | [30] Xiao, L., Luo, L. and Ke, T., 2022. The influence of eWOM information structures on consumers' purchase intentions. In: Electronic Commerce Research. 2022, 24, 1713-1735. ISSN 1572-9362. Available at: <https://doi.org/10.1007/s10660-022-09576-2> | [31] Yuen, K. F., Chua, J. Y., Li, X. and Wang, X., 2023. The determinants of users' intention to adopt telehealth: health belief, perceived value and self-determination perspectives. In: Journal of Retailing and Consumer Services. 2023, 73, 103346. ISSN 1873-1384. Available at: <https://doi.org/10.1016/j.jretconser.2023.103346> | [32] Zhou, M., Zhao, L., Kong, N., Campy, K. S., Qu, S. and Wang, S., 2019. Factors influencing behavior intentions to telehealth by Chinese elderly: An extended TAM model. In: International Journal of Medical Informatics. 2019, 126, 118-127. ISSN 1872-8243. Available at: <https://doi.org/10.1016/j.ijmedinf.2019.04.001> | [33] Zin, K. S. L. T., Kim, S., Kim, H. S. and Feyissa, I. F., 2023. A study on technology acceptance of digital healthcare among older Korean adults using extended TAM (Extended technology acceptance model). In: Administrative Sciences. 2023, 13(2), 42. ISSN 2076-3387. Available at: <https://doi.org/10.3390/admsci13020042> | [34] Zulkiffli, W. F. W., Zainuddin, S. A., Anuar, N. I. M., Said, N. M., Muhammad, M. Z. B., Hashim, H., 2022. The influence of electronic word-of-mouth communication on consumer purchase intention. In: Alareeni, B., Hamdan, A. (Eds.), 2022. Financial technology (FinTech), entrepreneurship, and business development., 486, 957-968. Cham: Springer International Publishing. 2022. ISBN 978-3-031-08086-9. Available at: <https://doi.org/10.1007/978-3-031-08087-6_66>

Kľúčové slová | Key Words ——— technology adoption, digital health, digital marketing, electronic word-of-mouth, Algeria | *prijatie technológií, digitálne zdravie, digitálny marketing, elektronické ústne podanie, Alžírsko*

JEL klasifikácia | *JEL Classification* ——— I15, M31

Résumé ——— ***Zámery zákazníkov prijať digitálne zdravotnícke služby: Rozšírený TAM***

Táto štúdia skúma faktory ovplyvňujúce zámery zákazníkov prijať digitálne zdravotnícke služby v Alžírsku so zameraním na rozšírený model akceptácie technológií (TAM). Vzhľadom na rastúci význam digitálnych zdravotníckych riešení pri zvyšovaní dostupnosti a efektívnosti zdravotnej starostlivosti je kľúčové pochopenie determinantov prijatia. Na základe pohodlnej vzorky 132 respondentov a 18-položkového dotazníka sa vo výskume využíva viacnásobná regresná analýza na preskúmanie vplyvu vnímanej užitočnosti, vnímanej jednoduchosti používania, postoja a elektronického ústneho podania (eWOM) na zámery prijatia. Zo zistení vyplýva, že všetky štyri faktory významne ovplyvňujú zámery zákazníkov prijať digitálne zdravotnícke služby. Konkrétne, vnímaná užitočnosť a vysoká vnímaná jednoduchosť používania spolu s pozitívnymi postojmi a priaznivými eWOM sú rozhodujúce pri for-

TEXT | MERIEM MECHTA, KAMEL MOULOUDJ, AHMED CHEMSEDDINE BOUARAR, LIUDMILA BOVSH, ALLA RASULOVA

movaní rozhodnutí o prijatí. Táto štúdia prispieva k literatúre tým, že poskytuje empirické dôkazy o faktoroch, ktoré podmieňujú prijatie digitálneho zdravotníctva v alžírskom kontexte a ponúka cenné poznatky pre tvorcov politík a poskytovateľov služieb na zlepšenie stratégií digitálneho zdravotníctva a účinné riešenie prekonávania prekážok.

Kontakt na autorov | *Address* ——— Meriem Mechta, Doctorate, University Yahia Fares of Medea, Pole Urban 26000, Algeria, e-mail: meriemmechtabba@gmail.com
Kamel Mouloudj, Professor, University Yahia Fares of Medea, Ain dhab, Zerouak, Medea 26000, Algeria, e-mail: kmouloudj@yahoo.fr
Ahmed Chemseddine Bouarar, Professor, University Yahia Fares of Medea, Ain El Merdj, Medea 26000, Algeria, e-mail: shemseddine26000@gmail.com
Liudmila Bovsh, Associate Professor, State University of Trade and Economics, 19 Kyoto St., 02156 Kyiv, Ukraine, e-mail: lbovsh@ukr.net
Alla Rasulova, Associate Professor, State University of Trade and Economics, 19 Kyoto St., 02156 Kyiv, Ukraine, e-mail: alla_rasulova@ukr.net

Recenzované | *Reviewed* ——— 10. November 2024 / 15. November 2024

TEXT | KARINA BURGDORFF PORSBORG JENSEN, CAMILLA VALBAK-ANDERSEN, LARS FUNCK KRISTENSEN

DOI: https://doi.org/10.46286/msi.2024.19.4.2

CO-CREATING SALES MANAGEMENT CURRICULA WITH PRACTITIONERS – INSIGHTS ON COMPETENCIES FOR FUTURE SALES MANAGERS. PART I.

The dynamic field of sales is experiencing a transformation, necessitating a nuanced approach to sales management education. Sales managers must adeptly navigate operational and leadership challenges in a landscape marked by advanced technology, evolving generational expectations, and seismic geopolitical shifts. This research employs an exploratory workshop methodology to identify the core competencies required of future sales managers, aiming to bridge the gap between academic rigor and industry relevance. Through the engagement of 20 industry professionals, the study delves into comprehending the multifaceted role of sales managers, who are often catapulted from successful sales roles into managerial positions without pertinent leadership training. The findings underscore the necessity for a curriculum that harmonizes practical skill sets with theoretical groundwork while prioritizing personal traits such as ethical conduct and resilience. The study recognizes the challenges posed by globalization, compliance demands, and generational diversity in the workforce, revealing that while market understanding and customer insights remain vital, the effective management of internal and external environmental changes is crucial for future-oriented sales leadership. The proposed curriculum, derived from workshop insights, reflects a synthesized perspective tailored to contemporary sales management exigencies with direct implications for the industry. Limitations due to the focus group size and geographic scope signal the need for more extensive research, including diverse stakeholder viewpoints, to enrich the education paradigm for aspiring sales leaders.

1 Introduction ——— In recent years, there has been a growing recognition of the importance of co-creating curricula with practitioners in higher education and training. This recognition is rooted in the understanding that practitioners possess valuable industry knowledge and expertise that can significantly enhance the relevance and effectiveness of educational programs (Zhang and Jin 2010). Moreover, involving practitioners in curriculum development fosters a collaborative approach, where academia and industry join forces to bridge the gap between theory and practice (Taylor and Bovill 2017). By collaborating with practitioners, educators can ensure that the curriculum aligns with the current industry demands and equips students with the necessary competencies and skills required to succeed in sales management (Bridgstock et al. 2019). When building new curricula, it is crucial to identify the specific competencies and skills required in the sales industry. To do

so, it can be meaningful to include practitioners in the process of determining what competencies are needed for future graduates. Therefore, the collaborative nature of co-creating curricula with practitioners is essential to address this gap and better prepare students for careers in sales management. Studies supported by both practitioner and academic sources identify major gaps between practice and curricula in higher education (Spiller et al. 2019; Vriens et al. 2019).

As the business-to-business environment has progressively changed within the past decade, this requires updating sales curricula in the European educational system to sufficiently accommodate new skills and competencies in selling and sales management (Nielson et al. 2021; Spiller et al. 2020). Changes in the B2B environment occur inside sales organizations and in customer relations; external changes include changes in buying patterns and purchasing behavior (Cuevas 2018). In addition, internal changes include the rapid acceleration of technology (Bongers et al. 2021) and changes to the workforce, like an increased focus on wellbeing (Dugan et al. 2023). These changes have forged a series of changes to the role of salespeople (Bongers et al. 2021). As roles and tasks for salespeople are changing, so are those of sales managers. This poses challenges to the educational system, in which the salespeople and sales managers of the future are to be educated.

Traditional sales management courses might include teaching elements such as „Sales effectiveness“ (Cravens 2012), Training and Rewards (Johnston 2012), „Structuring the sales force“ (Zoltners et al. 2012b), „Designing sales territories“ (Zoltners et al. 2012a), „Salesperson behavior and motivation“, „Salesperson performance and recruitment“ (Johnston and Marshall 2022), and while these are still relevant and essential elements of Sales Management practices, the role of a sales manager is evolving. New technologies such as AI tools can support many traditional sales management tasks (see, for instance, the Sales Tesch Landscape). This leaves the sales managers with new tasks, such as bridging the human-technology collaboration (Alavi and Habel 2021) and ensuring individual, organizational, and societal well-being (Dugan et al. 2023). To do this, future sales managers need different competencies. These new competencies needed are, e.g., technological capabilities such as data analytics or hybrid selling (Johnston and Marshall 2022). Other competencies might include negotiating in complex situations (Alavi and Habel 2021; Bages-Amat et al. 2020; Schäfer et al. 2023) and more. Reports from Gartner and Mckinsey (Bages-Amat et al. 2020; The future of sales in 2025: A Gartner trend insight report 2020) demonstrate the need for close collaborations with industry to ensure that educational curriculum is aligned with the needs and demands of the industry. From an educational perspective, this poses the relevant question of what to teach, what to include in sales curricula for future sales leaders, and how to include industry in curriculum development.

2 Sales curriculum development ——— Sales curriculums in higher education are routinely developed with input from industry professionals, including senior-level sales executives (Luthy 2007). The decision to pursue sales education is influenced by students' appreciation for creativity, people skills, and their interests and abilities (Allen 2014). However, there is a need for a more customer-oriented approach to sales education (Allen 2014). There is a call to expand sales education at universities and a need to understand sales programs' curriculum offerings and teaching practices (Spiller 2020) to better focus sales education programs on the needs of industry.

3 Co-creating curricula with practitioners ——— The concept of co-creating curricula, particularly in higher education, has gained traction recently (Bovill and Woolmer 2019; Taylor and Bovill 2018). This approach involves, for instance, students and academic staff working together to design and develop the curriculum to enhance the learning experience (Taylor and Bovill 2018). The success of this approach is contingent on the conceptualization of the curriculum and the position of the learner within it (Bovill and Woolmer 2019; Taylor and Bovill 2018), making the scoping of educational and didactic reflections essential to the development of new curricula. Despite the challenges, co-creating curricula have been found to align with several principles of good practice in undergraduate education (Taylor and Bovill 2018). Furthermore, integrating community partners in co-creation is beneficial, particularly in tourism pedagogy (Boluk et al. 2019; Miller et al. 2019). Several approaches have been presented to participants in the co-creation process, such as involving students (Bao et al. 2023; Hero and Lindfors 2019), parents (Schäfer et al. 2023), and industry partners (Shrivastava et al. 2022; Amante and Fernandes 2022). Amante and Fernandes present that higher education has adapted to the increasingly globalized and digital world by opening partnerships with local businesses beyond internships. This opening has clearly benefited stakeholders and even positively affected the national economy. While much of this research has focused on the co-creation of short-term learning, our goal was to co-create the entire curriculum for a part-time bachelor-level sales manager education, based on the idea that selling education is already in place at both bachelor (part-time) and master level (full time) (www.ufm.dk). However, specifically, sales management education is scarce, and due to the large number of sales managers, especially in SMEs, who often do not have formal education, the need for specialized sales management education for this demographic is evident. Since sales managers are already working, the program would have to be part-time to allow them to continue in their profession while acquiring the necessary skills and knowledge in sales management.

An often-perceived struggle with curriculum generation is the schism between academic rigor and industry relevance (Shrivastava et al. 2022). This should not be considered an either/or prospect. However, the aim is to give appropriate managerial backup and attention to participant fatigue, achieving a relevant curriculum while adhering to the rigor of taxonomy possible. In the case study, the co-creation process involves industry partners and points to several key factors that are instrumental in overcoming the rigor vs. relevance schism, such as support from senior management, the capability to recruit suitable industry partners, preparatory work to identify levels of industry involvement and strong relationships with executive champions in partner organizations. The case study presents a matrix that plots curriculum content on the two axes of Theoretical abstraction and Organizational relevance. This matrix allows for a systematic approach to balancing academic rigor and industry relevance in the cocreation of the curriculum (Bovill and Woolmer 2018).

In a 2007 study (Cone and Woodard 2007) focusing on real gains for PepsiCo and its customers, it was found that using different learning modalities, including blended learning and action learning, as well as learning through actual and relevant

practice, helped to develop business acumen and innovation skills for sales leaders. Arndt et al. (2014) present a study focusing on the industry relevance side of this argument by examining what a curriculum should include to lead to a performance benefit in the early stages of the student's sales career. The key findings are that a sales curriculum should include questioning and customer orientation skills. Moreover, while skills such as adaptive selling are critical, the study did not find an immediate performance benefit. Other papers, such as Pierce (2019), focus on the existing curricula offered by educational institutions and list suggestions on relevant topics to include. The study included a comprehensive survey regarding the inclusion of various sales-related topics. It found that the top reasons for this inclusion were the high demand from the industry for qualified salespeople and a positive employment outlook. The study's key findings are detailed as an extensive list of eight essential skills recommended to be incorporated into a sales curriculum. These skills are crucial for individuals looking to excel in sales, offering a valuable foundation for success in the competitive sales environment. By integrating these skills into training programs and educational curricula, aspiring sales professionals can enhance their abilities, adapt to market demands, and build a strong foundation for a successful career in sales. A similar focus on the actual career benefit of a sales education is taken by (Knight et al. 2022) in a study that investigates the preparedness of graduates of a sales education. While they found graduates to have confidence in and report benefits from their understanding of the sales process, they also found that graduates were less prepared to handle rejection and maintain perspective and confidence. In summary, research suggests that a comprehensive sales curriculum should include a combination of theoretical knowledge and technical skills and focus on industry relevance and curricula development.

4 Towards a new sales management bachelor program ——— In the Danish educational system, few programs offer dedicated sales education (www.ufm.dk). In part-time education, there are no existing programs for sales management. One nationally offered education offers a specialization in sales and marketing, but there is a need for a more comprehensive and specialized bachelor's degree program in sales management. This paper addresses this need by proposing co-creating a new sales management bachelor's degree program in collaboration with industry practitioners and educational institutions. The specific goal of this case was to investigate what to include in a new part-time bachelor's degree in Sales Management. We conducted a facilitated workshop with a co-creation process involving sales executives to achieve this goal. Through this collaborative approach, the workshop aimed to gather insights and input from industry practitioners regarding the knowledge, skills, and competencies that should be included in the curricula.

To ensure an inclusive curricular development process, a workshop was hosted with the collaboration of 20 seasoned professionals from the realm of sales management. This workshop aimed to amalgamate practical insights with academic perspectives, thereby shaping a robust curriculum for sales management education suitable for European higher education institutions. The workshop was meticulously designed to adhere to the following parameters:

| Duration: Allocated 1 hour and 45 minutes.

| Participants: Engaging approximately 20 distinguished sales leaders, trainers, supervisors, or CEOs who possess profound expertise in fostering sales capabilities (Table 2).
| Goal: To elucidate the competencies and practical wisdom essential for sales leaders' flourishing in the dynamic business landscape.

5 Methodology ——— This single case study is based on a collaborative workshop with industry practitioners. The workshop was advertised via Linkedin to potential interested parties in Denmark. An invitation was distributed via the local chamber of commerce. To incentivize practitioners to participate in the program, the workshop included three elements: 1) An update from sales researchers on current sales research results, 2) The collaborative facilitated co-creation session, and 3) a networking lunch.

Our research team, with extensive knowledge and a passion for sales management, was responsible for facilitating this workshop. Mindful of potential challenges, we made a conscious effort to avoid dominating the discussion. We aimed to create an environment where the depth of participant knowledge could enhance our collective understanding, ultimately optimizing the curriculum design process. Recognizing this, we commissioned an external facilitator to facilitate the workshop. This decision was informed by the need to cultivate unimpeded dialogue amongst the expert attendees. Drawing inspiration from prominent theorists such as Karl E. Weick and Frank J. Barrett, we envisaged the workshop as an improvisational 'jam session.' This approach was intended to steer the contributors towards a collaborative gestation of insights, exploiting their advanced practitioner sagacity and aptitude for creativity and intuition in fostering new paradigms of understanding (Weick 1995; Barrett 2012).

The interplay between tacit knowledge and explicit inquiry was integral to the workshop's success. The facilitator, a novice in sales, instantiated a beginner-expert dynamic, which necessitated her to elicit participants' expert responses through objective probing, thereby allowing their nuanced experiences to enrich our academic inquiries. This paradigm, drawing on the scholarly work of authors such as Nonaka & Takeuchi, and Polanyi, valorizes the implicit knowledge that practitioners possess, which often remains unarticulated but is critical to expertise (Nonaka 1994; Nonaka and Takeuchi 1995; Polanyi 1967).

Establishing a small structure is also present in the process through which participants shape their improvisation. The facilitator made a short slideshow with four slides, each with a selected theme:

| A good sales leader.
| Most essential challenges for sales leaders today.
| Focus when developing leadership talent.
| Preferred organizing of a sales leader education.

Each theme had two questions, one about the theme in general and one designed to unlock participants' practical experience and the sharing of concrete examples that could serve as deliberate initiatives to activate thinking and sensemaking (Weick 1995, p. 90-1). About the first theme, the questions looked like this: What is the most

essential characteristic of a good sales leader today? Describe an example of how you create value as a leader in your organization today. Instructions for the process were identical for each slide. Participants were to grab post-its and pens on the table, brainstorm the questions for 3-5 minutes, and then reveal their contributions to each other before engaging in explorative dialogue. After 10 minutes, the facilitator broke off the dialogue to gather the main points collectively and disrupt groupthink (Janis 1971). This was inspired by a process known as the „turn-and-learn", which is designed to counter socio-psychological processes that lead to cognitive bias, such as the „bandwagon effect," where we become uncritical of a statement because we think that everyone thinks this, or the „halo-effect, where we tend to agree with people of high status (Brown 2018). These processes are important as sensemaking and creative improvising depend on interruptions (Weick 1995). Giving participants questions and these instructions corresponds to giving jazz musicians a jazz standard, key, and tempo and asking them to perform. The key is to provide just enough structure to ensure that participants constitute a system but not so much that the system exceeds a loose coupling and overdetermination manifests (Weick 1998, p. 543). During participants' improvisation, it is key that the facilitator manages to balance interruptions when the energy and creativity lessen and guidance when divergence becomes too great and destroys participants' „sense of cohesion" (Antonovsky 1987). In this, the facilitator plays the band leader role, ensuring navigation and pressure of a „steady beat" (Berliner I Weick 1998, p. 543).

END OF PART I.

Literatúra | *List of References* ——— [1] Alavi, S. and Habel, J., 2021. The human side of digital transformation in sales: Review & future paths. In: Journal of Personal Selling and Sales Management. 2021, 41(2), 83-86. ISSN 0885-3134. Available at: <https://doi.org/10.1080/08853134.2021.1920969> | [2] Antonovsky, A., 1987. Unraveling the mystery of health: How people manage stress and stay well. San Francisco: Jossey-Bass, 1987. ISBN 1555420281. | [3] Bages-Amat, A., Harrison, L., Spillane, D. and Stanley, J., 2020. These eight charts show how COVID-19 has changed B2B sales forever. McKinsey, 2020. [online]. [cit. 2024-01-30]. Available at: <https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Marketing%20and%20Sales/Our%20Insights/These%20eight%20charts%20show%20how%20COVID%2019%20has%20changed%20B2B%20sales%20forever/These-eight-charts-show-how-COVID-19-has-changed-B2B-sales-forever.pdf?shouldIndex=false%20%20%20%20%20%20Why> | [4] Barrett, F. J., 2012. Yes to the mess: Surprising leadership lessons from jazz. Boston MA: Harvard Business Review Press, 2012. ISBN 9781422161104. | [5] Barrett, F. J., Peplowski, K., 1998. Minimal structures within a song: An analysis of „All of me". In: Organizational Science. 1998, 9(5), 558-560. ISSN 1526-5455. | [6] Boluk, K. A., Muldoon, M. L. and Johnson, C. W., 2019. Bringing a politics of hope to the tourism classroom: Exploring an integrated curriculum design through a creative and reflexive methodology. In: Journal of Teaching in Travel & Tourism. 2019, 19(1), 63-78. ISSN 1531-3239. Available at: <https://doi.org/10.1080/15313220.2018.1560532> | [7] Bongers, F. M., Schumann, J. H. and Schmitz, C., 2021. How digital sales channels affect salespeople in business-to-business contexts: A qualitative inquiry. In: Journal of Personal Selling & Sales Management. 2021, 41(2), 150-166. ISSN 0885-3134. Available at: <https://doi.org/10.1080/08853134.2021.1906260> | [8] Bovill, C. and Woolmer, C., 2019. How conceptualizations of the curriculum in higher education influence student-staff co-creation in and of the curriculum. In: Higher Education. 2019, 78(3), 407-422. ISSN 1573-174X. Available at: <https://doi.org/10.1007/s10734-018-0349-8> | [9] Brown, B., 2018. Dare to lead – brave work. Tough conversations. Whole hearts. Random House Publishing Group, 2018. ISBN 9780399592522. | [10] Cravens, D. W., 2012. Achieving sales organization effectiveness. In: The Oxford handbook of strategic sales and sales management. Oxford University Press, 2012, 77-121. ISBN 9780191724886. | [11] Dreyfus, H. L., 1992. What computers still cannot do: A critique of artificial reason. Cambridge M: MIT Press, 1992. ISBN 0262041340. | [12] Janis, I., 1971. Groupthink. In: Psychology today magazine. Ziff-Davis Publishing Company. | [13] Johnston, M. W., 2012. Training and rewards. In: The Oxford handbook of strategic sales and sales management. Oxford University Press, 2012, 224-252. ISBN 9780191724886. | [14] Johnston, M. W. and Marshall, G. W., 2022. Sales force management: Leadership, innovation, technology. New York, NY: Routledge, 2022. ISBN 978-0-367-68206-4. | [15] Miller, M. C., Boluk, K. and Johnson, C. W., 2019. 'Lift off!': Employing an integrated curriculum design to increase student, faculty, and community engagement. In: Journal of Hospitality, Leisure, Sport & Tourism Education. 2019, 25, 100203. ISSN 1473-8376. Available at: <https://doi.org/10.1016/j.jhlste.2019.100203> | [16] Nielson, B., Barberi-Weil, M. and Border, T., 2021. Sales education and philanthropy: The U.S. sales curriculum transcends boundaries and elevates employability and income levels in Latin America. In: Journal of Education for Business. 2021, 96(2), 120-126. ISSN 0883-2323. Available at: <https://doi.org/10.1080/08832323.2020.1751024> | [17] Schäfer, B., Caemmerer, B. and Fuchs, L. C., 2023. Crisis initiated changes in the business model of small and medium enterprises: An abstract. In: Developments in Marketing Science: Proceedings of the Academy of Marketing Science, Springer, 2023, 217-218. ISBN 978-3-031-24687-6. Available at: <https://doi.org/10.1007/978-3-031-24687-6_85> | [18] Spiller, L. D., Kim, D.-H. and Aitken, T., 2020. Sales education in the United States: Perspectives on curriculum and teaching practices. In: Journal of Marketing Education. 2020, 42(3), 217-232. ISSN 1552-6550. Available at: <https://doi.org/10.1177/0273475319852756> | [19] Taylor, C. A. and Bovill, C., 2018. Towards an ecology of participation: Process philosophy and co-creation of higher education curricula. In: European Educational Research Journal. 2018, 17(1), 112-128. ISSN 1474-9041. Available at: <https://doi.org/10.1177/1474904117704102> | [20] The Future of sales in 2025: A gartner trend insight report. 2020. [online]. [cit. 2024-01-30]. Available at: <https://www.gartner.com/en> | [21] Weick, K. E., 1995. Sensemaking in organizations. Thousand Oaks: Sage Publications, 1995. ISBN 9780803971769. | [22] Weick, K. E., 1998. Introductory essay: Improvisation as a mindset for organizational analysis. In: Organization Science. 1998, 9(5), 543-555. ISSN 1526-5455. | [23] Zoltners, A. A., Sinha, P. and Lorimer, S. E., 2012a. Sizing the sales force and designing sales territories for results. In: The Oxford handbook of strategic sales and sales management. Oxford University Press, 2012. ISBN 9780191724886. | [24] Zoltners, A. A., Sinha, P. and Lorimer, S. E., 2012b. We are structuring the sales force for customer and company success. In: The Oxford handbook of strategic sales and sales management. Oxford University Press, 2012, 131-173. ISBN 9780191724886.

Kľúčové slová | Key Words ——— sales management, competencies, management education, curriculum | *riadenie predaja, kompetencie, vzdelávanie manažérov, učebné osnovy*

JEL klasifikácia | *JEL Classification* ——— M12, M31

Résumé ——— ***Spoluvytváranie učebných osnov riadenia predaja s odborníkmi z praxe – poznatky o kompetenciách budúcich manažérov predaja. Časť I.***

Dynamická oblasť predaja prechádza transformáciou, ktorá si vyžaduje diferencovaný prístup k vzdelávaniu v oblasti riadenia predaja. Manažéri predaja sa musia obratne orientovať v prevádzkových a riadiacich výzvach v prostredí poznačenom pokročilými technológiami, vyvíjajúcimi sa generačnými očakávaniami a seizmickými geopolitickými zmenami. Tento výskum využíva metodiku prieskumného workshopu na identifikáciu kľúčových kompetencií požadovaných od budúcich manažérov predaja s cieľom preklenúť priepasť medzi akademickým opodstatnením a relevantnosťou pre priemysel. Prostredníctvom zapojenia 20 odborníkov z odvetvia sa štúdia zaoberá pochopením mnohostrannej úlohy manažérov predaja, ktorí sú často katapultovaní z úspešných pozícií predajcov do manažérskych pozícií bez relevantného vodcovského vzdelania. Zistenia zdôrazňujú potrebu učebných osnov, ktoré zosúlaďujú praktické zručnosti s teoretickými základmi a zároveň uprednostňujú osobnostné vlastnosti, ako je etické správanie a odolnosť. Štúdia pracuje s výzvami, ktoré predstavuje globalizácia, požiadavky na dodržiavanie predpisov a generačná rozmanitosť pracovnej sily, a odhaľuje, že hoci pochopenie trhu a prehľad o zákazníkoch zostávajú životne dôležité, pre vedenie predaja orientovaného na budúcnosť, je rozhodujúce efektívne riadenie zmien vnútorného a vonkajšieho prostredia. Navrhovaný učebný

TEXT | KARINA BURGDORFF PORSBORG JENSEN,
CAMILLA VALBAK-ANDERSEN, LARS FUNCK KRISTENSEN

plán, odvodený z poznatkov z workshopov, odráža syntetickú perspektívu prispôsobenú súčasným požiadavkám riadenia predaja s priamymi dôsledkami pre toto odvetvie. Obmedzenia vyplývajúce z veľkosti cieľovej skupiny a geografického rozsahu signalizujú potrebu rozsiahlejšieho výskumu, vrátane rôznych pohľadov zainteresovaných strán, s cieľom obohatiť paradigmu vzdelávania pre začínajúcich vedúcich pracovníkov v oblasti predaja.

Kontakt na autorov | *Address* ——— Karina Burgdorff Porsborg Jensen, University College of Northern Denmark, Sofiendalsvej 60, 9000 Aalborg, Denmark, e-mail: KBJE@ucn.dk
Camilla Valbak-Andersen, University College of Northern Denmark, Sofiendalsvej 60, 9000 Aalborg, Denmark, e-mail: CAV@ucn.dk
Lars Funck Kristensen, University College of Northern Denmark, Sofiendalsvej 60, 9000 Aalborg, Denmark, e-mail: LAFU@ucn.dk

Recenzované | *Reviewed* ——— 15. March 2024 / 30. March 2024

TEXT | STEFAN WENGLER, JOACHIM RIEDL, WOLFGANG
BICHLER-RIEDL, MARCIN CZABAN, SARAH VICTORIA MOHR

DOI: https://doi.org/10.46286/msi.2024.19.4.3

HYPOTHETICAL CONSTRUCTS OF CONSUMER BEHAVIOR AS PREDICTORS OF PRO-ENVIRONMENTAL BEHAVIOR. AN EMPIRICAL STUDY BASED ON SMARTPHONES.

Despite being a specific sustainable development goal (SDG), the role of consumers for sustainable consumption is still ambiguous. This is exemplified by a vast amount of research on the attitude-intention-behavior gap, which generally describes consumers' failures to behave as sustainable as theoretically predicted. Recent reviews have prompted further investigations beyond the existing literature on factors influencing this gap. We contribute to this call by quantitatively investigating five antagonistic dimensions – both intrapsychic and situation-related – of smartphone usage and sustainable consumer behavior in Germany (n=800). Our results indicate two novel concepts. Emotional connection – i.e., consumers' connections with the consumption experience – can either promote or prevent sustainable behavior, while exploration-driven consumerism – i.e., new purchases due to exploration tendencies – typically attenuates sustainable behavior. This illustrates how and when sustainability is outweighed by other consumer attitudes. We contextualize these results and conclude our study by highlighting limitations and further research opportunities.

1 Introduction ——— Sustainable consumption plays a profound role for achieving global sustainability, as exemplified by goal 12 of the Sustainable Development Goals of the United Nations (United Nations General Assembly 2015). However, the role of consumer behavior for achieving sustainable consumption is yet to be fully determined. One of the most prominent examples of the ambiguous role of consumers is how little sustainable purchase intentions translate to sustainable behavior; the so-called attitude-intention-behavior gap (e.g., Elhaffar et al. 2020; Park and Lin 2020; Conner and Norman 2022). Numerous scholars have highlighted how different factors such as intention strength (Conner and Norman 2022), product availability and perceptions of effectiveness (Nguyen et al. 2018), or subjective norms (Park and Lin 2020) impact the scope of this gap. Whether a sustainable transformation can be achieved on an individual level is thus still up for debate.

Nevertheless, despite a broad and mature body of literature on how to scale down the gap to hold consumers accountable for their impact, Elhaffar et al.'s (2020)

review has called for investigating further factors. Particularly, antagonistic dimensions (e.g., egoistic/hedonistic versus altruistic values) have been called into further investigation (Elhaffar et al. 2020, 10).

In this article, we thus aim to quantitatively scrutinize opposing effects to better understand factors that promote and prevent sustainable consumption. To achieve this, we chose smartphones as a consumer good in Germany as (1) smartphone use is widespread throughout the globalized world; (2) it's comparatively high price on the one hand, and technological advances on the other entail opposing incentives regarding the service life; and (3) we expect a high access to information of consumers, which is reinforced by the impact of technology for sustainable consumption.

We begin by briefly referring to the Theory of Planned Behavior (TPB; Aizen 1991), as it is arguably the most common and suitable lens (Yuriev et al. 2020). Subsequently, we present antagonistic, intrapsychic factors we deem influential and derive five core hypotheses based on the literature. After a brief outline of our methodology and sample, we highlight significant and non-significant findings and contextualize these within the TPB in our discussion. We conclude by carving out limitations and future research opportunities.

2 Theoretical framework ——— 2.1 Relation to the theory of planned behavior ——— Much research from different fields has investigated the role of the attitude-intention-behavior gap. We follow the fourfold conceptualization of Elhaffar et al. (2020, 4) into (1) „modelling the gap" by highlighting opposing factors; (2) „methodological bias" due to a lack of rigorous methods; (3) prioritizing the self over the environment; and (4) coping with the gap post decision-making. The factors investigated in our study fall into the intersection of modelling the gap and prioritizing the self over the environment. Both conceptualizations have provided numerous intriguing avenues for research while arguably overlapping. For instance, depending on personal identity and attitude, sustainable consumption can either be seen as something conflicting with other values (i.e., as an intrapsychic factor), or enhancing the self (i.e., a prioritization of the self) (Martenson 2018).

The theory of planned behavior (TPB; Aizen 1988, 1991, 2020) is commonly used to understand the interplay of intentions versus behavior (Yuriev et al. 2020). According to this theory, 1) the attitude towards the behavior, 2) the existing subjective norms and 3) the perceived control over one's own behavior lead to behavioral intentions, which in turn result in the individual's behavior. However, TPB has been heavily criticized in other fields of research (Hardemann et al. 2002; Sniehotta et al. 2014). We expand TPB to our specific case by replacing the dependent variable (behavior) with pro-environmental behavior. This allows the conceptual model to capture different sustainable behaviors such as upcycling, an extended period of usage, or voluntary nonconsumption (Li et al. 2019; Park and Li 2020, Santor et al. 2020; Weitensfelder et al. 2023). Further, we broaden „intention" to represent not only the intention for a sustainable usage of smartphones, but rather the more general intended usage. This expanded conceptualization allows us to better model the contemporary meaning of smartphones as roughly 80 percent of adults in Western societies use theirs regularly and for a wide variety of tasks (Olsen et al. 2022).

Some elements of the TPB remain unconsidered by us. Control over one's own behavior and potential outcomes is a central independent element of the TPB. For example, it may be that certain behavioral intentions (e.g. waste separation) cannot be practiced at all (e.g. in the absence of a separate public collection system). Similar to many other studies (cf. Sheeran 2020, 10), perceived behavioral control is not taken into account in our approach, as users definitely have control over our indicators for PEB (duration of use, repair attempts). Furthermore, in contrast to the TPB, we refrain from measuring social pressure and the resulting social norms. The extent to which there is a connection between the public discussion about the need for social reorientation and the norms of the individual would have to be examined in terms of learning theory, which is not the focus of our study.

2.2 Theoretical propositions ——— Empirical research has illustrated numerous problems in the assumption that intention translates to behavior (Sheeran and Webb 2016). We have thus adapted our model to represent an intention towards the product itself. Schifferstein/Zwartkruis-Pelgrim have proposed the concept of consumer-product attachment, which describes „the strength of the emotional bond a consumer experiences with a durable product" (Schifferstein/Zwartkruis-Pelgrim 2008, 1). Attachment is based on cognitive and emotional factors and influences distinct sustainability-related behaviors such as intentions to repair faulty parts, which in turn proliferates the service life of a product. We thus hypothesize that Attachment to a smartphone should influence pro-environmental behaviors regarding smartphone usage:

| H1: Higher personal attachment (PA) to a smartphone in turn results in consumer behavior aiming to proliferate the service life of that smartphone.

Furthermore, a rich body of literature has shown how specific personality traits shape buying behavior (Baumgartner 2002). Following this perspective, we chose exploratory buying behavior tendency (EBBT) as an antagonistic factor to PA. Baumgartner and Steenkamp (1996, 124) have defined EBBT as „those activities involved in the buying process (in the broadest sense) which are intrinsically motivated and whose primary purpose is to adjust actual stimulation obtained from the environment or through internal means to a satisfactory level". While PA may increase service lives of smartphones, EBBT predicts initial purchases of newly developed products at the expense of existing products. Typical conceptualizations focus on consumers' joy to investigate and try out new products. We thus hypothesize:
H2: Higher levels of EBBT result in more frequent purchases of smartphones and thus mitigates pro-environmental behavior.

The fact that there is widespread social pressure in western societies today to behave in an environmentally friendly and sustainable manner is a trivial finding (see e.g. Stankunie et al. 2020; De Canio et al. 2021). However, the question of whether this social pressure already influences consumers' intentions for a future PEB is relevant. In the TPB, behavior is the consequence of the interaction of the independent variables of the past, which have an effect on current behavior via a developed behavioral intention. However, especially in the case of consumer goods that are in use for a long time, such as smartphones, it is possible that actual intentions will only be reflected in future purchase acts. We are therefore not only interested in the connection between past intentions and behavior up to the present, but also in the extent to

which future behavioral intentions reveal a change compared to the behavior practiced to date. Due to the existing public pressure for environmentally oriented behavior, the more consumers have practiced non-environmentally oriented behavior in the past, the higher their tendency to change their behavior in the future should be. We therefore postulate:

- H3.1: Consumers intend to reduce the future service life of their smartphone.
- H3.2: The shorter the previous period of use of the smartphone, the greater the intention to extend the period until a new purchase in the future.

In addition to public pressure to behave in an environmentally friendly manner, there may also be subjective pressure from the individual to own a state-of-the-art appliance. It has long been known (cf. Packard 1960) that manufacturers use all kinds of measures to stimulate individuals' propensity to consume. One widespread measure is to create the impression of psychological obsolescence among consumers by frequently changing models in order to encourage them to buy new products. Psychological obsolescence occurs „when a product becomes less fashionable and unwanted due to newer trends... in the case of psychological obsolescence, the product is essentially fully functional" (Becher/Sibony 2021, 104).

In the case of „functional" or „absolute" obsolescence (Cooper 2003, 423), i.e. the presence of predominantly technical reasons (appliance defective, no longer fully operational), a new purchase is not an indicator of consumers' environmental orientation. But replacing a fully functional good solely due to its lack of trendiness or style indicates a deficient environmental consciousness in behavior.

The effect of this psychological obsolescence should be detectable in past consumer behavior as well as in future trends, we postulate accordingly:

- H4.1: The greater the influence of psychological obsolescence, the less pronounced is the environmentally friendly behavior of consumers with smartphones.
- H4.2: The greater the influence of psychological obsolescence, the less pronounced the tendency for consumers to behave in a more environmentally friendly way with their smartphones in the future.

In contrast, consumers who want to avoid the buying impulse from psychological obsolescence through conscious PEB will practice self-restraint in their consumption behavior:

- H5.1: The more consumers want to practice self-restraint in consumption, the more pronounced is their pro-environmental behavior with smartphones.
- H5.2: The more consumers want to practice self-restraint in consumption, the more pronounced the tendency towards environmentally friendly behavior with the smartphone in the future.

Figure 1 shows an overview of the key constructs of the present study, whereby it should be noted that we did not explicitly measure social norms.

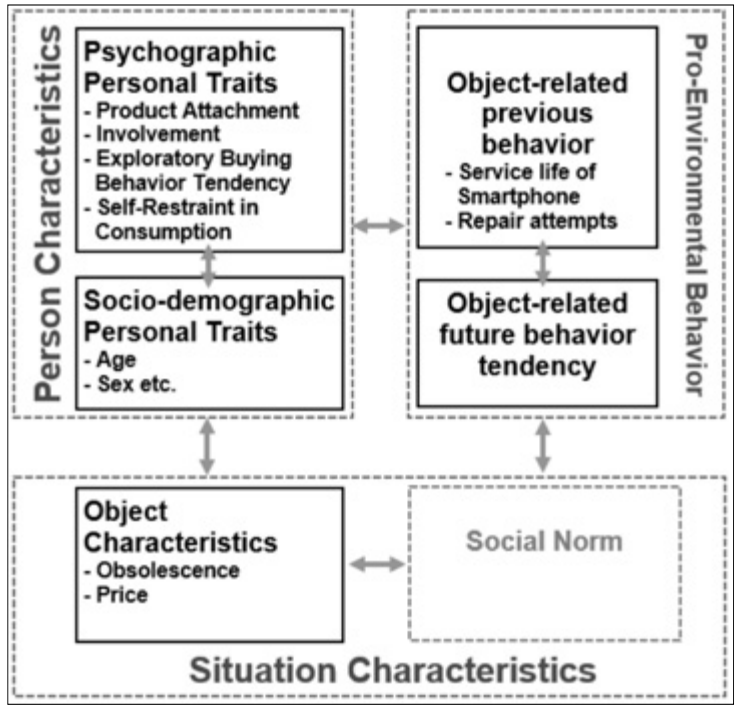

FIGURE 1: PRODUCT-RELATED PEB AS A DEPENDENT OF SELECTED PERSONAL AND SITUATIONAL CONSTRUCTS
SOURCE: AUTHORS

3 Empirical study —— **3.1 Research approach and design** —— A partially standardized approach was used to collect the relevant constructs. Open questions were used to determine whether and, if so, what experiences the respondents have had with prematurely defective products in the past three years and whether they had ever had something repaired on their smartphone. All other questions were surveyed quantitatively.

Pro-environmental behavior: We did not collect scales with opinions and judgments about what is desirable (see e.g. Santor et al. 2020; Wong et al. 2020), but wanted to measure PEB using the clearest possible behavioral indicators. As the main indicator for PEB, we use the service life of the smartphone, as a longer ownership cycle expresses a more sustainable behavior of consumers that is less harmful to the environment through waste. In response to the direct question „Can you please estimate how long you use a cell phone before you buy a new/another one?", a usage period could be specified by entering months and years.

Another aspect of the PEB is the willingness to repair things when necessary (Kaitala et al. 2021). In this regard, we asked whether, how often and, if so, what consumers had already had repaired on their smartphone. For a high-quality and expensive consumer good, it is to be expected that consumers will consider repairs for minor defects; at the same time, the number of repair attempts can be understood as a quantitative indicator of PEB.

The intention to purchase new items more frequently in the future, as a further indicator of PEB, could not be measured on an interval scale, as in preliminary studies the respondents were unable to name a specific time period. However, they were

able to name a behavioral tendency, so that a five-point ordinal index with the values (4=much more often, 3=somewhat more often, 2=just as often, 1=less often, 0=much less often) was used in the present study.

Psychological obsolescence: In a preliminary study, we had identified the five most important reasons for purchasing a new smartphone. In the main survey, respondents were asked how likely it was that they would change their device for these reasons. The items contain both functional and psychological reasons for obsolescence (see Table 2).

Self-restraint: In times of increasing awareness of sustainability in personal purchasing behavior, there is a widespread focus on the willingness to limit purchases to things that are really needed (Fuchs et al. 2021), i.e. a self-commitment to purchasing restraint (Weitensfelder et al. 2023). In connection with the TPB, the literature primarily attempts to describe and explain which factors contribute to the fact that environmentally oriented behavioral intentions are actually reflected in the concrete actions of individuals (Heeren et al. 2016; Yuriev et al. 2020) or which conditions and hindering factors lead to attitudes, intentions and concrete actions falling apart (Stankuniene et al. 2020; Graves et al. 2021). We do not intend to replicate this part of the research on sustainability (for summaries, see e.g. Yuriev et al. 2020; Weitensfelder et al. 2023). Occasionally, it is complained that the commitment to purchase restraint as an essential component of PBT has so far remained underexposed in the literature (Santor et al. 2020). Corresponding empirical measurement instruments are voluminous; for example, the consumption reduction questionnaire contains no fewer than 45 items, among them „various elements of consumption restriction behavior, including an individual's attitudes, expectations, and perceived ability, as well as intentions to restrict consumption and actual“ (ibid., 5). We harbor skepticism towards intricate scales. In addition to a solitary construct, supplementary variables typically necessitate collection, resulting in excessively lengthy questionnaires that strain the capacity and inclination of the general populace to furnish information. Hence, we employed a one-item measure, validated in preliminary studies for its predictive efficacy, encapsulating consumer behavior among subtarget groups with the statement: I only buy things that I really need.

In addition to the behavior-related measurements, the willingness to pay for the purchase of a new appliance was also surveyed (in Euros, open question).

Consumer-product attachment was measured with reference to the consumer-product attachment questionnaire by Schifferstein/Zwartkruis-Pelgrim (2008). As this questionnaire with four dimensions and 28 items appeared too long for use in our larger study, we conducted two preliminary studies to determine how the 28 original items could be further reduced. In order to map the sub-dimensions proposed by the authors, we selected the two items for each of the four dimensions that had the highest factor loadings in exploratory principal component analyses, resulting in a subscale with a total of 8 items (see Table 3).

In the original study by Schifferstein and Zwartkruis-Pelgrim, 161 participants from a local community selected one of four predefined products (39 lamp, 38 clock, 40 car, 44 ornament) as reference points for their responses. To avoid further dividing our sample, given the assumed differences in attachment across product categories, we used the smartphone as the sole reference object. As a control variable

to measure attachment, we assessed respondents' involvement with a single-item measurement (question: How important is the smartphone for your personal life?).

Exploratory buying behavior tendency: EBBT was measured with reference to the Baumgartner/Steenkamp approach. The authors differentiate between the subdimensions exploratory acquisition of products (EAP) and exploratory information seeking (EIS), each being measured with 10 items, using a scale from 1 (completely disagree) to 5 (completely agree). The authors' final validation study included a sample of 320 American and 159 Dutch undergraduate students.

For our study, the focus was explicitly on real consumer behavior and less on aspects such as curiosity, attitude towards advertising materials, etc., as addressed in the EIS scale. We conducted a preliminary study with 154 respondents in which we used principal component analysis to check the dimensionality of the 20 items and finally selected three items with a clear behavioral reference that showed a high loading on the resulting main factor (see Table 4).

Other socio-demographic characteristics: To control for possible differences in subgroups, we collected 1) age (years), 2) gender (female, male, diverse), 3) the highest educational qualification achieved (Secondary school, middle school, high school diploma, university degree), 4) the presence of a migration background (yes, no) and 5) a self-assessment of residential location (I feel like a city dweller, I am a resident of small and medium-sized towns, I am a resident of rural areas).

Scaling level: We wanted to achieve interval scale levels for quantitative items in the resulting data material in order to avoid restrictions on the evaluation procedures to be used.

In order to convey a consistent survey concept, respondents should not be confronted with different answer specifications for different theoretical constructs. For all quantitative questions, we therefore chose the answer scale from 0 to 100, which corresponds to the percentage scale and the decimal system (example: Please tell me to what percentage you agree with the following statement: I like to try brands I don't know ...%). This scaling, which has proven successful in other studies by the authors, overcomes the arbitrariness of determining a distractor number, as is inherent in Likert scales with 5, 7 or 9 values. Furthermore, it does not require any verbalization for the distractors, which could be understood differently by respondents. It is understood intuitively and enables spontaneous response behavior without overwhelming the respondents (Lewis/Erdinc 2017). In practice, the scale from 0 to 100 corresponds to the decimal system (strictly speaking, it is an 11-point scale), as most respondents answer in steps of 10 when given the opportunity to enter their answers freely. It is becoming increasingly popular in research, as it can be easily implemented in online surveys with sliders (Cheung et al. 2018) and results in rather normally distributed (Leung 2011) and mostly easily analyzable data (cf. e.g. Riedl et al. 2023). In our study, the scale was implemented with a slider and a default setting of increments of 10, resulting in a scale that can assume values between 0 and 10, which we refer to below as the decimal scale.

3.2 Method and sampling ——— We surveyed a sample of 800 people in the first quarter of 2023 using an online survey.

Respondents were selected via convenience sampling with quotas for age, gender, education level, and migration background, ensuring the sample roughly rep-

resents the German population aged 18 and above. The incoming data records were checked for completeness, obvious incorrect entries, etc. in all variables. Ultimately, 744 data records were used for the analysis, which are made up as follows: The age range is between 18 and 93 years, average age 46.9 years (median 48); 49.7% are female, 50.3% male (0 diverse). 25.5% have a lower secondary school leaving certificate or no qualification, 23.8% have an intermediate school leaving certificate, 20.3% have a high school diploma (without intention to study), 30.4% are currently studying or have already completed a university degree. In terms of place of residence, 33.1% are rural residents, 46.8% are residents of small and medium-sized towns, and 20.2% are city dwellers. A total of 12.9% of respondents have a migration background.

3.3 Results ——— 3.3.1 Period of use of smartphones ——— The smartphone usage data collected from test subjects underwent outlier analysis. The resulting individual durations of smartphone use analyzed ranged from 6 to 102 months, with an average (mean) duration of 44.7 months (median 42). The Kolmogorov-Smirnov test rejects the normal distribution assumption, but a Q-Q diagram shows an acceptable approximation of the observed values to the expected normal values.

The duration of use exhibits a significant increase with advancing age (r=.40, p<.001), it is significantly lower among people with a migration background (mean 39.0) than among people without such a background (45.6 months, T=-3.137, p=.002, homogeneity of variance is given: Levene F=1.453, p=.228). There are no gender-specific differences, but there is a significant decrease in the duration of use with the size of the place of residence: residents of rural areas: 48 months, residents of small and medium-sized towns: 43.4 months, city dwellers 42.5 months (Anova: F=5.421, p=.005). Furthermore, people with a lower secondary school leaving certificate (mean 49.1 months) differ significantly from people with a) an intermediate school leaving certificate (42.1) and b) a university degree (41.8) (Tamhane test for a) p=.006, b) p=.001), while c) there is no significant difference to people with a high school diploma (46.6, p=.820).

Of all socio-demographic variables, age exerts the most significant influence on a longer period of use. Longer periods of use by people without a migration background, residents of rural areas and people with a lower level of education are partly due to the fact that they have a higher average age than the other groups.

3.3.2 Repair attempts ——— Only 38.7% of respondents report that they had already attempted or commissioned a repair. The maximum reported number of repair attempts is 4, the mean value of all respondents is .45. Of the reported repair attempts, display repairs account for 53.2% and battery replacements for a further 24.9% of all cases, meaning that these two processes together account for 85% of all repairs.

3.3.3 Intended future cycle of procurement ——— As Table 1 shows, in the original 5-level scaling, the two extreme values of the scale (much more often, much less often) are only mentioned by a few respondents. Combining the two answers that go in the same direction (column 3) results in more reliable cell assignments. As a result, 30.4 percent of respondents intend to buy a new appliance „less often“ in the future, which is more than three times as many as those who plan to buy more often.

Will you buy a new smartphone more or less often in the future?

Original responses	1 Frequency	2 Percent	Aggregated responses	3 Percent
much more often	2	.3	more often	9.5
somewhat more often	69	9.3		
just as often	447	60.1	just as often	60.1
less often	198	26.6	less often	30.4
much less often	28	3.8		
Total	744	100.0		100.0

TABLE 1: TENDENCY TOWARDS FUTURE PROCUREMENT BEHAVIOR
SOURCE: AUTHORS

3.3.4 Obsolescence ——— When examining the dimensionality of the five items on obsolescence, the principal component analysis provides three dimensions, explaining 83.85% of the variance.

Rotated component matrix

	Component		
Probability reason for change:	**1**	**2**	**3**
8.1 I notice that my device is not up to date with the latest technology.	.501	**.644**	.223
8.2 I can't get the latest apps to work on the device.	.154	**.926**	.126
8.3 The device still works, but looks worn.	**.864**	.135	.179
8.4 There are already several new generations of this device.	**.833**	.285	.107
8.5 The battery has lost about a third of its original power.	.186	.179	**.964**

Extraction method: Principal components analysis. Rotation method: Varimax with Kaiser normalization.
TABLE 2: LOADING STRUCTURE OF OBSOLESCENCE ITEMS
SOURCE: AUTHORS

As the table shows, variables 8.1 and 8.2 form a „functional obsolescence“ dimension. 8.3 and 8.4 reflect the „psychological obsolescence“, i.e. the tendency of consumers to purchase a new device despite the existing device's technical functionality. 8.5 reflects the loss of battery performance, i.e. the „defect“ of the smartphone most frequently mentioned in the open survey (without further presentation in this report) alongside display breakage.

Cronbach's alpha provides a good reliability value of .75 for items 8.3 and 8.4. Based on the two items, we calculate a sum index „psychological obsolescence“, ranging from 0 to 9 on the decimal scale, with a mean value of 1.8, which expresses a low influence of psychological obsolescence in the self-perception of consumers (for comparison: mean battery: 4.7, median 5).

3.3.5 Consumer-product attachment

Rotated component matrix					
Assignment of items to dimensions in Schifferstein et al. (2008)		Component			
		1	2	3	4
		Attachment	**Indispensability**	**(technical) Irreplaceability**	**Selfextension**
Attachment	11.1 This cell phone is very close to my heart.	**.587**	.538	-.152	.000
Indispensability	11.2 I could live my life without this cell phone. (recod)	**.800**	-.054	.207	.063
Irreplace-ability	11.3 Even a replacement device could not replace this cell phone for me.	.074	**.848**	.095	.019
Self-extension	11.4 If I lost my cell phone, I would feel as if I had lost a part of myself.	.274	**.700**	-.024	.255
Attachment	11.5 This cell phone means nothing to me. (recod)	**.671**	.331	.247	-.022
Self-extension	11.6 If I had to describe myself, I would probably also mention the cell phone.	.082	.134	.041	**.967**
Indispens-ability	11.7 This cell phone is absolutely essential for me.	**.655**	.336	-.150	.191
Irreplace-ability	11.8 This cell phone is the same as another specimen of this model. (recod)	.121	.029	**.951**	.038

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization.
TABLE 3: LOADING STRUCTURE OF ATTACHMENT ITEMS
SOURCE: AUTHORS

Based on several explorative principal component analyses, a solution with four factors proves to be the best for the 8 items of Attachment. This basically corresponds to the expectation of four-dimensionality based on Schifferstein/Zwartkruis-Pelgrim and our own preliminary studies, but there are differences in the allocation of the items (see Table 3):

- In addition to the two items 11.1 and 11.5, items 11.2 and 11.7 are added to the attachment factor, which were originally intended to express „indispensability".
- Items 11.3 (originally irreplaceability) and 11.4 (originally „self-extension") form a new factor that expresses something like a fear of loss or „personal irreplaceability".
- Factor three is essentially generated from item 11.8, which expresses purely technical interchangeability. Respondents obviously differentiate between purely technical replaceability and personal replaceability, as expressed in factor 2. This finding is consistent with the distinction between different forms of obsolescence in the literature (cf. e.g. Becher/Sibony 2021).
- Factor 4 consists exclusively of item 11.6, which originally means „self-extension". However, such an extensive self-identification with the smartphone, as described in the wording of this item, seems excessive to the majority of respondents. This can be seen from the fact that the mean value of all respondents for this question on the 10-point scale is only .44, while the values for the other items are between 2.28 and 6.69.

Obviously, items 11.6 and 11.8 express something different for our test subjects than the attachment to the smartphone. In the case of 11.6, it is the purely technical interchangeability of an industrial mass product; in the case of 11.8, it is a self-definition of the individual via the device that is perceived as exaggerated and therefore rejected. We therefore decided to remove both items from the scale; as a result, Cronbach's alpha increased from .735 to .775.

We again checked the dimensionality of the six remaining items. According to the Kaiser criterion, principal component analysis yielded one single factor with an eigenvalue of 2.857 and consistently high factor loadings between .58 and .77. We therefore finally calculated a reliable sum index for the subjects' attachment from items 1, 2, 4, 5, 7 and 8. This variable yields values between .33 and 9.33 on the decimal scale for the sample, with a mean value of 3.9 (median 3.8).

Although Kolmogorov-Smirnov test (.046, $p<.001$) rejects the normal distribution assumption for the calculated attachment, the histogram of the data shows that the deviations from the normal distribution are small, with the exception of a slight shift to the left, so that further calculations with the attachment as an independent and dependent variable appear legitimate.

With an average value of 3.9, the absolute level of attachment is below expectations, as smartphones are considered high involvement products. Schifferstein/Zwartkruis-Pelgrim report attachment scores between 2.9 and 3.6 for their four product categories on the 5-point scale used, which, when converted to the decimal scale we use (for the conversion formula, see Riedl/Zips 2015, 40), would lead us to expect values between 4.75 and 6.5, with an average of 5.4.

Overall, due to the much larger sample size, we have confidence in the reliability of our data with regard to the smartphone test object. The reliability according to Guttman (item group a: 11.1, 11.2, 11.3, b: 11.4, 11.5, 11.7) provides a value of .811 (Amelang/Schmidt-Atzert 2006; Bühner 2021). We interpret the somewhat lower attachment found as meaning that consumers have become accustomed to the fact that, despite a high level of personal involvement with their smartphones, technical progress and the inevitable deterioration of technical components such as the battery make it almost unavoidable to part with their own device after a few years.

For the control variable Involvement, a high value of 7.18 was found on the decimal scale on average among the respondents. Unsurprisingly, involvement and attachment are significantly correlated (r=.506, p<.001).

3.3.6 Exploratory consumer buying behavior tendency ——— The dimensionality check yields two factors for the three EBBT variables, which together represent 79.2 percent of the initial variance. In line with the assignment in Bauga ner/Steenkamp, the items 12.1 and 12.4 taken from the EAP subscale load on one factor, while 12.2 (from EIS) loads on a second factor that relates more to information behavior.

Rotated component matrix

	Component	
	1	2
12.1 I like to try out new brands that I don't know.	**.734**	.397
12.3 I like to find out about news in the retail sector.	.007	**.946**
12.4 I am cautious when it comes to trying new products. (recod)	**.865**	-.188

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser-normalization

TABLE 4: FACTOR LOADINGS OF EBBT ITEMS

SOURCE: AUTHORS

We excluded item 12.3 and formed a sum index of EBBT from items 12.1 and 12.4 for use in subsequent analyses. This provides a mean value of 4.45 on the decimal scale for the total sample. Baumgartner/Steenkamp report values between 2.22 and 3.92 for the 20 items of the EBBT, on average 3.15 on the Likert scale from 1 to 5; when converted to the decimal scale we used, this would correspond to values between 2.75 and 6.57, on average 4.84.

For the EBBT calculated, the Kolmogorov-Smirnov test (p<.001) rejects the normal distribution hypothesis, but the Q-Q plot shows a high approximation to the expected distribution, so that serious distortions need hardly be assumed in further analyses.

3.3.7 Hypothesis testing ——— According to hypothesis 1, a higher level of attachment would lead us to expect a longer period of smartphone use. In fact, the regression analysis provides a significant (p<.001) but negative correlation (n=743, beta= -.246). This finding remains practically unchanged if the analysis is restricted to people who explicitly state that they obtain the smartphone themselves (n= 671, beta=-.249). Due to this surprising finding, we checked the validity of the attachment measurement based on the correlation with third-party variables. This showed that attachment has the expected positive correlation with both involvement (r=.506, p<.001) and willingness to pay (r=.188, p<.001), so that a measurement problem appears to be ruled out.

We used the number of repair attempts practiced as an alternative indicator for PEB and also included the control variables mentioned above.

Correlations (n=744)	Total number of repair attempts	
	Pearson Corr.	Significance
Involvement	.151	<.001
Smartphone willingness to pay	.147	<.001
Attachment	.090	.014

TABLE 5: CORRELATION BETWEEN INVOLVEMENT AND ATTACHMENT WITH REPAIR ATTEMPTS

SOURCE: AUTHORS

As the table shows, there is a significant but weak correlation between attachment and the number of repair attempts. The cross-check with involvement and willingness to pay provides highly significant correlations in the expected direction, which are slightly higher in terms of value than for the attachment measured.

In summary, significant correlations between attachment and PEB in relation to the smartphone can be identified. However, these are rather weak and, above all, they are heterogeneous: higher attachment is associated with a shorter period of use, but a higher number of repair attempts. A consistent effect of attachment in the direction of PEB cannot be identified for the smartphone.

Hypothesis two postulated a negative relationship between EBBT and PEB. In line with the hypothesis, we find a significant correlation between EBBT and smartphone usage time (r =-.163, p<.001). In contrast, there is a positive correlation with the number of repair attempts (r= .129, p<.001). So while EBBT counteracts PEB when looking at service life, EBBT tends to be environmentally beneficial when it comes to possible repair attempts.

Hypotheses 3.1 and 3.2 concern the intentions for future use of the smartphone. The future intentions of consumers have already been reported descriptively above (3.3.2): In line with H3.1, there is a clear tendency towards practicing PEB in the future by extending usage. Additional open responses validate this finding.

In contrast, the correlation postulated in H3.2 cannot be found empirically. The index of the future intention to purchase a new device more frequently (values between 0 and 4, see above) has a significant but low correlation with the previous duration of use (Spearman rho = -0.77, p=.035). A comparison of mean values shows that, overall, people who have replaced their smartphone slightly more frequently to date still intend to change it slightly more frequently than people who have used it for longer.

This shows that in the case of smartphones, public pressure to demonstrate a PEB by using them for a longer period of time does not yet have a behavior-determining influence compared to previous habits and other influencing factors of consumer behavior.

H 4.1 and H 4.2 postulated a negative correlation between psychological obsolescence and usage behavior. For validation purposes, we also consider the findings on functional obsolescence. As Table 6 shows, psychological obsolescence is associated with a lower service life, in line with the hypothesis. An additional multiple regression analysis confirms what was already indicated in the correlations: functional obsolescence has an even stronger influence (beta = .157) on service life than psychological obsolescence (beta = .124); both factors are highly significant (p<.001).

With regard to the future trend of the PEB, functional obsolescence has no measurable influence: whether the smartphone is replaced in the event of technical prob-

lems will not be decided differently in the future than in the present. However, in line with H4.2, there is a significant correlation with psychological obsolescence. If psychological obsolescence is perceived, then this will also be a reason for consumers to change their device more frequently in the future. It therefore works against the logic of a PEB in both the current and intended future behavior of consumers if the planned service life is considered as a criterion.

The opposite result is obtained if the number of repair attempts is used as a criterion for PEB. Both psychological (r= .136, p<.001) and functional obsolescence (r= .138, p<.001) are positively correlated with the number of repair attempts made and thus a PEB. It can be seen that the various behaviors to be understood as PEB are practiced differently depending on influencing factors.

	2.3 Current useful life		[9] Index future trend useful life (change frequency)	
	Pearson-Corr.	Sig. (2-tailed)	Spearman-Rho	Sig. (2-tailed)
Functional obsolescence	-.255	<.001	.025	.495
Psychological obsolescence	-.176	<.001	.177	<.001
Voluntary self-restraint in consumption	,301	<.001	.123	<.001

TABLE 6: CURRENT AND FUTURE USE OF SMARTPHONES IN THE CONTEXT OF OBSOLESCENCE AND VOLUNTARY SELF-RESTRAINT IN CONSUMPTION
SOURCE: AUTHORS

H 5.1 and H 5.2 postulated a positive correlation between voluntary self-restraint in consumption and usage behavior.

Table 6 shows that both hypotheses are supported. Self-restraint is already associated with a highly significant longer period of use today and also with extending this in the future.

3.3.8 Comprehensive analysis ——— Descriptive analyses and the examination of the individual hypotheses yield differentiated results; in many cases, the constructs prove to be less explanatory, and in some cases even inversely related to the dependent behavioral variables than postulated. With regard to the PEB (useful life, repair attempts), the consumers show differentiated actions; by no means is there a consistent environmentally oriented behavior.

Beyond separate analyses, it remains to be clarified how the various constructs interact with the PEB. Related hypothesized constructs such as Attachment and Involvement as well as potentially antagonistic ones (self-restraint versus EBBT) are subject to the problem of multicollinearity. We therefore subjected the five main independent variables of our study to a new dimensionality check. The principal component analysis solves the problem of multicollinearity with the default setting „orthogonal rotation".

Here, a three-factor solution, which represents a total of 77.4 percent of the variance, provides clear and easily interpretable factor assignments of the items that correspond to the required simple structure.

Rotated component matrix			
	Component		
	1	**2**	**3**
Involvement (7)	**.816**	.193	.176
Attachment (means 11.1, 11.2, 11.3, 11.4, 11.5, 11.7)	**.878**	.031	.118
Psychological obsolescence (factor score)	.215	.073	**.936**
Exploratory buying behavior (means 12.1, 12.4)	.092	**.871**	-.111
Self-restraint in purchasing behavior (12.2)	.121	**.721**	.331

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser-normalization. Rotation converged in 4 iterations.

TABLE 7: FACTOR LOADINGS OF RELEVANT CONSTRUCTS
SOURCE: AUTHORS

As the table shows, involvement and attachment form a common factor. A suitable term for a common dimension of consumer behavior that encompasses both involvement and attachment could be „emotional connection." This phrase reflects the emotional engagement (attachment) consumers feel towards a product, brand, or service, along with their active participation and interest (involvement) in the consumption experience.

EBBT and self-restraint in purchasing behavior also form a factor. The dimension of consumer behavior addressed here obviously has two poles. EBBT expresses a potential propensity to consume, while self-restraint implies the opposite. How this dimension is named therefore depends exclusively on the perspective (pro EBBT corresponds to contra self-restraint and vice versa). Our proposal for the wording is based on the fact that EBBT has the somewhat greater factor loading, so we call this dimension exploration-driven consumerism (EDC).

In the final overall analysis, in addition to the emotional connection and the EDC, we included psychological obsolescence, age as a key socio-demographic criterion (see above) and consumers' willingness to pay, which is also a key determinant of purchasing behavior for a high-quality consumer good. We examined these for their connection with PEB.

	Dependend: **Current useful life**			Dependend: **Total number of repair attempts**		
	Standard. coeffi-cient Beta	T	Sig.	Standard. coefficient Beta	T	Sig.
Emotional connection	-.242	-7.291	<.001	.036	.958	.338
Exploration-driven consumerism	-.143	-4.348	<.001	.050	1.344	.179
Psychological obsolescence	-.231	-7.154	<.001	.116	3.191	.001
[13] Age	.284	8.084	<.001	-.210	-5.325	<.001
[5] Willingness to pay	.034	.988	.324	.043	1.110	.267

TABLE 8: STANDARDIZED COEFFICIENTS OF MULTIPLE REGRESSION ANALYSIS
SOURCE: AUTHORS

Table 8 shows that emotional connection, EDC and psychological obsolescence each correlate negatively with smartphone usage time. Among these three independents, emotional connection is relatively the most significant, closely followed by psychological obsolescence, while EDC has slightly less influence. Age leads to prolonged device use; of all the independents, this is the most significant determinant of PEB.

It is noteworthy that the price, which is weakly related to the useful life when considered on its own (the greater the willingness to pay, the shorter the useful life, r=-.179, p<.001), appears to have practically no significance for the PEB when considered in conjunction with the other independent variables. The few variables included here together explain a relevant part of the period of use (R=.524, R2=.275), although this also depends on a large number of other variables not controlled for here (contract durations, technological innovation, business vs. private use, etc.).

The finding regarding the relative insignificance of price is reiterated when considering the number of repair attempts as the dependent variable. With regard to age, the result is reversed: repair attempts are made more frequently by younger people. Among the psychographic constructs, only psychological obsolescence is significantly related to the number of repair attempts.

4 Discussion and future research opportunities ——— Based on the TPB, we pursue an approach that considers psychographic constructs to be particularly relevant, which can be expected to be as directly related to behavior as possible, i.e. less general ideas about what is desirable, but rather EBBT, for example. With regard to behavior, we suggest looking at specific, object-related behavior („How long do you use your smartphone before you buy a new one?“) rather than general behavior („I behave in an environmentally friendly way.“).

Our study chose antagonistic factors to approximate how opposing personality and product traits influence pro-environmental behavior. Intriguingly, our results do not point in a clear direction, as factors ambiguously predicted both initiatives to repair (as a pro-environmental behavior) and decreased service lives of smartphones (as a non-environmental behavior). Furthermore, as both functional and psychological obsolescence influenced new purchases and repairs, our results suggest an interplay between a smartphone's functionality and a consumer's identity. This perspective allows us to draw some theoretical implications for sustainable behavior.

First, smartphones are high involvement products since they are necessary for a wide variety of purposes in contemporary western societies. Unsurprisingly, this constitutes a need for functionality, resulting in replacements once, for instance, the battery life is depleted, or other technical dysfunctionalities occur. However, despite this high involvement, people do not increase service lives despite attachment. Rather, exciting possibilities such as the potential to fully repair technology predict the proliferation of smartphone usage through exploratory buying behavior tendencies as a mediator. This implies that not pro-environmental tendencies and norms, but feasible applications in turn result in more sustainable behavior. As Germany has comparatively widespread legislation for repairing products (which in turn might broaden possibilities to repair), our results imply that legislative efforts to allow for reparations might in turn increase sustainable behavior independent from personal norms. This has numerous implications for the role of consumers, organizations, and governments regarding sustainable transformations, which should be investigated in further research. Our efforts also highlight a need to broaden our understanding of the attitude-intention-behavior gap to not only include intentions for sustainability, but more product-related factors as well. In general, our finding that consumers do not act consistently with regard to the PEB must be taken into account. Different dependent variables (duration of use versus repair attempts) lead to divergent correlations with psychographic constructs.

Second, our results highlight the role of age throughout consumption behavior. While this understanding is not new at all, it calls into question whether younger consumers indeed increasingly value sustainability. A younger age consistently and significantly predicted shorter service lives more impactful than socioeconomic characteristics (e.g., migration, place of residence, education). On the one hand, this points to the role of smartphones as a status good for younger people, represented by a need for having a new and functional smartphone. On the other hand, from a market perspective, this highlights how decreased periods between rollouts of new products can actively counteract sustainable consumer behavior. Notably, even the price did not significantly impact the service life of a smartphone except for increased initiatives to repair faulty parts, which, however, might be explained by less technological knowledge from older users.

Third, the overlap of constructs might imply two novel dimensions. Attachment and involvement can be grouped into emotional connection. This phrase reflects the emotional engagement (attachment) consumers feel towards a product, brand, or service, along with their active participation and interest (involvement) in the consumption experience. Emotional connection thus suggests a holistic view of the emotional and active aspects of consumers' connections with the consumption experience, which can promote (e.g., when reparations are part of this experience) or prevent (e.g., when functionality is negatively impacted) sustainable behavior.

Following the previous conceptualization, we see emotional connection as a typical construct where the self is prioritized over the environment (Martenson 2018; Elhaffar et al. 2020).

Secondly, exploratory buying behavior and self-restraint represent two polar-opposite extremes of the same phenomenon. We coin this continuum exploration-driven consumerism, which evaluates the degree to which individuals actively seek novel and diverse products or experiences, often without considering sustainable buying and usage behavior. It reflects a consumer approach where the excitement of exploration tends to outweigh thoughtful spending practices, leading to a prevailing pattern of unrestrained and spontaneous purchases. While we see potential to use such exploration-driven consumerism for sustainability (by incentivizing the more sustainable product alternative), more frequent consumption is not pro-environmental behavior per se, highlighting the sustainability-prevention mechanism of exploration-driven consumerism. Depending on specific behavior within the continuum (e.g., personal initiatives to repair as an exploration-driven consumerism), this concept can either be categorized as prioritizing the self, or as a typical intrapsychic conflict (Elhaffar et al. 2020). Future research could separate both cases.

5 Limitations ——— Our study neither intends to contradict existing research approaches nor to modify the TPB or other models. The model presented above only describes the main sub-constructs we have included; it makes no claim to completeness

or general validity; in particular, we have not controlled for the large number of possible interaction effects. All results relate to the social environment in Germany at the time of the survey. They relate exclusively to the smartphone as the object of the study, i.e. a consumer good that is associated with a particularly high level of involvement for large sections of the population. High awareness of an important gadget implies increased reflection on its assessment and use and an above-average ability to provide information.

For the purpose of a smooth and not overly long survey, we have drastically reduced the scales of the included constructs compared to the original questionnaires. Critics may object that the validated complete original scales could lead to more differentiated and more reliable results. We do not oppose this, but point out that the shortened scales used lead to highly significant contributions to the explanation of variance of the dependent variables in practically all cases and thus fulfilled the purpose of the present study.

Whether the dimensions emotional connection and exploration-driven consumerism that we found provide reliable psychographic constructs must be examined in further research. Throughout the study, we have positioned pro-environmental behavior as congruent to sustainable behavior. We acknowledge that recent conceptualizations of sustainability expand the concept beyond a pure environmental focus. As we used service life and repair attempts as a proxy for sustainable consumption behavior, pro-environmental behavior seemed the most appropriate. We, however, call for more research appropriating an enriched concept of sustainable behavior.

Literatúra | *List of References* ——— [1] Adrion, M. and Woidasky, J., 2019. Planned obsolescence in portable computers – empirical research results. In: Pehlken, A., Kalverkamp, M., Wittstock, R. (Eds.), 2019. Cascade use in technologies. Berlin, Heidelberg: Springer Vieweg, 2019. ISBN 978-3-662-57886-5. | [2] Ajzen, I., 1988. Attitudes, personality, and behavior. Chicago: Dorsey Press, 1988. ISBN 0-335-15854-4. | [3] Ajzen, I., 1991. The theory of planned behavior. In: Organizational Behavior and Human decision Processes. 1991, 50(2), 179-211. ISSN 0749-5978. | [4] Ajzen, I., 2020. The theory of planned behavior: Frequently asked questions. In: Human Behavior & Emerging Technologies. 2020, 2(4), 1-11. ISSN 2578-1863. | [5] Baumgartner, H., 2002. Toward a personology of the consumer. In: Journal of Consumer Research. 2002, 29(2), 286-292. ISSN 0093-5301. | [6] Becher, S. and Sibony, A. L., 2021. Confronting product obsolescence. In: Columbia Journal of European Law. 2021, 27(2), 97-150. ISSN 1076-6715. | [7] Amelang, M. and Schmidt-Atzert, L., 2006. Psychologische Diagnostik und Intervention. Heidelberg: Springer, 2006. ISBN 978-3-540-28507-6. | [8] Baumgartner, H. and Steenkamp, J. B. E. M., 1996. Exploratory consumer buying behavior: Conceptualization and measurement. In: International Journal of Research in Marketing. 1996, 13, 121-137. ISSN 1873-8001. | [9] Becher, S. I. and Sibony, A. L., 2021. Confronting product obsolescence. In: Columbia Journal of European Law. 2021, 97. ISSN 1076-6715. | [10] Bühner, M., 2011. Einführung in die Test- und Fragebogenkonstruktion. München: Pearson, 2011. ISBN 9783868940336. | [11] Conner, M. and Norman, P., 2022. Understanding the intention-behavior gap: The role of intention strength. In: Frontiers in psychology. 2022, 13, 923464. ISSN 1664-1078. Available at: <https://doi.org/10.3389/fpsyg.2022.923464> | [12] Cooper, T., 2004. Inadequate life? Evidence of consumer attitudes to product obsolescence. In: Journal of Consumer Policy. 2004, 27(4), 421-449. ISSN 0168-7034. | [13] Chyung, S. Y., Swanson, I., Roberts, K. and Hankinson, A., 2018. Evidence-based survey design: The use of continuous rating scales in surveys. In: Performance Improvement. 2018, 57(5), 38-48. ISSN 1090-8811. | [14] De Canio, F., Martinelli, E. and Endrighi, E., 2021. Enhancing consumers' pro-environmental purchase intentions: the moderating role of environmental concern. In: International Journal of Retail & Distribution Management. 2021, 49/9, 1312-1329. ISSN 1758-6690. | [15] DiMatteo, L. A. and Wrbka, S., 2019. Planned obsolescence and consumer protection. The unregulated extended warranty and service contract industry. In: Cornell Journal of Law and Public Policy. 2019, 28, 483. ISSN 1069-0565. | [16] ElHaffar, G., Durif, F. and Dubé, L., 2020. Towards closing the attitude-intention-behavior gap in green consumption: A narrative review of the literature and an overview of future research directions. In: Journal of cleaner production. 2020, 275(4), 122556. ISSN 0959-6526. | [17] Escalas, J. E., 2004. Narrative processing: Building consumer connections to brands. In: Journal of Consumer Psychology. 2004, 14(1-2), 168-180. ISSN 1057-7408. | [18] Fuchs, D., Sahakian, M., Gumbert, T., Di Giulio, A., Maniates, M., Lorek, S. and Graf, A., 2021. Consumption corridors. Living a good life within sustainable limits. London, New York: Routledge, 2021. ISBN 9780367748746. | [19] Graves, C. and Roelich, K., 2021. Psychological barriers to pro-environmental behaviour change. In: Sustainability. 2021, 13(21), 11582. ISSN 2071-1050. | [20] Grout, P. and Park, In-Uck, 2005. Competitive planned obsolescence, In: RAND Journal of Economics. 2005, 36(3), 596-612. ISSN 0741-6261. | [21] Hardeman, M., Johnston, M., Johnston D., Bonetti, D., Wareham, N. and Kinmonth, A. N., 2002. Application of the theory of planned behaviour in behaviour change interventions: A systematic review. In: Psychology & Health. 2002, 17/2, 123-158. ISSN 1476-8321. | [22] Heeren, A. J., Singh, A. S., Zwickle, A., Koontz, T. M., Slagle, K. M. and McCreery, A. C., 2016. Is sustainability knowledge half the battle? An examination of sustainability knowledge, attitudes, norms, and efficacy to understand sustainable behaviours. In: International Journal of Sustainability in Higher Education. 2016, 17 (5), 613-632. ISSN 1758-6739. | [23] Howard, J. A. and Sheth, J. N., 1969. The theory of buyer behavior. New York: John Wiley, 1969. | [24] Kuppelwieser, V. G., Klaus, P., Manthiou, A. and Boujena, O., 2019. Consumer responses to planned obsolescence. In: Journal of Retailing and Consumer Services. 2019, 47 (C), 157-165. ISSN 1873-1384. | [25] Laaksonen, P., 1994. Consumer involvement, concepts and research. London: Routledge, 1994. ISBN 9780415097604. | [26] Laitala, K., Grimstad Klepp, I., Haugrønning, V., Throne-Holst, H. and Strandbakken, P., 2021. Increasing repair of household appliances, mobile phones and clothing: Experiences from consumers and the repair industry. In: Journal of Cleaner Production. 2021, 282(2), 125349. ISSN 1879-1786. | [27] Lewis, J. R. and Erding, O., 2017. User experience rating scales with 7, 11, or 101 points: Does it matter? In: Journal of user experience. 2017, 12(2), 73-91. ISSN | 3065-7504. | [28] Leung, S. O., 2011. A comparison of psychometric properties and normality in 4-, 5-, 6-, and 11-point Likert scales. In: Journal of Social Service Research. 2011, 37(4), 412-421. ISSN 1540-7314. | [29] Li, D., Zhao, L., Ma, S., Shao, S. and Zhang, L., 2019. What influences an individual's proenvironmental behavior? A literature review. In: Resources, Conservation and Recycling. 2019, 146, 28-34. ISSN 1879-0658. | [30] Machová, R. and Zsigmond, T., 2022. Planned obsolescence with the eyes of university students. In: The Poprad Economic and Management Forum. 2022, 392. ISBN 978-80-561-0995-3. | [31] Martenson, R., 2018. When is green a purchase motive? Different answers from different selves. In: International Journal of Retail & Distribution Management. 2018, 46(1), 21-33. ISSN 1758-6690. | [32] Nguyen, H. V., Nguyen, C. H. and Hoang, T. T. B., 2019. Green consumption: Closing the intention- behavior gap. In: Sustainable Development. 2019, 27(1), 118-129. ISSN 1099-1719. | [33] Packard, V., 1960. The waste makers. London: Longmans, 1960. | [34] Pantano, E., Iazzolino, G. and Migliano, G., 2013. Obsolescence risk in advanced technologies for retailing: A management perspective. In: Journal of Retailing and Consumer Services. 2013, 20(2), 225-233. ISSN 0969-6989. | [35] Riedl, J., Wengler, S., Czaban, M. and Steudtel, S., 2023. Sexism in advertisements – a cross-cultural analysis. In: Marketing Science & Inspirations. 2023, 1(3), 2-16. ISSN 1338-7944. | [36] Riedl, J. and Zips, S., 2015. Positionierungsmodell für Marken. In: Planung & Analyse. 2015, 2, 38-42. ISSN 0724-9632. | [37] Santor, D. A., Fethi, I. and McIntee, S. E., 2020. Restricting our consumption of material goods: An application of the theory of planned behavior. In: Sustainability. 2020, 12, 800. ISSN 2071-1050. | [38] Satyro, W. C., Sacomano, J. B., Contador, J. C. and Telles, R., 2018. Planned obsolescence or planned resource depletion? A sustainable approach. In: Journal of Cleaner Production. 2018, 195, 744-752. ISSN 0959-6526. | [39] Schifferstein, H. N. J. and Zwartkruis-Pelgrim, E. P. H., 2008. Consumer-product attachment: Measurement and design implications. In: International Journal of Design. 2008, 2(3), 1-13. ISSN 1991-3761. | [40] Sheeran, P. and Webb, Th. L., 2016. The intention-behavior gap. In: Social and Personality Psychology Compass. 2016, 10(9), 503-518. ISSN 1751-9004. | [41] Stankuniene, G., Streimikiene, D. and Kyriakopoulos, G., 2020. Systematic literature review on behavioral barriers of climate change mitigation in households. Sustainability, 12(18), 7369. ISSN 2071-1050. | [42] Sutton, S., 1994. The past predicts the future: Interpreting behaviour-behaviour relationships in social psychological models of health behaviour. In: D. R. Rutter and L. Quine (Eds.), 1994. Social psychology and health: European perspectives Avebury: Ashgate Publishing Co., 1994, 71-88. ISBN 978-1856285629. | [43] Olson, J. A., Sandra, D. A., Coluc-

ci, É. S., Al Bikaii, A., Chmoulevitch, D., Nahas, J. and Veissière, S. P., 2022. Smartphone addiction is increasing across the world: A meta-analysis of 24 countries. In: Computers in Human Behavior. 2022, 129, 107138. ISSN 1873-7692. | [44] Park, H. J. and Lin, L. M., 2020. Exploring attitude-behavior gap in sustainable consumption: Comparison of recycled and upcycled fashion products. In: Journal of business research. 2020, 117, 623-628. ISSN 1873-7978. | [45] United Nations General Assembly, 2015. Resolution adopted by the General Assembly on 11 September 2015. New York: United Nations. 2015. [online]. [cit. 2024-02-10]. Available at: <https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf> | [46] Utaka, A., 2006. Planned obsolescence and social welfare. In: The Journal of Business. 2006, 79(1), 137-148. ISSN 0021-9398. | [47] Weitensfelder, L., Heesch, K., Arnold, E., Schwarz, M., Lemmerer, K. and Hutter, H.-P., 2023. Areas of individual consumption reduction: A focus on implemented restrictions and willingness for further cut-backs. In: Sustainability. 2023, 15, 4956. ISSN 2071-1050. | [48] Yuriev, A., Dahmen, M., Paillé, P., Boiral, O. and Guillaumie, L., 2020. Pro-environmental behaviors through the lens of the theory of planned behavior: A scoping review. In: Resources, Conservation & Recycling. 2020, 155, 104660. ISSN 1879-0658. | [49] Zaichkowski, J. L., 1985. Measuring the involvement construct. In: The Journal of Consumer Research. 1985, 12(3), 341-352. ISSN 1537-5277.

Kľúčové slová | Key Words ——— consumer behavior, pro-environmental behavior, sustainable consumption, sustainable development goals | *spotrebiteľské správanie, proenvironmentálne správanie, udržateľná spotreba, ciele udržateľného rozvoja*

JEL klasifikácia | *JEL Classification* ——— M31

Résumé ——— ***Hypotetické konštrukcie spotrebiteľského správania ako prediktory proenvironmentálneho správania. Empirická štúdia založená na smartfónoch.***

Napriek tomu, že ide o špecifický cieľ udržateľného rozvoja (SDG), úloha spotrebiteľov v oblasti udržateľnej spotreby je stále nejednoznačná. Príkladom toho je obrovské množstvo výskumov o rozdiele medzi postojmi, zámermi a správaním, ktoré vo všeobecnosti opisujú zlyhania spotrebiteľov pri správaní sa udržateľne, ako sa teoreticky predpokladá. Nedávne recenzie podnietili ďalšie skúmanie nad rámec existujúcej literatúry o faktoroch ovplyvňujúcich túto medzeru. K tejto výzve prispievame kvantitatívnym skúmaním piatich antagonistických dimenzií – intrapsychických aj situačných – používania smartfónov a udržateľného správania spotrebiteľov v Nemecku (n=800). Naše výsledky poukazujú na dva nové koncepty. Emocionálne prepojenie - t. j. spojenie spotrebiteľov so skúsenosťami so spotrebou – môže buď podporovať, alebo predchádzať udržateľnému správaniu, zatiaľ čo prieskumné správanie spotrebiteľa – t. j. nové nákupy v dôsledku exploatačných tendencií – zvyčajne oslabuje udržateľné správanie. To ilustruje, ako a kedy udržateľnosť prevažuje nad inými spotrebiteľskými postojmi. Tieto výsledky uvádzame do kontextu a v závere našej štúdie poukazujeme na obmedzenia a možnosti ďalšieho výskumu.

Kontakt na autorov | *Address* ——— Sarah Victoria Mohr, corresponding author, Hof University, Institut für Informationssysteme der Hochschule Hof, Alfons-Goppel-Platz 1, 95028 Hof, Germany, e-mail: sarah.victoria.mohr@iisys.de
Stefan Wengler, Hof University, Institut für Informationssysteme der Hochschule Hof, Alfons-Goppel-Platz 1, 95028 Hof, Germany, e-mail: stefan.wengler@hof-university.de
Joachim Riedl, Hof University, Institut für Informationssysteme der Hochschule Hof, Alfons-Goppel-Platz 1, 95028 Hof, Germany, e-mail: dr.joachimriedl@googlemail.com
Wolfgang Bichler-Riedl, University of Kassel, Institute of Business Administration, Henschelstraße 2, 34127 Kassel, Germany, e-mail: Bichler-Riedl@uni-kassel.de
Marcin Czaban, Hof University, Institut für Informationssysteme der Hochschule Hof, Alfons-Goppel-Platz 1, 95028 Hof, Germany, e-mail: marcin.czaban.2@hofuniversity.de

Recenzované | *Reviewed* ——— 16. March 2024 / 29. March 2024

 DOI: https://doi.org/10.46286/msi.2024.19.4.4

THE IMPACT OF PERCEIVED ANTHROPOMORPHISM OF THE CONVERSATIONAL AGENT (CA) ON SOCIAL PRESENCE, FLOW, AND USERS' BEHAVIORAL INTENTION

Research was conducted to investigate the influence of flow and social presence on users' behavioral intention based on the perceived anthropomorphism of the conversational agent. By using a S-O-R model, we utilized a sample of 329 participants, and the results obtained through the PLS-SEM method confirm that anthropomorphism, enhanced by social cues, significantly increases behavioral intention. Furthermore, the relationship between anthropomorphism and behavioral intention is mediated by flow and social presence through partial mediation. These findings have significant theoretical implications for understanding how anthropomorphism promotes flow state among online experience.

1 Introduction ——— Artificial intelligence has revolutionized marketing by enabling personalized customer experiences through the exploitation of data to create tailored solutions (Dieshbah 2006) adapted to specific profiles (Acquatella 2018). Companies must understand their customers' journeys to develop applications or websites that strengthen their relationship. The integration of chatbots, as intelligent interfaces, can significantly improve the quality of a company's customer service by offering unique, positive, and personalized experiences. According to Xu et al. (2020), these high-quality interfaces are essential for optimizing user interactions, while (Aladwani and Dwivedi 2018; Allal-Ch'erif et al. 2021; Bhawiyuga et al. 2017) highlight their role in creating customer experiences that are increasingly tailored to individual needs. In the field of digital marketing and e-commerce, numerous activities are now carried out through conversational agent systems, as observed by (Kar et al. 2021; McLean et al. 2019; Moore 2018; Wang et al. 2021). This highlights the growing importance of these tools in transforming interactions between companies and customers. Providing a seamless customer experience is a key objective for messaging companies, which have widely adopted chatbots as a new means of communicating with their customers (Androutsopoulou et al. 2019; Cui et al. 2017; Nagi et al. 2021); to achieve this, understanding the psychological factors that influence online behavior is essential for marketers to personalize experiences that resonate with consumers (Meparishvili 2023).

Customer behavior is strongly influenced by their experiences, leading to either positive or negative responses. Research indicates that positive experiences often

result in favorable behaviors, such as positive electronic word-of-mouth (eWOM) sharing on symmetrical platforms, while negative experiences can lead to disengagement and negative engagement behaviors, including complaints and negative eWOM (Chen et al. 2023; Do and Bowden 2024; Do 2022). Optimal online experiences, or flow, have been defined by (Hoffman and Novak 1996) as a state of intense satisfaction reached when individuals are fully engaged in an activity. They demonstrated that businesses can utilize the digital environment to create engaging user experiences, emphasizing that online flow fosters a seamless interaction between user and machine. Marketers assert that consumers in a state of flow are more likely to purchase and return to a site (Bridges and Florsheim 2008). Furthermore, research on human--computer interactions indicates that pleasure and engagement during computer interactions generate positive emotions (Sandelands and Buckner 1989; Starbuck and Webster 1991). According to the social response theory, anthropomorphism of technology occurs when the user interacts with a screen or a virtual agent, creating a psychological link that prompts the attribution of human characteristics to the computer (Moon 2000; Lemoine and Cherif 2012). Studies show that this perception of social presence is crucial in human-computer interaction (Shin and Shin 2011), where an anthropomorphic virtual agent can strengthen the user's sense of psychological proximity.

As mentioned by Nass and Moon (2000) and Reeves and Nass (1996), the key paradigm in the design and interaction with conversational agents is grounded in their perception as social actors. The CASA (Computers As Social Actors) model proposes that humans apply social expectations to technologies with human-like characteristics, which has been confirmed by experiments showing that individuals use social categories when interacting with humanoid artifacts. Seeger et al. (2018) identify three dimensions in the anthropomorphic design of conversational agents: human identity, verbal signals, and nonverbal signals. Users often attribute a social role to these technologies, such as a member of a customer service team, and the more human-like traits an artifact possesses, the more intense social responses it elicits (Nass and Moon 2000). Conversational agents incorporate various social cues, such as natural language and emotional expression, prompting users to respond meaningfully (Feine et al. 2019). Focusing specifically on human identity portrayal and the use of verbal and nonverbal cues to communicate effectively with users in a social context as highlighted by (Diederich et al. 2020; Pfeuffer et al. 2019).

By utilizing the SOR model with flow theory and CASA paradigm. We examine how the perception of anthropomorphism influences users' intentions; In another manner, our research study focusing on the impact of perceived flow and social presence on user behavior intentions. The central question of this study is:

„How does perceived anthropomorphism influence users' behavioral intention through perceived flow and perceived social presence?"

In addressing this issue, the study focuses on a chatbot-type conversational agent with which users interact in writing, accompanied by a static virtual avatar; This method allows us to explore the impact of the combination of textual and visual elements on the user experience in customer service where the state of flow is crucial for the efficiency of online experience .By integrating these communication modalities, we examine how visual representation influences users' perception of flow and

social presence towards the chatbot, as well as improving behavioral intention in critical situations. we have developed a theoretical framework that forms the basis of our research, evaluated among an online experiment. This approach aims to evaluate our theoretical framework while enriching the understanding of interactions between users and conversational agents in digital environments.

2 Theoretical framework ——— Building upon research, on anthropomorphic conversational agents and CASA, flow theories in online environments. We have crafted a research framework consisting of four hypotheses grounded in established principles of human computer interaction, for validation through an online study.

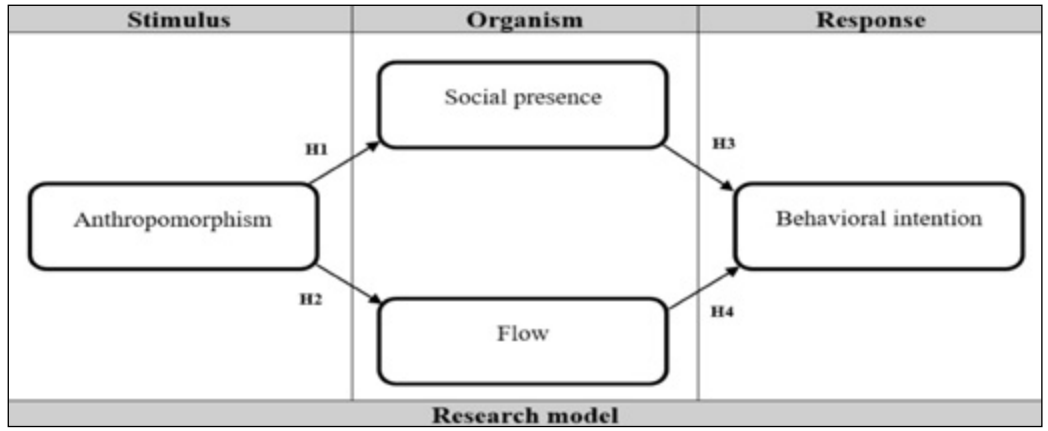

FIGURE 1: RESEARCH MODEL
SOURCE: AUTHORS

2.1 Stimulus ——— According to SOR model stimulus originate from external environment, that triggers a reaction in an organism. In this study, Stimuli are signals that encourage users to interact with the conversational agent; we examine how the anthropomorphic characteristics of the conversational agent associated with social cues can influence the interaction.

2.1.1 Social cues ——— Building on the work of Nass and Moon (2000), technological artifacts are more likely to trigger social reactions when they exhibit human-like characteristics. Feine et al. (2019) and Wünderlich and Paluch (2017) indicate that social cues lead people to perceive conversational agents as human beings. Additionally, Seeger et al. (2018) have suggested that a CA incorporating social cues gives rise to three dimensions: a human identity, verbal cues, and nonverbal cues.

2.1.2 Anthropomorphic conversational agent ——— The theory of anthropomorphism posits that the more human-like the visible traits of non-human agents, the more likely users are to perceive them as such (Epley et al. 2007). An anthropomorphic conversational agent is defined by the attribution of human characteristics to an artefact. This similarity can manifest in both the appearance and behavior of the agent (Waytz et al. 2010b). One study revealed that participants interacting with a chatbot identified characteristics that made it seem more human, such as its ability

to maintain a conversation over an extended period, consequently increasing its realism. Moreover, anthropomorphism can engender social behaviors in the user (Epley et al. 2007; Waytz et al. 2010b), as a conversational agent engages in interactions similar to those of face-to-face encounters (Qiu and Benbasat 2009). This prompts users to apply the usual social rules, which increases their perception of social presence when interacting with an anthropomorphic agent. Thus, we formulate two hypotheses:

- H1: Perceived anthropomorphism of the conversational agent has a positive impact on the user's perceived social presence.
- H2: Perceived anthropomorphism of conversational agents positively influences the user's state of flow.

2.2 Organism ——— Given that the stimulus-organism-response framework proposes that how stimuli impact outcomes is influenced by individuals' states. Our main focus is presence (Biocca et al. 2003; Kreijns et al. 2007). Flow (Hoffman and Novak 1996; Koufaris 2002). These internal states can be shaped by the stimuli in our research model. Have an impact intention.

2.2.1 Social presence ——— Our goal, in this study is to explore how the social presence of a human assistant affects people's behavioral intentions. Conversational agents represent a particularly interesting phenomenon given that users show positive social responses to these agents (Diederich et al. 2020; Pfeuffer et al. 2019). Research has indicated that perceived social presence positively influences user perception, which changes their behavioral intention Qiu and Benbasat (2009). For this purpose, we propose the hypothesis:

- H3: Perceived social presence positively influences users' behavioral intentions.

2.2.2 Flow ——— In response to evolving consumer behavior with technological tools (artifacts), organizations are using IA to enhance the quality of the services they provide to their customers. This allows them to deliver positive experiences as referenced by (Aladwani and Dwivedi 2018; Allal-Ch'erif et al. 2021; Bhawiyuga et al. 2017). Zhou (2013) showing that flow influences the decision to keep using mobile payment services. Zhou et al. (2010) showed the positive effect of flow on bringing users closer to an online mobile service; Hausman and Siekpe (2009) indicated that flow predicts the online user's intention to return to a site to relive the same experience. Based on these findings we suggest the following hypothesis:

- H4. Perceived flow positively affects users' behavioral intentions.

2.3 Response ——— The psychological effects mentioned earlier play a role as they influence both attitudes and behaviors significantly.

2.3.1 Behavioral intention ——— The more similar people are, the more they try to communicate and understand each other, facilitating the exchange of messages between them (Rogers and Bhowmik 1970); Individuals tend to evaluate favorably those who are similar to them (Goethals and Nelson 1973). This suggests that if individuals see a computer assistant as similar, to themselves; they are likely to give it an assessment. Indeed, studies have shown that a CA with a human-like morphology is more likely to be perceived as more likable than an agent with a less human-like morphology (Koda 1996; Wexelblat 1998).

3 Empirical study ——— This empirical study aims to analyze the influence of design characteristics of a conversational agent, or chatbot, on user intention within the online customer service of CASH Assurances. The chatbot, which interacts with users via instant messaging, has been integrated into the Facebook Messenger platform and is also accessible on a dedicated website. Participants were invited to converse with this virtual assistant to obtain information about the company and its offerings. After a preparatory briefing, participants first consulted the frequently asked questions about insurance before using the chatbot to explore the various insurance options. Inspired by previous research on conversational agents (Diederich et al. 2019c; Gnewuch et al. 2018), we selected a set of representative tasks to evaluate the chatbot's ability to answer diverse questions. The experience lasted approximately nine minutes for each participant, with a sample of 329 individuals aged 19 to 59 (mean: 27.8 years) and comprising 56.9% women. Participants were recruited from personal networks, primarily employees and university students.

3.1 Design prototyping ——— The aim was to give the impression that the agent had human qualities through the incorporation of social cues. to detect user intent and provide appropriate responses for user, we developed our conversational agent using Dialog flow, a Google natural language platform (2019), which enables the creation of natural conversational experiences through machine learning (Canonico and De Russis 2018). To create a human identity for our agent, we relied on the three dimensions of anthropomorphic design proposed by (Seeger et al. 2018). We first gave our agent's name and gender (Cowell and Stanney 2005; Nunamaker et al. 2011), as well as an avatar representing a customer service employee (Gong 2008), which allowed for more natural responses. Next, we integrated verbal cues to enrich the experience, such as self-disclosures (Schuetzler et al. 2018), self-references (Sah and Peng 2015), and personalized greetings (Cafaro et al. 2016). Finally, nonverbal cues like emoticons (Wang et al. 2008) and dynamic response delays (Gnewuch et al. 2018). By integrating these elements, our goal was to make the agent appear human by using various social signals (Feine et al. 2019). Figure 2 presents our prototype.

3.2 The measures ——— As previously mentioned, each participant completed a questionnaire measuring their perceptions of anthropomorphism, social presence, flow state, and behavioral intention after online experience with chatbot. To measure flow state, we adapted a five points Likert scale based on the studies of (Novak et al. 2003). Perceived anthropomorphism was measured also on a five points Likert scale using items from (Holtgraves and Han 2007). then, we used a five points Likert scale based on the work of (Keeling et al. 2010) to measure behavioral intention. In the end, social presence was measured on a five points Likert scale using items from (Qiu and Benbasat 2009).

Constructions & items	
Extremely inhuman like – extremely humanlike.	Humanness (Holtgraves and Han 2007)
Extremely unskilled – extremely skilled.	
Extremely unthoughtful – extremely thoughtful.	
Extremely impolite – extremely polite.	
Extremely unresponsive – extremely responsive.	
Extremely unengaging – extremely engaging.	
I felt totally captivated.	Flow (Novak et al. 2003)
Time seemed to pass very quickly.	
Nothing seemed to matter to me.	
I felt a sense of human warmth in the agent.	Social presence (Qiu and Benbasat 2009)
I felt a sense of human contact in the agent.	
I felt a sense of sociability in the agent.	
I felt a sense of human sensitivity in the agent.	
I would recommend the site.	Behavioral intention (Keeling et al. 2010)
I would revisit the site.	
I would revisit the agency.	

TABLE1: SURVEY ITEMS
SOURCE: AUTHORS (MEASUREMENT CONSTRUCTS DERIVED FROM THE LITERATURE)

3.3 Structural equation modelling (SEM) ——— Structural equation modelling (SEM) technique was used to analysis our multivariate data. Given the higher flexibility provided by the alternative approach of SEM, namely the partial least square (PLS-SEM) compared to more basic covariance-based CB-SEM one (Latan 2018), we deemed it necessary to estimate our SEM model following this approach. The model processed via the PLS-SEM method follows a classic two-step approach as described by PLS experts. This approach involves ensuring the quality of the measurement model and then, once confirmed, the structural model can be examined, thereby allowing for testing the research hypotheses (Sarstedt et al. 2021). SmartPLS.4 (Ringle et al. 2024), the leading software for PLS-SEM, was used to perform all required analyses.

3.3.1 Evaluation of the measurement model ——— When the model consists of solely reflective constructs, its evaluation focuses on the reliability and validity of the measures (Sarstedt et al. 2014). The reliability of an indicator is established if its loading is greater than 0.708. Although loadings of at least 0.4 are acceptable as long as they do not compromise the reliability and convergent validity of the construct (Hair and Alamer 2022). The internal consistency of the construct can be evaluated by various measures such as Cronbach's alpha or Jöreskog's rho, but PLS experts' advice for the use Dijkstra and Henseler's rho (A) coefficient (2015) instead, given its greater accuracy. Values of rho (A) greater than 0.7 or even 0.6 for exploratory studies indicate good internal consistency (Sarstedt et al. 2022). Convergent validity is achieved when the average variance extracted (AVE) index is greater than 0.5, which means that the construct explains more than 50% of the variance of his associated items (Ringle et al. 2020). Discriminant validity is confirmed when the shared variance between the constructs is less than the-

ir respective AVEs, known by Fornell-Larcker criterion (Hair et al. 2021). The analysis of our model using the PLS algorithm showed that this latter meets the above referenced standards of good measurement quality after the elimination of certain items.

Constructs	Loading item	Coef. of reliability rho (A)	AVE
Flow	0.953 0.955	0.903	0.911
Anthropomorphism	0.845 0.902 0.765	0.796	0.705
Behavioral intention	0.739 0.842 0.762	0.680	0.612
Social presence	0.818 0.871 0.843 0.842	0.868	0.712

TABLE 2: EVALUATION OF THE RELIABILITY AND CONVERGENT VALIDITY OF THE MEASUREMENT MODEL
SOURCE: AUTHORS

	Flow	Anthropomorphism	Behavioral intention	Social presence
Flow	0.954			
Anthropomorphism	0.820	0.839		
Behavioral intention	0.748	0.752	0.782	
Social presence	0.575	0.610	0.735	0.844

TABLE 3: TESTING THE DISCRIMINANT VALIDITY USING THE FORNELL-LARCKER CRITERION
SOURCE: AUTHORS

3.3.2 Structural model evaluation and hypothesis testing ——— The structural model incorporates the regression relationships linking the constructs together, in other words, the research hypotheses (Hair et al. 2014). It is often referred as the inner model in PLS-SEM terminology (Hair et al. 2017). The examination of the structural or inner model using the PLS-SEM approach involves assessing the significance and relevance of the path coefficients, and then evaluating the explanatory and predictive power of the model (Cheah 2019). However, given that the inner model is formed by regression relationships, it is necessary to ensure that it does not present with a multicollinearity problem, as this can affect the quality of the estimates later (Ghasemy et al. 2020). To this, Variance inflation factor (VIF) indices for endogenous constructs of less than 3 or at the limit less than 5 already indicate the absence of multicollinearity (Alamer et al. 2022). This was confirmed in our model (see Table 3).

The estimation of path coefficients and model parameters in PLS-SEM is usually performed using a non-parametric analysis called bootstrapping, as this method does not assume normality of the data (Risher and Hair 2017). For this reason, PLS-SEM is

particularly effective for testing indirect effects (Nitzl et al. 2016; Nitzl and Chin 2017). A parameter is considered to be statistically significant when its t-value is greater than |1.96|, its p-value is less than 0.05 (a commonly used threshold in marketing studies (Hair et al. 2022)), or even when zero is not included in the its respective confidence interval (Risher and Hair 2017). Regarding the relevance of structural coefficients, Cohen's f^2 effect sizes measure this relevance, with values greater than 0.35 indicating a strong impact of the independent variable over the dependent variable, while values between 0.15 and 0.35 indicate medium impacts and between 0.02 and 0.15 a weak ones (Manley et al. 2021). In our study, the estimation of the model using 10,000 subsamples and a percentile method for constructing confidence intervals (Hair et al. 2022), revealed that all hypotheses were confirmed with strong effect sizes in most case. Moreover, partial mediations of flow and social pressure between the anthropomorphic character and behavioral intention were identified as their respective VAF (Variance Accounted For) indices ranging between 20% and 80% (Nitzl et al. 2016).

Direct link	Hypothesis	Standardized regression	Standard deviation	T-value	P-value	VIF	f2
Anthropomorphism → Social presence	H1	0.610	0.063	9.705	0.000	1.000	0.592
Anthropomorphism → Flow	H2	0.820	0.032	25.439	0.000	1.000	2.057
Social presence → Behavioral intention	H3	0.403	0.057	7.084	0.000	1.636	0.353
Flow → Behavioral intention	H4	0.309	0.103	3.011	0.001	3.142	0.108
Anthropomorphism → Behavioral intention	-	0.253	0.107	2.362	0.009	3.349	0.068

TABLE 4: EVALUATION OF THE RELIABILITY AND TESTING OF DIRECT EFFECTS
SOURCE: AUTHORS

Direct link	Standardized regression	Standard deviation	T-value	P-value	VAF
Anthropomorphism → Flow → Behavioral intention	0.254	0.085	2.979	0.001	32%
Anthropomorphism → Social presence → Behavioral intention	0.246	0.039	6.289	0.000	49.2%

TABLE 5: TESTING OF INDIRECT EFFECTS
SOURCE: AUTHORS

Inner model validation involves also evaluating its explanatory and predictive power. Explanatory capacity usually is measured by the coefficient of determination R^2 in PLS-SEM models. This coefficient indicates the percentage of explained variance of the endogenous variable, with values close to 1 or greater than 0.75 being desirable (Ghasemy et al. 2020). However, the interpretation of R^2 must take into account the complexity of the model, particularly the number of exogenous variables. The more predictors there are for a construct, the higher the expected R^2 (Hair et al. 2019). In marketing studies, R^2 values of 0.75, 0.5, and 0.25 correspond to high, moderate, and low explanatory powers, respectively (Hair et al. 2011). In our model, an R^2 of 0.718 was obtained for the behavioral intention variable, the model's final variable, indicating therefore a high explanatory power.

To assess the predictive capacity of the inner model, the researcher can use either the predictive relevance index Q^2 or the more advanced PLS predict analysis. Although the calculation of Q^2 is based on the omission of some part of the original data, it cannot be considered as a full measure of predictive power rather than an indicator of both explanatory and predictive power together. Usually, a positive Q^2 indicates the presence of some predictive relevance, while values greater than 0.5 suggest a high predictive relevance (Ringle et al. 2020). On the other hand, PLS predict evaluates the predictive capacity of a PLS model more accurately by using out-of-sample data or holdout samples (Shmueli et al. 2019). PLS predict provides statistics which quantify the amount of prediction errors relative to the PLS model and two benchmarks formed by average indicators (AI benchmark) and linear regressions (benchmark LM). The more the PLS model shows less prediction errors than its benchmark, the higher will be its predictive power.

PLS predict prediction error summaries are respectively the Q^2 predict, then the MAE (mean absolute error) and/or the RMSE (root mean squared error) indices. Q^2 predict must be positive for all items of the targeted variable to demonstrate that the PLS model has at least more predictive ability than its most naive benchmark which is the AI one. If confirmed, the MAE and/or RMSE of the PLS model (indicators of the targeted variable) should be compared with those of the less naïve LM benchmark. High predictive ability of PLS model is established if his MAE and/or RMSE are lower than the LM's ones (Shmueli et al. 2019). The evaluation of the predictive power of our model has shown that the latter has a high predictive power since it has a Q^2=0.408 for the model's final construct (behavioral intention) and it outperforms its two benchmarks in terms of out-of-sample predictive performance (see table 5).

	PLS-SEM				LM		PLS-LM	PLS-LM
Dependent construct	Items	Q^2predict	RMSE	MAE	RMSE	MAE	RMSE	MAE
Behavioral intention	Ic2	0.466	0.824	0.550	0.838	0.563	-0.014	-0.013
	Ic3	0.333	1.036	0.714	1.049	0.726	-0.013	-0.012

TABLE 6: PLS PREDICT ANALYSIS AND EXAMINATION OF THE PREDICTIVE POWER OF THE PLS-SEM MODEL (K=10, R=10)
SOURCE: AUTHORS

4 Results and discussion ——— This study contributes to the academic literature in two primary ways. First, this research enriches previous work on social presence and its effect on behavioral intention, while also improving anthropomorphism through social cues (Hossain et al. 2023; Munnukka et al. 2022; Nisha. et al. 2024). Thus, social cues have a positive impact on perceived anthropomorphism and that the state of flow can influence behavioral intention towards the chatbot.

The effects of anthropomorphism raise concerns among marketing researchers, as they challenge the notion that human-like resemblance positively influences users' behavioral intentions, as highlighted by (Følstad and Skjuve 2019) and (Araujo 2018). So, this article confirms that integrating an avatar into an insurance company's online customer service chatbot enhances the state of flow.

We also found that the S-O-R model provided a better fit, confirming that the flow and social presence variables mediate the relationship both directly and indirectly. Furthermore, this study highlights the potential of the flow state generated during interactions. Our results show that perceived anthropomorphism, reinforced by social cues, contributes to this positive psychological state. To our knowledge, no previous research has explored the effects of anthropomorphism on flow in the context of online customer service while using the S-O-R model. The innovative results of this study enrich the literature on anthropomorphism by providing additional information about the factors that can induce a positive flow state, thus favorably influencing users' behavioral intentions.

This study has significant practical implications for chatbot designers and online marketing specialists looking to integrate a chatbot as a virtual assistant or improve the user experience in human-machine interactions. Based on the experimental results, it is recommended that designers create avatars by incorporating social cues to simulate human conversation. The integration of avatars could mitigate the risks of misperception of social presence, as highlighted by (Kear 2010) and (Payne et al. 2012). Moreover, anthropomorphism linked to appearance has an impact on behavioral intention, as a negative experience can harm this intention. It would therefore be wise to design chatbots capable of inspiring flow in users by using natural visual cues and reinforcing their expertise.

5 Limitation ——— Future research should focus on exploring the underlying mechanisms by introducing varied experimental conditions to better understand the mediating effect of flow and social presence. for insurance related information gathering a service that often demands thorough research before committing to a decision. Additionally, as highlighted by Kunreuther et al. (2015) and Kunreuther and Pauly (2018), certain individual factors were not considered in this study. The experimental scenario involved interacting with chatbots to obtain information about insurance, a high-involvement service that typically requires extensive research before making a decision.

In our study, it is possible that unmeasured factors, such as how participants felt about insurance before taking part. That could have affected our findings. To ensure the validity of our conclusions, it would be important for future studies to check and manage how participants feel about intelligence to make sure our findings are accurate. Additionally, although our study used a chatbot-type conversational agent, it would be necessary to generalize the results to other forms of conversational agents, such as embodied agents, that have added features, like voice and nonverbal cues.

6 Conclusion ——— Exploring how anthropomorphism influences human computer interaction is an aspect of using chatbots that resemble humans in ways such, as having expressive avatars and providing personalized responses to enhance user engagement and immersion in the interaction experience based on our studies. The seamless flow of conversation enhances the feeling of being engaged – it's, like interacting with a sentient and attentive being.

The blend of human characteristics, in chatbots with a tone and engaging presence positively influences how users behave online. For instance, an avatar that resembles a person promoting an item may spark curiosity and desire for purchase among users compared to a robotic chat interface focused solely on functionality. These conclusions are in line with the SOR framework that examines how stimuli from the environment impact individual's organismic processes and subsequent responses. By infusing chatbots with traits they serve as stimuli that evoke various cognitive and emotional reactions, in users ultimately shaping their favorable behavioral intentions.

Conclusively speaking like chatbots signify a progression, within the realm of computer interactions, with humans. By nurturing an interaction and social connection they have the capacity to promote acceptance of novel technologies and enhance user satisfaction across various domains, including customer support, online commerce and healthcare services.

FIGURE 2: CHATBOT AGENT
SOURCE: AUTHORS

Literatúra | *List of References* ——— [1] Acquatella, F., Fernandez, V. and Houy T., 2018. Quelles dynamiques stratégiques pour les plateformes digitales? Proposition d'un cadre d'analyse à partir du cas Coursera. i3 Working Papers Series, 18-SES-02. 2018. [online]. [cit. 2024-10-30]. Available at: <https://i3.cnrs.fr/wp-content/uploads/2018/01/WPi3-18-SES-02-Acquatella-Fernandez-Houy.pdf> | [2] Aladwani, A. M. and Dwivedi, Y. K., 2018. Towards a theory of socio-citizenry: Quality anticipation, trust configuration, and approved adaptation of governmental social media. In: International Journal of Information Management. 2018, 43, 261-272. ISSN 1873-4707. Available at: <https://doi.org/10.1016/j.ijinfomgt> | [3] Allal-Chérif, O., Aránega, A. Y. and Sánchez, R. C., 2021. Intelligent recruitment: How to identify, select, and retain talents from around the world using artificial intelligence. In: Technological Forecasting and Social Change. 2021, 169. ISSN 1873-5509. Available at: <https://doi.org/10.1016/j.techfore.2021.120822> | [4] Androutsopoulou, A., Karacapilidis, N., Loukis, E. and Charalabidis, Y., 2019. Transforming the communication between citizens and government through AI-guided chatbots. In: Government Information Quarterly. 2019, 36(2), 358-367. ISSN 1872-9517. Available at: <https://doi.org/10.1016/j.giq.2018.10.001> | [5] Araujo, T., 2018. Living up to the chatbot hype: The influence of anthropomorphic design cues and

communicative agency framing on conversational agent and company perceptions. In: Computers in human behavior. 2018, 85, 183-189. ISBN 1873-7692. Available at: <https://doi.org/10.1016/j.chb.2018.03.051> | [6] Bhawiyuga, A., Fauzi, M. A., Pramukantoro, E. S. and Yahya, W., 2017. Design of e-commerce chat robot for automatically answering customer question. November. In: International Conference on Sustainable Information Engineering and Technology (SIET), Batu: IEEE, 2017, 159-162. ISBN 978-1-5386-2182-0. | [7] Biocca, F., Harms, C., and Burgoon, J. K., 2003. Toward a more robust theory and measure of social presence: Review and suggested criteria. In: Presence: Teleoperators & Virtual Environments. 2003, 12(5), 456-480. ISSN 1531-3263. Available at: <https://doi.org/10.1162/105474603322761270> | [8] Cafaro, A., Vilhjalmsson, H. H. and Bickmore, T., 2016. First impressions in human-agent virtual encounters. In: ACM Transactions on Computer-Human Interaction. 2016, 24(4) , 1-40. ISSN 1073-0516. | [9] Canonico, M. and De Russis, L., 2018. A comparison and critique of natural language understanding tools. Article presented at CLOUD COMPUTING 2018: The Ninth International Conference on Cloud Computing, GRIDs, and Virtualization, Barcelona, 2018, 110-115. ISBN 978-1-61208-607-1. | [10] Cheah, J. H., Magno, F. and Cassia, F., 2024. Reviewing the SmartPLS 4 software: the latest features and enhancements. In: Journal of Marketing Analytics. 2024, 12, 97-107. ISSN 2050-3326. Available at: <https://doi.org/10.1057/s41270-023-00266-y> | [11] Cowell, A. J. and K. M. Stanney, 2005. Manipulation of non-verbal interaction style and demographic embodiment to increase anthropomorphic computer character credibility. In: International Journal of Human Computer Studies. 2005, 62(2), 281-306. ISSN 1095-9300. | [12] Cui, L., Huang, S., Wei, F., Tan, C., Duan, C. and Zhou, M., 2017. Superagent: A customer service chatbot for e-commerce websites. In: Proceedings of ACL. Vancouver: Association for Computational Linguistics, 2017, 97-102. | [13] Diederich, S., Janßen-Müller, M., Brendel, A. B. and Morana, S., 2019c. Emulating empathetic behavior in online service encounters with sentiment-adaptive responses: Insights from an experiment with a conversational agent. In: Proceedings of the International Conference on Information Systems (ICIS). Munich, 2019, 1-17. | [14] Diederich, S., Brendel, A. B. and Kolbe, L. M., 2020. Designing anthropomorphic enterprise conversational agents. In: Business & Information Systems Engineering. 2020, 62(3), 193-209. ISSN 1867-0202. | [15] Dieshbah, G. and Chandonal, 2006. Impact of the presence of an embodied virtual agent on the stickiness power of a website: a behavioral analysis using log files. 2006. [online]. [cit. 2024-10-30]. Available at: <http://leg2.ubourgogne.fr/CERMAB/zoutils/documents/actesJRMB/JRM B112006/Diesbach%20Galan%20et%20Chandon.pdf> | [16] Dijkstra, T. K. and Henseler, J., 2015. Consistent partial least squares path modeling. In: MIS Quarterly. 2015, 39(2), 297-316. ISSN 0276-7783. Available at: <https://www.jstor.org/stable/26628355> | [17] Epley, N., Waytz, A. and Cacioppo, J. T., 2007. On seeing human: A three-factor theory of anthropomorphism. In: Psychological Review. 2007, 114(4), 864-886. ISSN 0033-295X. | [18] Feine, J., Gnewuch, U., Morana, S. and Maedche, A., 2019. A taxonomy of social cues for conversational agents. In: International Journal of Human-Computer Studies. 2019, 132, 138-161. ISSN 1071-5819. | [19] Følstad, A. and Skjuve, M., 2019. Chatbots for customer service: user experience and motivation. In: Proceedings of the 1st international conference on conversational user interfaces. Dublin: Association for Computing Machinery, 2019, 1-9. ISBN 978-1-4503-7187-2. Available at: <https://doi.org/10.1145/3342775.3342784> | [20] Ghasemy, M., Teeroovengadum, V., Becker, J. M. and Ringle, C. M., 2020. This fast car can move faster: A review of PLS-SEM application in higher education research. In: Higher education. 2020, 80(6), 1121-1152. ISSN 1573-174X. | [21] Gnewuch, U., Morana, S., Adam, M. T. P. and Maedche, A., 2018. Faster is not always better: Understanding the effect of dynamic response delays in human-chatbot interaction. In: Proceedings of the European Conference on Information Systems (ECIS). Portsmouth, 2018, 1-17 | [22] Goethals, G. R. and Nelson, R. E., 1973. Similarity in the influence process: The belief value distinction. In: Journal of Personality and Social Psychology. 1973, 25(1), 117-122. ISSN 1939-1315. Available at: <https://doi.org/10.1037/h0034266> | [23] Gong, L., 2008. How social is social responses to computers? The function of the degree of anthropomorphism in computer representations. In: Computers in Human Behavior. 2008, 24(4), 1494-1509. ISSN 1873-7692. | [24] Hair, J. F., Hult, G. T. M., Ringle, C. M. and Sarstedt, M., 2022. A primer on partial least squares structural equation modeling (PLS-SEM). Thousand Oaks, CA: Sage, 2022. ISBN 978-1-5443-9640-8. | [25] Hair, J. and Alamer, A., 2022. Partial least squares structural equation modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. In: Research Methods in Applied Linguistics. 2022, 1(3), 100027. ISSN 2772-7661. | [26] Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P. and Ray, S., 2021. Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. Springer Nature, 2021. ISBN 978-3-030-80519-7. | [27] Hair, J. F., Risher, J. J., Sarstedt, M. and Ringle, C. M., 2019. When to use and how to report the results of PLS-SEM. In: European business review. 2019, 31(1), 2-24. ISSN 1758-7107. | [28] Hair Jr, J. F., Sarstedt, M., Hopkins, L. and Kuppelwieser, V. G., 2014. Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. In: European business review. 2014, 26(2), 106-121. ISSN 1758-7107. | [29] Hair, J. F., Ringle, C. M. and Sarstedt, M., 2011. PLS-SEM: Indeed a silver bullet. In: Journal of Marketing theory and Practice. 2011, 19(2), 139-152. ISSN 1944-7175. | [30] Hausman, A. V. and Siekpe, J. S., 2009. The effect of web interface features on consumer online purchase intentions. In: Journal of business research. 2009, 62(1), 5-13. ISSN 1873-7978. | [31] Henseler, J., Ringle, C. M. and Sarstedt, M., 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. In: Journal of the academy of marketing science. 2015, 43, 115-135. ISSN 0092-0703. | [32] Hoffman, D. L. and Novak, T. P., 1996. A new marketing paradigm for electronic commerce. In: Information Society. 1996, 13(1), 43-54. ISSN 1087-6537. | [33] Holtgraves, T. and Han, T. L., 2007. A procedure for studying online conversational processing using a chatbot. In: Behavior Research Methods. 2007, 39(1), 156-163. ISSN 1554-351X. | [34] Hossain, M. A., Yesmin, N., Jahan, N. and Reza, S. M. A., 2023. Effect of social presence on behavioral intention to social commerce through online social capital. In: International Journal of e-Collaboration. 2023, 19(1),1-23. ISSN 15483681. | [35] Kar, A. K., Kushwaha, A. K., 2023. Facilitators and barriers of artificial intelligence adoption in business – insights from opinions using big data analytics. In: Information Systems Frontiers. 2023, 25(4), 1351-1374. ISSN 1572-9419. Available at: <https://doi.org/10.1007/s10796-021-10219-4> | [36] Keeling, K., McGoldrick, P. and Beatty, S., 2010. Avatars as salespeople: Communication style, trust, and intentions. In: Journal of Business Research. 2010, 63(8), 793-800. ISSN 1873-7978. | [37] Kear, K., 2010. Social presence in online learning communities. In: Proceedings of the 7th international conference on networked learning. Aalborg, 2010, 541-548. ISBN 978-1-86220-225-2. | [38] Keeling, K., McGoldrick, P. and Beatty, S., 2010. Avatars as salespeople: Communication style, trust, and intentions. In: Journal of Business Research. 2010, 63(8), 793-800. ISSN 1873-7978. Available at: <https://doi.org/10.1016/j.jbusres.2008.12.015> | [39] Koda, T., 1996. Agents with faces: A study on the effects of personification of software agents (Unpublished master thesis). Boston, MA, USA: Massachusetts Institute of Technology, 1996. | [40] Koufaris, M., 2002. Applying the technology acceptance model and flow theory to online consumer behavior. In: Information Systems Research. 2002, 13(2), 205-223. ISSN 1047-7047. | [41] Kreijns, K., Kirschner, P. A., Jochems, W. and van Buuren, H., 2007. Measuring perceived sociability of computer-supported collaborative learning environments. In: Computers & Education. 2007, 49(2),176-19. ISSN 1873-782X. | [42] Kunreuther, H. and Pauly, M., 2018. Dynamic insurance decision-making for rare events: The role of emotions. In: Geneva Papers on Risk and Insurance-issues and Practice. 2018, 43, 335-355. ISSN 1468-0440. Available at: <https://doi.org/10.1057/S41288-017-0068-X> | [43] Kunreuther, H. and Pauly, M., 2015. Insurance decision-making for rare events: The role of emotions. In: Social Science Research Network. 2015, 1-15. ISSN 1556-5068. Available at: Available at: <https://doi.org/10.3386/W20886> | [44] Latan, H., 2018. PLS path modeling in hospitality and tourism research: The golden age and days of future past. In: Applying partial least squares in tourism and hospitality research. 2018, 53-83. Bingley: Emerald Publishing Limited. ISBN 978-1-78756-700-9. | [45] Legate, A. E., Hair Jr, J. F., Chretien, J. L. and Risher, J. J., 2023. PLS SEM: Prediction oriented solutions for HRD researchers. In: Human Resource Development Quarterly. 2023, 34(1), 91-109. ISSN 1532-1096. | [46] Liengaard, B. D., Sharma, P. N., Hult, G. T. M., Jensen, M. B., Sarstedt, M., Hair, J. F. and Ringle, C. M., 2021. Prediction: coveted, yet forsaken? Introducing a cross validated predictive ability test in partial least squares path modeling. In: Decision Sciences. 2021, 52(2), 362-392. ISSN 1540-5915. | [47] Magno, F., Cassia, F. and Ringle, C. M., 2022. A brief review of partial least squares structural equation modeling (PLS-SEM) use in quality management studies. In: The TQM Journal. 2022, 36(5), 1242-1251. ISSN 1754-274X. | [48] Manley, S. C., Hair, J. F., Williams, R. I. and McDowell, W. C., 2021. Essential new PLS-SEM analysis methods for your entrepreneurship analytical toolbox. In: International Entrepreneurship and Management Journal. 2021, 17, 1805-1825. ISSN 1555-1938. | [49] McLean, G. and Osei-Frimpong, K., 2019. Chat now… Examining the variables influencing the use of online live chat. In: Technological Forecasting and Social Change. 2019, 146, 55-67. ISSN 1873-5509. Available at: <https://doi.org/10.1016/j.techfore.2019.05.017> | [50] Meparishvili, K., 2016. Psychology of online customer behavior. In: Caucasus Journal of Social Sciences. 2016, 9(1), 73-86. ISSN 2960-9380. Available at: <https://doi.org/10.62343/cjss.2016.158> | [51] Moore, S., 2018. Gartner says 25 percent of customer service operations will use virtual customer assistants by 2020. 2018. [online]. [cit. 2024-10-09]. Available at: <https://www.gartner.com/newsroom/id/3858564> | [52] Munnukka, J. Talvitie-Lamberg, K. and Devdeep, M., 2022. Anthropomorphism and social presence in human-virtual service assistant interactions: The role of dialog length and attitudes. In: Computers in Human Behavior. 2022, 135, 107343. ISSN 1873-7692. Available at: <https://doi.org/10.1016/j.chb.2022.107343> | [53] Nass, C. and

Moon, Y., 2000. Machines and mindlessness: Social responses to computers. In: Journal of social issues. 2000, 56(1), 81-103. ISSN 1540-4560. | [54] Ngai, E. W., Lee, M. C., Luo, M., Chan, P. S. and Liang, T., 2021. An intelligent knowledge-based chatbot for customer service. In: Electronic Commerce Research and Applications. 2021, 50. ISSN 1567-4223. Available at: <https://doi.org/10.1016/j.elerap.2021.101098> | [55] Nitzl, C. and Chin, W. W., 2017. The case of partial least squares (PLS) path modeling in managerial accounting research. In: Journal of Management Control. 2017, 28, 137-156. ISSN 2191-477X. | [56] Nitzl, C., Roldan, J. L. and Cepeda, G., 2016. Mediation analysis in partial least squares path modeling: Helping researchers discuss more sophisticated models. In: Industrial management & data systems. 2016, 116(9), 1849-1864. ISSN 1758-5783. | [57] Nisha, P. Asokk, D. Prasanna, S. and Ansari, A., 2024. Investigating chatbot users' e-satisfaction and patronage intention through social presence and flow: Indian online travel agencies (OTAs). In: Journal of Systems and Information Technology. 2024, 26(1), 89-114. ISSN 1758-8847. Available at: <https://doi.org/10.1108/JSIT-04-2023-0062> | [58] Novak, T. P., Hoffman, D. L. and Duhachek, A., 2003. The influence of goal-directed and experiential activities in online flow experiences. In: Journal of Consumer Psychology. 2003, 13(1), 3-16. ISSN 1532-7663. | [59] Nunamaker, J. F., Derrick, D. C., Elkins, A. C., Burgoon, J. K. and Patton, M. W., 2011. Embodied conversational agent-based kiosk for automated interviewing. In: Journal of Management Information Systems. 2011, 28(1), 17-48. ISSN 1557-928X. Available at: <https://doi.org/10.2753/MIS0742-1222280102> | [60] Payne, J., Szymkowiak, A., Johnson, G. I., Robertson, P. and Henderson, R., 2012. Beyond embodiment and social presence: preferences for virtual assistant gender and clothing style. In: International Society for Presence Research Annual Conference. Philadelphia: Temple University, 2012. ISBN 978-0-9792217-5-0. | [61] Pfeuffer, N., Benlian, A., Gimpel, H. and Hinz, O., 2019. Anthropomorphic information systems. In: Business & Information Systems Engineering. 2019, 61, 523-533. ISSN 1867-0202. | [62] Qiu, L. and Benbasat, I., 2009. Evaluating anthropomorphic product recommendation agents: A social relationship perspective to designing information systems. In: Journal of management information systems. 2009, 25(4), 145-182. ISSN 0742-1222. | [63] Reeves, B. and Nass, C., 1996. The media equation: How people treat computers, television and new media like real people and places. Stanford, CA: Center for the Study of Language and Information, 1996. ISBN 1-5758-6053-8. | [64] Rogers, E. M. and Bhowmik, D. K., 1970. Homophily-heterophily: Relational concepts for communication research. In: Public Opinion Quarterly. 1970, 34(4), 523-538. ISSN 1537-5331. Available at: <https://doi.org/10.1086/267838> | [65] Ringle, C. M., Wende, S. and Becker, J. M., 2024. Smart-PLS 4. Boenningstedt: Smart-PLS GmbH. 2024. [online]. [cit. 2024-10-09]. Available at: <http://www.smartpls.com> | [66] Ringle, C. M., Sarstedt, M., Mitchell, R. and Gudergan, S. P., 2020. Partial least squares structural equation modeling in HRM research. In: The international journal of human resource management. 2020, 31(12), 1617-1643. ISSN 0958-5192. | [67] Risher, J. and Hair Jr, J. F., 2017. The robustness of PLS across disciplines. In: Academy of Business Journal. 2017, 1, 47-55. ISSN 2381-313X. | [68] Sah, Y. J. and Peng, W., 2015. Effects of visual and linguistic anthropomorphic cues on social perception, self-awareness, and information disclosure in a health website. In: Computers in Human Behavior. 2015, 45, 392-401. ISSN 1873-7692. Available at: <https://doi.org/10.1016/j.chb.2014.12.055> | [69] Sarstedt, M., Hair Jr, J. F. and Ringle, C. M., 2023. PLS-SEM: indeed a silver bullet –retrospective observations and recent advances. In: Journal of Marketing Theory and Practice. 2023, 31(3), 261-275. ISSN 1069-6679. | [70] Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L. and Ringle, C. M., 2022. Progress in partial least squares structural equation modeling use in marketing research in the last decade. In: Psychology & Marketing. 2022, 39(5), 1035-1064. ISSN 1520-6793. | [71] Sarstedt, M. and Cheah, J. H., 2019. Partial least squares structural equation modeling using SmartPLS: a software review. In: Journal of Marketing Analytics. 2019, 7, 196-202. ISSN 2050-3318. | [72] Sarstedt, M., Ringle, C. M., Smith, D., Reams, R. and Hair Jr, J. F., 2014. Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. In: Journal of family business strategy. 2014, 5(1), 105-115. ISSN 1877-8585. | [73] Schuetzler, R. M., Grimes, G. M. and Giboney, J. S., 2018. An Investigation of conversational agent relevance, presence, and engagement. In: Proceedings of the americas conference on information systems, New Orleans, 2018, 1-10. ISBN 978-0-615-55907-0. | [74] Seeger, A. M., Pfeiffer, J. and Heinzl, A., 2018. Designing anthropomorphic conversational agents: Development and empirical evaluation of a design framework. In: Proceedings of the international conference on information systems, 2018. ISBN 978-0-9966831-7-3. | [75] Sharma, P. N., Liengaard, B. D., Hair, J. F., Sarstedt, M. and Ringle, C. M., 2022. Predictive model assessment in PLS-SEM: extensions and guidelines: an abstract. In: Academy of Marketing Science annual conference. Cham: Springer Nature Switzerland, 2022, 83-84. ISBN 978-3-031-24687-6. | [76] Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S. and Ringle, C. M., 2019. Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. In: European journal of marketing. 2019, 53(11), 2322-2347. ISSN 1758-7123. | [77] Wang, S., Cheah, J. H., Wong, C. Y. and Ramayah, T., 2023. Progress in partial least squares structural equation modeling use in logistics and supply chain management in the last decade: a structured literature review. In: International Journal of Physical Distribution & Logistics Management. 2023, 54(1). ISSN 0960-0035. | [78] Wang, C., Teo, T. S. and Janssen, M., 2021. Public and private value creation using artificial intelligence: an empirical study of AI voice robot users in Chinese public sector. In: International Journal of Information Management. 2021, 61. ISSN 1873-4707. Available at: <https://doi.org/10.1016/j.ijinfomgt.2021.102401> | [79] Wang, N., Johnson, W. L., Mayer, R. E., Rizzo, P., Shaw, E. and Collins, H., 2008. The politeness effect: Pedagogical agents and learning outcomes. In: International Journal of Human Computer Studies. 2008, 66(2), 98-112. ISSN 1095-9300. | [80] Waytz, A., Gray, K., Epley, N. and Wegner, D. M., 2010b. Causes and consequences of mind perception. In: Trends in Cognitive Sciences. 2010, 14(8), 383-388. ISSN 1364-6613. | [81] Wexelblat, A., 1998. Don't make that face: A report on anthropomorphizing an interface. In: Intelligent Environments. 1998, 173(179), 98-02. ISSN 2199-4676. | [82] Wünderlich, N. V. and Paluch, S., 2017. A nice and friendly chat with a bot: User perceptions of AI-based service agents. In: Proceedings of the International Conference on Information Systems, 2017. ISBN 978-0-9966831-5-9. | [83] Xu, Y., Shieh, C.H., van Esch, P. and Ling, I. L., 2020. AI customer service: task complexity, problem-solving ability, and usage intention. In: Australasian Marketing Journal. 2020, 28(4), 189-199. ISSN 1839-3349. Available at: <https://doi.org/10.1016/j.ausmj.2020.03.005> | [84] Zhou, T., Li, H. and Liu, Y., 2010. The effect of flow experience on mobile SNS users' loyalty. In: Industrial Management & Data Systems. 2010, 110(6), 930-946. ISSN 1758-5783. | [85] Zhou, T., Li, H. and Liu, Y., 2010. The effect of flow experience on mobile SNS users' loyalty. In: Industrial Management & Data Systems. 2010, 110(6), 930-946. ISSN 1758-5783. Available at: <https://doi.org/10.1108/02635571011055126> | [86] Zhou, T., 2013. An empirical examination of continuance intention of mobile payment services. In: Decision Support Systems. 2013, 54(2),1085-1091. ISSN 1873-5797.

Kľúčové slová | Key Words ——— anthropomorphic conversational agent, flow, social presence, social cues, behavioral intention | *antropomorfný konverzačný agent, tok, sociálna prítomnosť, sociálne náznaky, behaviorálny zámer*

JEL klasifikácia | *JEL Classification* ——— M31

Résumé ——— ***Vplyv vnímaného antropomorfizmu konverzačného agenta (CA) na sociálnu prítomnosť, tok a zámer správania používateľov***

Výskum sa uskutočnil s cieľom preskúmať vplyv sociálnej prítomnosti konverzačného agenta na zámer správania používateľov na základe vnímaného antropomorfizmu. Pomocou S-O-R modelu sme využili vzorku 329 účastníkov a výsledky získané metódou PLS-SEM potvrdzujú, že antropomorfizmus posilnený sociálnymi podnetmi významne zvyšuje úmysel správania. Okrem toho vzťah medzi antropomorfizmom a behaviorálnym zámerom je sprostredkovaný tokom a sociálnou prítomnosťou prostredníctvom čiastočnej mediácie. Tieto zistenia majú významné teoretické dôsledky pre pochopenie toho, ako antropomorfizmus podporuje stav online zážitkov.

Kontakt na autorov | *Address* ——— Zahra Belhamri, The School of Higher Commercial Studies EHEC Algeria, Street Fahass Mouhamed Beni Tamou, Blida 9024, Algeria, e-mail: Z.belhamri@hec.dz
Imene Belboula, Saad Dahleb University, Blida Route De Soumaa Blida 09200, Algeria, e-mail: i_belboula@esc-alger.dz

Recenzované | *Reviewed* ——— 7. November 2024 / 11. November 2024

UHNINGED MARKETING: A REBELLIOUS MOVE THAT DEMANDS CAREFUL CONSIDERATION

In the race for customer attention, companies try a lot of different things. Unhinged marketing presents such a possible divergence from the polished and predictable tone of traditional approaches. It uses trending content, memes, funny and irreverent brand voices, nonsensical content. It includes shocking ads, wild stunts, provocative messages, or campaigns that challenge societal norms to grab attention. Unhinged marketing is primarily a social media strategy. Just recently, Ryanair released its 2024 wrap-up on low-budget travel, boasting about how many couples it had separated (by charging its infamous fee for allowing companions to sit together) and how frequently it had irritated customers in other ways.

Another early entrant in the disruptive social marketing game is the fast-food chain Wendy's with its silly contributions on its X account. As early as in 2017, Wendy's told one of its followers on Twitter at that time to find new friends when they mentioned a competitor. Wendy's communication brings the laughs with its snarky comments, quick-witted tweets, viral-worthy video clips and regular roasting of its well-known competitors such as McDonald's, Burger King, or Popeye's.

The language learning app Duolingo is another brand which by some credited with the emergence of unhinged marketing. Duolingo features a green owl as its mascot, is a recognized leader in the realm of unhinged marketing. The brand's marketers consistently entertain followers with irreverent commentary, humorous videos, witty memes, and laugh-out-loud banter. Notably, Duolingo is famous for its somewhat threatening reminders to those who follow its language lessons.

While unhinged marketing can be highly effective in some cases, it also has the potential to backfire, making it a double-edged sword for businesses. Unhinged campaigns may offend or alienate consumers, cause damage to the brand's reputation, or ignite legal and ethical debates. In a world where brands are deeply integrated into culture, there is an element of absurdity to consider. For instance, in 2019, Chase Bank faced significant backlash for a now-deleted tweet that appeared to mock customers for spending too much on activities like dining out, taking cabs, and drinking coffee. Similarly, in 2022, Balenciaga acknowledged "grievous errors" after facing backlash for promotional images featuring children holding BDSM teddy bears.

Ultimately, unhinged marketing requires a delicate balance of creativity, boldness, and responsibility. It is not for the faint of heart. It is unlikely to be a fit for brands in industries that need to be taken seriously by consumers, such as those in law, finance, and medicine, as well as for luxury brands and businesses based in education, children's products, and real estate. For new brands with little to no existing brand awareness in the market, unhinged marketing can be an unlikely-to-land leap – as the tactic is more likely to fly for brands with an established image in their industry, large following on social media and existing customer base. Brands targeting younger demographics, especially Gen Z and millennials, may benefit from unhinged marketing because this group tends to appreciate humor, boldness, and irreverence.

But for brands targeting younger audiences, unhinged tactics can be a winning move. Potential suspects include food and beverage makers, gaming companies, fashion brands, fitness and health, tech brands, artists, and activism-focused organizations. Brands that seek to challenge industry norms or disrupt established markets are often well-suited to unhinged marketing.

Unhinged marketing: Rebelský krok vyžadující pečlivé zvážení

Unhinged marketing představuje záměrné vybočení za zaběhnutých trendů v social media marketingu. Využívá trendový obsah, memy, vtipné a neuctivé poznámky, šokující či provokativní sdělení, které zpochybňují společenské normy, nebo prezentuje zdánlivě zcela nesmyslný obsah, aby upoutal zákaznickou pozornost. Unhinged marketing vyžaduje udržování křehké rovnováhy mezi kreativitou, odvahou a odpovědností. Příklady hodné následování zahrnují Duolingo, Wendy's či Ryanair, zatímco existují i příklady kampaní, jimž by se měly značky vyhnout obloukem.

Kontakt na autorov | *Address* ——— doc. Ing. Pavel Štrach, Ph.D., Ph.D., Škoda Auto University, Marketing and Management Department, Na Karmeli 1457, 293 01 Mladá Boleslav, Czech Republic, e-mail: pavel.strach@savs.cz

SÚŤAŽ FLEMA MEDIA AWARDS 2024

Tento rok sa odohral devätnásty ročník súťaže FLEMA. Ide o súťaž organizovanú v Českej a Slovenskej republike, ktorá sa zameriava na mediálne kampane a využitie jednotlivých mediatypov. Vďaka tomu umožňuje porovnanie úrovne mediálneho plánovania a inovatívnych komunikačných stratégií v oboch krajinách. Vedecký časopis Marketing Science & Inspirations prináša informácie, ktoré zverejnili organizátori súťaže o jej priebehu a výsledkoch.

Kampane prihlásené do súťaže boli posudzované v piatich kategóriách podľa mediatypu: najlepšie využitie TV, najlepšie využitie tlače, najlepšie využitie OOH, najlepšie využitie rádia a najlepšie využitie digitálnych médií. Súčasne boli vyhodnotené aj tri prierezové kategórie: najlepšia komerčná kampaň, najlepšia nekomerčná kampaň a najodvážnejší počin. V rámci Media & Insight boli zaradené kategórie: najlepšie využitie dát, najlepšie využitie real-time marketingu, najlepšie využitie influencera a najlepšie zapojenie zákazníka. Do súťaže boli zaradené práce, ktoré boli zrealizované na českom alebo slovenskom trhu v období od 1. januára 2023 do 30. júna 2024. Finálne výsledky boli vyhlásené 24. októbra 2024. Víťazmi v jednotlivých kategóriách sa stali:

- **najlepšia nekomerčná kampaň** ——— (Nenasaditelný prsten/Prague Pride, JsmeFér/Publicis Groupe, Leo Burnett Prague/(CZ)),
- **najlepšie komerčná kampaň** ——— (Epická LEGO výhra/Lego trading/Kreativ Gang CZ (SK), (CZ)), kampaň Epická LEGO výhra súčasne získala cenu Grand Prix,
- **najlepšie využitie OOH** ——— (Venkovní hokejová kampaň k MS v hokeji/Plzeňský Prazdroj/Plzeňský Prazdroj, BigMedia, Publicis Groupe (CZ)),
- **najlepšie zapojenie zákazníka** ——— (SWIPE – klip podľa teba!/Slovak Telekom/Wavemaker Slovakia, MUW Saatchi & Saatchi (SK)),
- **najodvážnejší počin** ——— (cena nebola udelená),
- **najlepšie využitie influencera** ——— (Renault Twitch Cup/Renault Česká republika/FUSE, OMD Czech (CZ)),
- **najlepšie využitie dát** ——— (Unikátna optimalizácia na pozornosť v online kampaniach/IDC Holding/Mindshare Slovensko (SK)),
- **najlepšie využitie TV** ——— (Sherpa Rally dobylo spravodajstvo/Plzeňský Prazdroj Slovensko/Wavemaker Slovakia (SK)), spoločnosť Plzeňský Prazdroj súčasne získala cenu inovatívny zadávateľ,
- **najlepšie využitie tlače** ——— (dm menštruačný kalendár/dm drogerie markt Slovensko/Wavemaker Slovakia (SK)), spoločnosť Wavemaker Slovakia súčasne získala cenu inovatívny autor.
- **najlepšie využitie digitálnych médií** ——— (Renault Twitch Cup/Renault Česká republika/FUSE, OMD Czech (CZ)),
- **najlepšie využitie rádia** ——— (Ničím nerušené Vianoce/Hyundai Motor Slovakia/Unimedia, Respect APP (SK)),
- **najlepšie využitie real-time marketingu** ——— (Live hokejová kampaň, která vtáhla do hry i cestující v metru/Plzeňský Prazdroj/Plzeňský Prazdroj, Metro-Zoom (CZ)).

Všetky kampane prihlásené do súťaže si je možné pozrieť na webovej stránke súťaže www.flemedia.cz.

DICTIONARY OF USEFUL MARKETING TERMS o

object | *objekt* ——— The product itself becomes an object of consumer desire. | *Produkt sa sám o sebe stáva objektom spotrebiteľskej túžby.*

objectification | *objektivizácia* ——— Advertising often leads to the objectification of products, turning them into symbols. | *Reklama často vedie k objektivizácii produktov, čím sa z nich stávajú symboly.*

objectify | *objektivizovať* ——— Brands often objectify their values through unique visual elements. | *Značky často objektivizujú svoje hodnoty prostredníctvom jedinečných vizuálnych prvkov.*

objection | *námietka* ——— Customer objections can provide valuable feedback for improving the product. | *Námietky zákazníkov môžu poskytnúť cennú spätnú väzbu na zlepšenie produktu.*

objective | *cieľ* ——— The primary objective of this campaign is to increase brand awareness. | *Hlavným cieľom tejto kampane je zvýšiť povedomie o značke.*

objectively | *objektívne* ——— Marketers must evaluate trends objectively to make good decisions. | *Marketéri musia hodnotiť trendy objektívne, aby mohli prijímať dobré rozhodnutia.*

obligation | *povinnosť* ——— It is the company's obligation to deliver the product on time. | *Spoločnosť má povinnosť doručiť produkt včas.*

obligatory | *povinný* ——— Fulfilling customer feedback surveys is not obligatory but highly recommended. | *Vyplnenie zákazníckych dotazníkov nie je povinné, ale veľmi odporúčané.*

observable | *pozorovateľný* ——— A rise in social media engagement is observable after the campaign launch. | *Nárast zapojenia na sociálnych sieťach je pozorovateľný po spustení kampane.*

observation | *pozorovanie* ——— Observation of consumer behavior can reveal useful insights. | *Pozorovanie správania spotrebiteľov môže odhaliť užitočné poznatky.*

observational | *pozorovací* ——— An observational study was conducted to understand buyer preferences. | *Bola vykonaná pozorovacia štúdia na pochopenie preferencií kupujúcich.*

obsolescence | *zastaranosť* ——— Planned obsolescence is often criticized for creating unnecessary waste. | *Plánovaná zastaranosť je často kritizovaná za vytváranie zbytočného odpadu.*

obsolescent | *zastarávajúci* ——— As technology advances, some products become obsolescent quickly. | *S pokrokom technológií niektoré produkty rýchlo zastarávajú.*

obsolete | *zastaraný* ——— Traditional advertising channels are becoming obsolete in the digital era. | *Tradičné reklamné kanály sa v digitálnej ére stávajú zastaranými.*

odd | *neobvyklý* ——— Using odd colors in packaging can make a product stand out. | *Použitie neobvyklých farieb na obale môže zvýrazniť produkt.*

odd-even pricing | *cenotvorba s neobvyklým číslovaním* ——— Odd-even pricing, such as $9.99, can influence consumer perception of value. | *Cenotvorba s neobvyklým číslovaním, ako napríklad $9.99, môže ovplyvniť vnímanie hodnoty zákazníkmi.*

offend | *uraziť* ——— A poorly designed advertisement can easily offend consumers. | *Zle navrhnutá reklama môže ľahko uraziť spotrebiteľov.*

offending | *urážajúci* ——— The offending advertisement was quickly removed from social media. | *Urážajúca reklama bola rýchlo odstránená zo sociálnych médií.*

offense | *urážka* ——— The campaign led to offense due to its insensitive content. | *Kampaň viedla k urážke kvôli svojmu necitlivému obsahu.*

offensive | *urážlivý* ——— Companies should avoid using offensive language in their marketing materials. | *Spoločnosti by sa mali vyhýbať používaniu urážlivého jazyka vo svojich marketingových materiáloch.*

offensively | *urážlivo* ——— Some commercials are offensively stereotypical, which can damage a brand's reputation. | *Niektoré reklamy sú urážlivo stereotypné, čo môže poškodiť reputáciu značky.*

offer | *ponuka* ——— The promotional offer boosted sales significantly. | *Propagačná ponuka výrazne zvýšila predaj.*

office | *kancelária* ——— This marketing office handles all social media campaigns. | *Táto marketingová kancelária spravuje všetky kampane na sociálnych médiách.*

official | *oficiálny* ——— The official launch of the new product onto the market will take place next week. | *Oficiálne uvedenie nového produktu na trh sa uskutoční budúci týždeň.*

Literatúra | *List of References* ——— [1] Cambridge Business English Dictionary. 2024. [online]. [cit. 2024-10-27]. Dostupné na: <https://dictionary.cambridge.org> | [2] Collins Dictionary. 2024. [online]. [cit. 2024-10-27]. Dostupné na: <https://www.collinsdictionary.com>

CUSTOMERS' INTENTIONS TO ADOPT DIGITAL HEALTH SERVICES: AN EXTENDED TAM

CO-CREATING SALES MANAGEMENT CURRICULA WITH PRACTITIONERS – INSIGHTS ON COMPETENCIES FOR FUTURE SALES MANAGERS

HYPOTHETICAL CONSTRUCTS OF CONSUMER BEHAVIOR AS PREDICTORS OF PRO-ENVIRONMENTAL BEHAVIOR. AN EMPIRICAL STUDY BASED ON SMARTPHONES.

THE IMPACT OF PERCEIVED ANTHROPOMORPHISM OF THE CONVERSATIONAL AGENT (CA) ON SOCIAL PRESENCE, FLOW, AND USERS' BEHAVIORAL INTENTION

SÚŤAŽ FLEMA MEDIA AWARDS 2024

9 771338 794008 12