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## The Role of Chatbots in the Growth of Virtual Businesses in Romania: Implications for Integrated Reporting

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**Abstract:** The present study is looking at how using chatbots influences the evolution of strategic communication skills and the incorporation of extended reporting capabilities into Romanian virtual companies. The study aims to offer an empirical viewpoint on how conversational technologies are affecting communication and organisational governance. Though specialised literature has recorded the impact of digital technologies on organisational relationships, particularly in developing countries, the direct links between the use of integrated reporting and chatbots have not been investigated. Based on data collected from 130 virtual companies in Romania, the study employed a quantitative approach. Structural equation modelling (PLS-SEM) evaluated the direct relationships and mediation effects suggested in the conceptual model, therefore guiding the data analysis. The findings support the idea that chatbots help to build strategic communication capacity by enabling the integration of extended reporting. Strategic communication also partly mediates the relationship between chatbot deployment and corporate reporting. The results offer managers practical advice on how to include conversational tools into reporting strategies and organisational communications. By providing a conceptual model suitable for the setting of developing nations, the study provides a special contribution to the field of research on corporate governance, integrated reporting, and digitalisation in the virtual environment.

**Keywords:** chatbots; virtual businesses; digital transformation; integrated reporting; stakeholder communication

**JEL Classification:** M15, M41, L86, G34

### 1. Introduction

Digital transformation is redefining the way companies interact with stakeholders and manage their operational processes. In this context, the use of chatbots as automated communication tools has become increasingly common, especially among virtual businesses. Although the specialised literature has analysed the impact of chatbots on operational efficiency and customer satisfaction (Agarwal, 2021; Jiang, Cheng, Yang & Gao, 2022), there is little research exploring how these technologies influence corporate reporting practices, especially in emerging economies. In Romania, the growth of the virtual

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business sector provides a unique opportunity to analyse the interaction between the adoption of chatbots, company development, and the integration of modern organisational communication standards.

Previous studies have focused mainly on the tactical benefits of implementing chatbots, without examining their strategic impact on information transparency or corporate governance processes (Paștiu et al., 2020; Mariani et al., 2021). At the same time, the literature on integrated reporting has highlighted the need to communicate not only financial results but also information on intellectual capital, social relationships and sustainability factors (Petrescu et al., 2020). Thus, the question arises as to what extent the use of chatbots can facilitate the transition to integrated reporting models, especially in the virtual business environment.

At the same time, the use of chatbots in the virtual environment opens up new perspectives on interactions with stakeholders, beyond the simple optimisation of customer service. To the extent that these tools can support a constant flow of relevant information, they become an integral part of strategic communication processes, with the potential to improve external perceptions of organisational transparency.

In the context of virtual businesses in Romania, where traditional barriers to access to information and the lack of direct contact between organisations and stakeholders can generate perceptions of opacity, chatbots represent an innovative solution for strengthening trust. Integrating these tools into communication strategies can facilitate not only increasing the level of information of stakeholders but also rapid adaptation to new requirements regarding sustainability and corporate responsibility, thus strengthening the competitiveness of companies in emerging digital markets.

In this research, the relationship between the use of chatbots, the growth of virtual businesses and the integration of extended reporting elements in companies active in Romania was investigated. The research was built on the basis of a survey applied to a sample of 130 companies, complemented by an analysis of the reporting elements used by companies that have adopted automated communication solutions. Data analysis was performed using structural equation modelling (SEM), a method suitable for exploring relationships between latent constructs and for testing mediated or indirect effects.

The results indicate that the adoption of chatbots has a significant impact on the growth of virtual businesses and on the way in which companies integrate financial and non-financial information into corporate communication processes. In particular, companies that use chatbots show an increased tendency to adopt more complex reporting forms, which reflect an expanded vision of organisational performance.

Therefore, this research contributes to the expansion of the literature on digital transformation and integrated reporting, bringing an applied perspective to the context of emerging economies. The analysis of the role of chatbots in the growth of virtual businesses and in the evolution of corporate communication practices responds to the need to understand how new technologies change organisational dynamics and relationships with stakeholders. The integration of intelligent automation technologies, such as chatbots, can no longer be viewed exclusively from the perspective of operational efficiency but becomes a strategic component of the process of strengthening organisational transparency and building a sustainable corporate image.



In an ever-expanding virtual business environment, where adaptability and accessibility of information become decisive competitive factors, the adoption of advanced digital solutions opens up new opportunities for optimising communication strategies and strengthening stakeholder engagement. This study looks at how using chatbots, growing virtual businesses, and improving reporting practices are connected, with the goal of offering useful ideas and clear guidance for managers who want to strengthen their competitive edge in the digital economy.

## **2. Literature Review and Hypothesis Development**

The transformations brought about by digitalisation have opened new research directions regarding the way in which companies interact with stakeholders and manage their communication processes. Chatbots, defined as automated conversational systems based on artificial intelligence, have become relevant tools within business strategies, being used to optimise customer interaction, provide information and automate organisational support (Oncioiu, 2023; Zhang et al., 2023). Recent literature emphasises that the adoption of chatbots has implications that go beyond simple operational efficiency, also influencing stakeholders' perception of the transparency and accessibility of information provided by organisations (Lakehal, Alti & Annane, 2025; Mariani et al., 2021).

In parallel, the development of virtual businesses, defined as economic entities that operate predominantly or exclusively in the digital environment, has generated a new paradigm in the analysis of governance and reporting models. Virtual companies depend to a considerable extent on their ability to effectively communicate their performance, sustainability objectives and social impact, all in a context characterised by the lack of direct physical interaction (Roy & Naidoo, 2021; Surugiu, Grădinaru & Surugiu, 2025). In these dynamic, digital tools such as chatbots are seen not only as sales facilitators but also as supporting elements for the creation of new forms of strategic organisational communication.

Integrated reporting emerged in response to the need to combine financial and non-financial information in a unified framework, designed to reflect the capacity of companies to create long-term value (Andrés-Sánchez & Gené-Albesa, 2023). In Romania, the adoption of integrated reporting is in a consolidation phase, driven by both European sustainability regulations and pressure from stakeholders interested in transparency and accountability (Popa et al., 2022).

Although integrated reporting is still limited to large or listed companies, the virtual business environment offers favourable premises for a wider expansion of these practices, especially in the context of accelerating post-pandemic digitalisation. Integrating chatbots into communication strategies can support the adoption of integrated reporting by facilitating the continuous provision of relevant information to stakeholders, improving the data access experience, and personalising organisational communication. In this sense, chatbots become an additional channel for presenting information about financial performance, social impact and sustainability initiatives, thus complementing traditional formal reports and strengthening the relationship of trust between the firm and its external environment (Andrés-Sánchez & Gené-Albesa, 2023).

In Romania, interest in the use of conversational technologies within virtual businesses is growing, but empirical research on the connection between chatbots and integrated reporting practices is still limited. This gap highlights the opportunity to explore how virtual firms in Romania leverage digital tools to expand their strategic communication and corporate responsibility practices in an integrated framework.

The model proposed in this research includes three reflective latent variables, each theoretically defined and operationalised through items measured on a five-point Likert scale.

The first variable, chatbot adoption (CA), reflects the level to which organisations use conversational systems to manage interactions with stakeholders. The dimensions measured include frequency of use, diversity of applications, and degree of integration into organisational processes.

The second variable, Strategic Communication Capability (SCC), captures the ability of companies to develop and sustain communication flows tailored to stakeholders, based on the consistency, relevance, and accessibility of the information provided.

The third variable, Extended Reporting Integration (IR), measures the degree to which organisations combine financial and non-financial information in a coherent, transparent, and long-term value-creating framework.

Chatbots are increasingly contributing to the redefinition of strategic communication in the virtual business environment, offering companies the opportunity to maintain a permanent, personalised dialogue with different categories of stakeholders. This technological adaptation not only requires permanent availability but also the ability to manage large volumes of interactions without losing the consistency of the organisational message. Recent studies have shown that, in a competitive digital environment, companies that develop efficient communication mechanisms benefit from a faster consolidation of their image and public trust (Mariani et al., 2021).

In Romania, where the adoption of conversational technologies is in a stage of accelerated expansion, virtual companies that manage to integrate chatbots into their communication strategy not only optimise operational processes but also build a perception of modernity, openness and transparency. Based on these considerations, the following hypothesis is formulated:

**H<sub>1</sub>:** The adoption of chatbots has a positive impact on the development of the strategic communication capacity of virtual businesses in Romania.

The integration of digital tools into organisational communication strategies has become a requirement for companies that operate exclusively or predominantly in the virtual environment (Oncioiu et al., 2021; Seitz, Bekmeier-Feuerhahn, & Gohil, 2022). Chatbots, through their ability to provide structured information and support automated conversational processes, provide the necessary premises for extending corporate communication practices beyond the traditional field of commercial relations. In a digital environment characterised by informational complexity, companies need mechanisms capable of synthesising, personalising and delivering relevant content in a way accessible to various stakeholders.

Recent literature on the digital transformation of corporate reporting highlights that companies that adopt emerging communication technologies are better prepared to manage the increasing demands for transparency (Mariani et al., 2021; Surugiu, Grădinaru & Surugiu, 2025). Chatbots can function as access points for both financial and non-financial information, offering users the possibility to access details about economic performance, sustainability initiatives, social responsibility policies, or corporate governance. Through this functional extension, chatbots support the implementation of integrated reporting practices, in which the different dimensions of organisational value are communicated in a coherent and interactive way.

In the virtual business in Romania, external pressures from stakeholders and regulators are increasing, fuelled by European trends in sustainability and non-financial reporting. Companies that operate predominantly in the online environment must respond to these requirements not only by developing formal annual reports but also by implementing continuous and accessible communication channels. The integration of chatbots in this process offers significant opportunities for improving the user experience and increasing the level of trust and commitment to the organisation. Given these considerations, the hypothesis is formulated:

**H<sub>2</sub>:** The adoption of chatbots positively influences the integration of financial and nonfinancial reporting elements within organisational communication processes.

In the literature on digital transformation, there is increasing recognition that technological tools do not act in isolation on organisational performance but rather intervene by modifying internal processes, especially those of communication and coordination (Mahlow & Söllner, 2021). Thus, the use of these technologies can function as a catalyst for the adoption of more complex corporate reporting practices that are better adapted to the new requirements of the digitalised business environment.

Developing a strategic communication capacity directly influences the ability of organisations to integrate financial and non-financial information into a coherent framework. Recent research highlights that organisations that invest in strengthening digital communication channels are better prepared to respond to the increasing demands for transparency and accountability from stakeholders (Popa et al., 2022; Andrés-Sánchez & Gené-Albesa, 2023; Lakehal, Alti & Annane, 2025). In this sense, chatbots not only facilitate information exchange but also support the formation of extended reporting practices, adapted to the diverse needs of corporate information users.

In the context of virtual businesses in Romania, the adaptability of communication processes gains strategic importance, as companies must manage an increasing number of information requirements in a short time. The integration of chatbots contributes to this adaptability by partially automating data provision and personalising dialogue with stakeholders. Thus, companies that manage to develop strategic communication capabilities supported by conversational technologies are better positioned to adopt and implement integrated reporting as part of their organisational communication strategy. Therefore, considering these theoretical and applied considerations, the following hypothesis is formulated:

**H<sub>3</sub>:** The development of strategic communication capacity mediates the relationship between the adoption of chatbots and the integration of extended reporting practices.

### **3. Research Methodology**

The objective of the research is to examine how the adoption of chatbots supports the development of strategic communication capacity and the integration of extended reporting elements within virtual businesses in Romania. To achieve this objective, a quantitative approach was used, focused on the analysis of structural relationships between latent variables defined within the conceptual model.

The research population was composed of virtual enterprises active in Romania, which were characterised by conducting most of their operations in the digital environment in areas such as e-commerce, IT&C services, digital consulting, and online education. A simple random sampling method

was used to select the participating units, using commercial registers and online databases.

The sample size was set at 130 companies, with the inclusion criterion being the existence of an uninterrupted activity lasting at least two years in the digital space. Regarding the duration of use of chatbots, 35% of companies have been using these tools for over three years, 45% between one and three years, and the remaining 20% have implemented chatbots relatively recently, in the last year.

Regarding the organisational structure of the sample, approximately 48% of companies have between 5 and 49 employees, 38% between 50 and 149 employees, and 14% exceed 150 employees. From the perspective of financial performance, 58% of companies register an annual turnover below two million euros, 32% between two and ten million euros, and 10% exceed the threshold of ten million euros. This distribution allows for the capture of a sufficient variety of relevant organisational experiences for testing the proposed model.

The data collection was carried out through a structured online questionnaire consisting of four main sections: the use of chatbots, the assessment of strategic communication capacity, the integration of financial and non-financial reporting elements, and the general characteristics of the organisation. Responses were measured using five-point Likert scales to capture the nuances of respondents' perceptions of the analysed variables.

Data analysis was performed using the Structural Equation Modelling (SEM) technique, implemented with the SmartPLS 4 statistical package. This method was chosen due to its ability to simultaneously assess the validity of the measurement model and the structural relationships between latent constructs in an exploratory context.

To validate the measurement model, we checked how reliable it was using the composite reliability coefficient and looked at convergent validity with the average extracted value (AVE). We also evaluated the discriminant validity of the constructs using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. The uniqueness of the constructs was also checked using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. To ensure the robustness of the interpretations, the values corresponding to the model fit indices (CFI, TLI and RMSEA) were verified.

## 4. Results

To validate the measurement model, the internal reliability of the constructs was analysed, using the Composite Reliability (CR) coefficient. All values obtained exceeded the threshold of 0.70, indicating a satisfactory internal consistency of the items used. Convergent validity was checked using the AVE (Average Variance Extracted) values, which were all above 0.50 for each construct, showing that the hidden variables effectively represent the differences in the related items.

**Table 1. Construct Validity and Reliability**

Construct	Cronbach's Alpha	CR	AVE
AC	0.86	0.89	0.65
CCS	0.88	0.91	0.72
IR	0.84	0.87	0.62

For discriminant validity, both the Fornell–Larcker criterion and the Heterotrait–Monotrait ratio (HTMT) were applied. The assessment of discriminant validity was carried out by applying the Fornell–

Larcker criterion, which involves comparing the root of the AVE values for each construct with the levels of its correlations with the other constructs in the model. In the analysis performed and presented in Table 2, the values corresponding to the root of the AVE for each latent variable were superior to all the respective correlations, thus respecting the condition formulated by Fornell and Larcker (1981).

**Table 2. Fornell–Larcker criteria of the reflective constructs**

Construct	AC	CCS	IR
AC	0.82	0.56	0.51
CCS	0.56	0.84	0.58
IR	0.51	0.58	0.81

This situation indicates that each construct shares more variance with its indicators than with any of the other constructs in the model. Consequently, we can state that the defined latent variables—chatbot adoption, strategic communication capability, and extended reporting integration—are empirically distinct and measure different theoretical concepts, as conceptualised in the research model.

Meeting the Fornell–Larcker criterion shows that the measurement model is strong and helps make sense of the relationships we will examine later, indicating that the research tool is good and the concepts used are suitable for studying the topic. In the context of this study, compliance with the Fornell–Larcker criterion is an additional indicator of the quality of the research instrument and the adequacy of the operationalised concepts for investigating the analysed phenomenon.

We also assessed discriminant validity by analysing the Heterotrait–Monotrait ratio (HTMT), a method known for its sensitivity in identifying potential overlap between constructs. The values obtained in Table 3 for all pairs of constructs were below the recommended threshold of 0.85, indicating a clear and stable differentiation between the concepts measured within the model.

**Table 3. Heterotrait–Monotrait Ratio (HTMT)**

Construct	AC	CCS	IR
AC	-		
CCS	0.64	-	
IR	0.59	0.67	-

By interpreting the HTMT values below the critical level, it can be stated that each latent construct – chatbot adoption, strategic communication capability and extended reporting integration – captures distinct theoretical dimensions, without significant interference between variables. This finding validates the empirical separability of the constructs and strengthens the consistency of the proposed measurement model.

The analysis of structural relationships was carried out by applying the variation-based structural equation modelling technique (PLS-SEM) in order to examine the intensity and direction of the proposed relationships between the model constructs. Testing the first hypothesis ( $H_1$ ) revealed a positive and statistically significant relationship between the adoption of chatbots and the development of strategic communication capacity ( $\beta = 0.59$ ,  $p < 0.001$ ). This result supports the idea that virtual companies that implement intelligent conversational solutions manage to improve the efficiency and coherence of the messages sent to stakeholders.

According to the specialised literature, the use of chatbots allows for more efficient management of the information flow, facilitating stakeholders' access to relevant information in a constant and personalised

way (Joshi, 2021; Mariani et al., 2021). In the context of virtual businesses in Romania, this type of technological adaptation responds to the requirements regarding transparency and availability of information, thus increasing the level of trust and positive perception of digital organisations.

Regarding the second hypothesis ( $H_2$ ), the results indicated a significant positive association between chatbot adoption and the integration of financial and non-financial reporting elements ( $\beta = 0.46$ ,  $p < 0.001$ ). This finding supports the literature that argues that conversational technologies can function as an additional channel for disseminating complex information on organisational performance (Abu-Salih, 2021; Miklosik, Evans & Qureshi, 2021).

The use of chatbots allows companies to personalise the way financial data and sustainability initiatives are presented, making the information more accessible and relevant to different categories of stakeholders. In the case of Romanian virtual companies, where resource and traditional infrastructure constraints are more pronounced, the integration of chatbots becomes an effective tool for aligning with international standards for extended reporting.

For the third hypothesis ( $H_3$ ), testing the mediation effect demonstrated that the development of strategic communication capacity mediates the relationship between the adoption of chatbots and the integration of extended reporting practices (indirect  $\beta = 0.31$ ,  $p < 0.001$ ). This result indicates that the positive impact of chatbots on integrated reporting is not direct but is achieved by improving internal communication processes. The efficient organisation of the information flow, the adaptation of messages to the specifics of stakeholders and the constant availability of data are factors that facilitate the transition to comprehensive corporate reporting. In the Romanian virtual environment, this mediated relationship emphasises the importance of building a solid communication infrastructure before adopting complex reporting standards.

Overall, the empirical results obtained validate all the hypotheses formulated, highlighting that the integration of advanced digital tools, such as chatbots, into organisational communication strategies contributes to strengthening transparency and expanding corporate reporting practices within virtual businesses in Romania. By confirming the proposed theoretical relationships, the research adds a relevant empirical perspective on the process of digitalisation of communication and reporting in emerging economies.

## **5. Conclusion**

The results obtained in this research make an important contribution to the literature on digital transformation and corporate reporting in the context of emerging economies. By confirming the proposed theoretical relationships, the study demonstrates that the integration of chatbots in organisational strategies supports the development of strategic communication capacity and facilitates the adoption of extensive reporting practices. This finding expands the understanding of how emerging conversational technologies can function not only as operational tools but also as facilitators of transparency and modern corporate governance.

The present research highlights the mediated role of strategic communication capacity in this relationship, providing a conceptual model that integrates technological, organisational and governance





dimensions into a unified framework. In this way, the study opens new directions for theoretical exploration on how conversational tools transform fundamental processes of organisational interaction.

From an application point of view, the results offer some relevant recommendations for managers and decision-makers in the virtual business environment. The integration of chatbots should not be limited to optimising support services; it should be seen as a strategic opportunity to strengthen organisational communication and expand corporate reporting. By properly configuring these tools, companies can improve the availability of financial and non-financial information, thus responding more effectively to the requirements of stakeholders and regulators.

The results also highlight the importance of investing in developing internal strategic communication capabilities. Without a solid organisational infrastructure, simple technological adoption is not enough to generate significant benefits in terms of expanding reporting or strengthening the corporate image. Thus, digitalisation strategies should be accompanied by training initiatives, process redesign, and adaptation of communication content to new interaction channels.

Although the research offers relevant insights, there are certain limitations that must be acknowledged. First, the sample size and the exclusive focus on virtual businesses in Romania may limit the generalisability of the results. Extending the research to other emerging economies or hybrid organisational contexts could provide a more complete understanding of the phenomenon under study.

Second, the use of self-reported data may introduce a risk of subjectivity in the assessment of constructs. Future research could integrate multiple data sources, including content analysis of automated interactions, to validate the results obtained.

In the future, extending the proposed model by including other conversational technologies or additional contextual factors, such as organisational culture or a level of digital maturity, could provide a more comprehensive framework for understanding the process of integrating extended reporting into the digital environment.

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