AI-Based Plan-Strategy for Implementing the Principles of Corporate Social Responsibility in Small Family Businesses' Activities

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ABSTRACT:

The growing importance of corporate social responsibility (CSR) and its evolution from a voluntary concept to a regulatory and strategic requirement pose new challenges for small and medium-sized enterprises (SMEs) that have yet to face it. Family businesses, which constitute the majority of enterprises worldwide and exhibit unique characteristics, including resource efficiency and long-term orientation, will also need to take proactive steps towards the systematic implementation and reporting of CSR. In parallel, artificial intelligence (AI) stands out as a transformative technology with the potential to revolutionise business processes and significantly increase transparency and accountability in reporting environmental, social and governance (ESG) data.

This paper proposes an AI-based plan-strategy designed to facilitate and enhance the implementation of CSR principles in small family businesses (SFBs). The strategy is primarily theoretical, with its applicability exploratively tested in a pilot study in a small family winery. Despite the limitations arising from the theoretical nature, limited sample and case study, the development has theoretical applicability by offering a conceptual framework and basis for future research on the synergy between AI, CSR and family business characteristics.

From a practical perspective, the strategy provides a guideline. It identifies specific areas where AI can support CSR efforts in SMEs, serving as a starting point for pilot projects and business support.

Keywords: corporate social responsibility, artificial intelligence, strategy, family businesses

1. Introduction

Corporate social responsibility (CSR), also referred to as social responsibility (SR) in a business context, refers to the commitment of individuals and organisations to conduct their activities ethically and be sensitive to social, economic, and environmental issues. It helps to make a positive contribution to the development, business, and general well-being of society (American Society for Quality, n.d.; Tătaru et al., 2020). Despite the use of different, sometimes interchangeable terms, CSR essentially focuses on companies' efforts to integrate practices related to ethical standards, employee policies, environmental impact management, corporate governance, respect for human rights, and active participation in community life into their core business functions (American Staffing Association, n.d.).

A recent study shows that 90% of consumers would boycott a company with irresponsible business practices, with 55% having already done so in the last 12 months.

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This highlights the importance of CSR as a key strategy for successful business development, allowing differentiation and communication of commitment to environmental and social footprints (Feder, 2023).

On the other hand, family businesses are the oldest business form and an essential driver of wealth creation. They are defined as business entities controlled by at least 50% by members of a single family, with active participation of different generations, influencing management or occupying key positions (Baltazar et al., 2023). Family businesses account for about 90% of business structures worldwide, contributing over 70% to global GDP (Gross Domestic Product) and generating the majority of jobs. These large-scale indicators and unique characteristics make them an extremely relevant topic for research from an economic and societal perspective (Siaba & Rivera, 2024).

The growing importance of CSR among enterprises corresponds with the demand for business transparency and accountability for their impact on society. In this context, advances in AI technologies present new opportunities to address business challenges more effectively (Gaurav et al., 2024). In recent years, AI has demonstrated significant potential to enhance and expedite business processes by harnessing the predictive capabilities of big data, facilitating more informed decisions and the successful resolution of complex problems (Huang & Rust, 2022).

A significant challenge for companies is to demonstrate their commitment to sustainability and ethics. Here, AI can be a valuable tool, providing real-time data and reports for increased transparency and auditability (Pater, 2024). According to a leading developer, AI-based chatbots in the field of CSR have reduced missed opportunities for growth and innovation by 78% (Primotly, n.d.). Integrating AI into CSR has the potential to transform the way businesses operate, including small family businesses (SFBs). Through AI, companies can achieve greater transparency, promote ethical standards, support the public good, and strive for sustainable development. Addressing the ethical aspects of AI, such as protecting personal data and avoiding algorithmic bias, is also essential. This responsible approach successfully combines technological advancements with the achievement of social and environmental goals, accelerating the implementation of CSR commitments, strengthening stakeholder trust, improving reputation, and supporting long-term business success (Pater, 2024).

In addition to the above, SFBs possess specific organisational characteristics that can favour the integration of AI processes and practices related to CSR in all aspects of their business activities. These distinctive features, which position family organisations differently from other business structures, highlight their potential to be among the pioneers in introducing CSR practices, regardless of their size or the presence of mandatory regulatory requirements. It is this observation that serves as the primary motivation for developing a plan-strategy based on the integration of AI, with the purpose of facilitating and improving the achievement of compliance by SFBs with the principles and focus of CSR.

2. Theoretical Background

In recent years, the focus on CSR has increased, as illustrated by the adoption of Directive (European Union (EU)) 2024/1760 on Corporate Sustainability on July 5 2024.

It aims to develop the European Pillar of Social Rights by promoting fair working conditions. The behaviour of companies is key to the EU's sustainability objectives, with the protection of human rights and the environment also seen as a strategic interest for business, given the growing concerns of consumers and investors (Ministry of Labour and Social Policy, 2024).

An UpCity survey of small businesses in the United States of America (U.S.) and Canada found that over half already support social missions, and nearly 30% plan to implement one in the near future. A whopping 61% of respondents considered social missions critical, while only 25% rated them as "somewhat important." Among those actively implementing CSR practices, 67% implement sustainability measures, 38% participate in volunteer activities several times a year, and 24% prioritise expanding recycling (Segal, 2022; Godziszewski, 2022; Baltazar et al., 2023).

Responsible corporate behaviour towards society, resources, and the environment is a key aspect in modern business. The primary objectives of socially responsible initiatives include enhancing human capital and public well-being, adequate environmental protection, and strict compliance with legislation throughout the entire value chain. The active participation of all sectors of society is essential for success. Integrating CSR requires taking into account the overall impact of operations on the population, working and living environment, which correlates with an increase in the overall standard of living (Segal, 2022; Baltazar et al., 2023).

The need for a transformation in the scope and methods of CSR is driven by the fact that, despite significant efforts by the academic community, businesses, and the public sector, the global Sustainable Development Goals (SDGs) have not yet been fully achieved. This situation is indicative, considering that over five decades have passed since the "Social Responsibility of Business" and over three decades since the report "Our Common Future", which introduced the concept of "sustainable development" (Tătaru et al., 2020; Serafimova, 2021).

Despite these efforts, the visibility and clarity of the results of business engagement in the field of CSR remain unclear and subject to discussion. This trend necessitates the formulation and implementation of new or improved strategies for the development of CSR that encompass all stakeholders. In this sense, family businesses, where there is a significant interweaving between personal values and business goals, have the potential to emerge as a suitable environment for achieving effective convergence between individual and corporate social responsibility, which can be defined as components of the broader concept of social responsibility.

The family as a business unit

Despite the common perception of family businesses as small and local, they have a significant global impact, including large corporations and account for over 30% of companies with annual sales over $1 billion. Research shows that family businesses tend to realise lower profits during economic booms but significantly outperform their competitors during downturns. This is due to their stronger focus on long-term sustainability over short-term productivity, resulting in higher average long-term financial results. This model suggests that family businesses limit profit maximisation in good times to ensure survival and stability in crises (Gallo, 2012).

Family businesses and SMEs have distinct advantages. However, they require a targeted framework and common approach to CSR, as they face challenges such as limited resources and low interest. Although the EU Sustainability Directive does not directly apply to them, they will still have to indirectly implement its requirements as part of the value chains of larger structures. This requires the urgent promotion of CSR in Small and Medium Enterprises (SMEs) through a combination of information, partnership, and economic instruments (Ministry of Labour and Social Policy, 2024).

A study finds that SMEs' participation in CSR activities is limited, with a focus mainly on environmental, health, and social campaigns. This model, although universal, does not always generate high employee engagement. The results highlight that employees are crucial to the effective implementation of CSR, which in turn impacts business outcomes. From their perspective, *the most significant benefits of CSR are building trust, strengthening customer relationships and improving the company's image*. At the same time, increased profitability or contributing to sustainable development are weaker motivators (Caha et al., 2024).

Family businesses demonstrate a unique ability to more effectively transform available resources into innovation, which enables them to generate a greater volume of innovative results compared to non-family companies, given the resources used. This efficiency, often described as achieving more with less, is associated by a number of researchers in part with the phenomenon of leadership succession. The thesis is that successors to leadership positions in family businesses exhibit strategic advantages, leading to better resource management and increased productivity in transforming input resources into final products (Baltazar et al., 2023). It is this characteristic that distinguishes family organisations and increases their potential to be among the leaders in implementing CSR practices, regardless of their size or the presence of regulatory obligations.

In academic circles, it is argued that family involvement in both management and ownership of small businesses is a factor that can positively influence business innovation, including the implementation of AI-based solutions aimed at improving SR. The influence of the family in this context is often described as a "*double-edged sword*", as it can simultaneously create both opportunities and obstacles to innovation processes in family businesses. Undoubtedly, manifestations of conservatism and organisational rigidity can be negative aspects for innovation in family businesses, especially when they question traditional product lines. At the same time, however, a long-term orientation and the participation of representatives of different generations in the business can stimulate and strengthen their capacity to implement innovations (Baltazar et al., 2023). These facts suggest that the strategy for implementing innovations, including AI-based solutions, in family businesses should be: *specific* – not following the standard order-execution protocol inherent in corporations; *time-weighted* – i.e. to respond to the decision-makers' abilities to adopt innovations, and must be *accompanied by training* of all internal stakeholders of the company – from the highest to the lowest level of employees.

Social responsibility beyond corporations

According to findings from a study by the global non-profit organisation Business for Social Responsibility, SR is driven by the desire to meet the demands of diverse stakeholders, including employees, consumers, customers, suppliers, shareholders,

legislators, and regulators. These groups expect companies to be accountable for more than just their performance, covering the impact of their products, the efficiency and ethics of their supply chains, and the well-being of their workforce (American Staffing Association, n.d.).

SR in the business context can be defined as the principle that businesses should contribute to society through their corporate operations. This includes, but is not limited to, reducing waste, implementing sustainable production methods, and providing additional benefits to employees. Companies that prioritise SR are able to build strong, trusting relationships with customers, employees, and other stakeholders. Furthermore, this approach allows them to achieve a competitive advantage over businesses that do not integrate socially responsible practices into their operations (Tătaru et al., 2020; Feder, 2023). According to the definition provided by the American Personnel Association, CSR is considered an ethical framework implying an obligation for any entity, whether an organisation or an individual, to act for the benefit of society as a whole. From a business perspective, CSR can be defined as a consistent commitment of a business entity to ethical behavior and contribution to economic development, in parallel with efforts to enhance the quality of life of both the company's employees and their families, as well as local communities, protecting the environment and society as a whole (American Staffing Association, n.d.).

In addition, Feder (2023) offers a distinction, stating that SR is primarily focused on ethical behaviour and following the correct principles. At the same time, CSR is more specifically concerned with taking active actions to generate positive change. Feder is of the opinion that, despite the potential of SR to help build trust with stakeholders, it is not sufficient in itself to ensure the long-term stability and success of the company. However, by prioritising SR, businesses can potentially strengthen their reputation and provide tangible and lasting benefits to their stakeholders, the environment, and society. Markovic et al. (2024) view CSR as the capacity of companies to simultaneously fulfil the social, economic, and environmental demands of different stakeholder groups and satisfy the financial needs of their shareholders. According to the authors, the practice of CSR reporting or disclosure serves as a key mechanism through which companies provide information about their CSR activities, most often in the form of non-financial information disclosure in annual reports.

Other researchers define CSR as a business model that actively encourages companies to take responsibility for their impact on society as a whole. Given the escalating demands from stakeholders for increased transparency and ethical behaviour, integrating CSR into core business strategies is considered fundamental to building trust and ensuring long-term success (Werner, 2025). Therefore, in the modern business landscape, CSR is no longer perceived solely as a potential source of competitive advantage but rather as a strategic necessity. If a company fails to declare and communicate its commitment to CSR, this can be interpreted as a negative signal by employees, consumers, investors, and other key stakeholders (Kwasek et al., 2023; Caha et al., 2024).

The definitions presented lay the foundation for the generally accepted concept of CSR, which affirms the principle that businesses should expand their focus beyond the sole pursuit of profits and engage in caring for the wider environment and society (Pater, 2024). An interesting aspect is the evolution of CSR, which, over the years, has shifted

from a passive and voluntary concept to a regulatory framework that requires active participation (Caha et al., 2024; Chakraborty et al., 2025). This process means that large companies now bear regulatory responsibility for the environmental and social impacts they have (Pater, 2024). In essence, CSR is the concept that corporations should act responsibly and ethically to ensure the efficient management of their resources, actively fulfilling their environmental responsibilities and taking action to reduce their carbon footprint (Feder, 2023).

Although the concept and abbreviation CSR have become the most widely used and generalising concept in recent years, such a focus on corporations has the potential to shift the emphasis away from general responsibility and not adequately capture the socially responsible (or irresponsible) behaviour of other economic actors. Academic opinions support the thesis that *SR should be applied not only in a business context*, but also to *reflect SR initiatives undertaken by business companies of various legal forms and types, as well as by public sector organisations* (Serafimova, 2021; Chakraborty et al., 2025).

Such an interpretation aligns with contemporary trends in European Union (EU) policies and funding programmes, which emphasise the pooling of efforts by representatives of the three sectors (public, private, and non-profit) to amplify the effects of implementing sustainable policies across various areas (Serafimova, 2021). *This context requires the term SR to be perceived as a more comprehensive and complex concept that describes the behaviour of individuals and organisations aimed at building a fairer and more sustainable future*, or at least to be used as an equivalent to CSR. Given these considerations and in line with contemporary academic understandings, the terms "*corporate social responsibility*" and "*social responsibility*" are used interchangeably in this study.

Manual processes vs. artificial intelligence

Corporate reporting has evolved, with companies transitioning from sharing general information about their CSR efforts to providing detailed reports on sustainability practices, including specifics on reducing carbon emissions and ensuring ethical working conditions. It should be emphasised that these new reporting requirements apply not only to large corporations but also to a significant number of smaller companies (Pater, 2024). There is a clear trend towards CSR being oriented towards increasingly sustainable and socially responsible practices, which has led to the integration of *environmental*, *social* and *governance* (ESG) reporting as a standard part of everyday business practice. ESG reporting enables companies to disclose their efforts to manage environmental risks, promote social well-being, and implement management principles consistent with generally accepted ethical standards. Nevertheless, traditional reporting methods often prove insufficient to meet investor demands for timely, reliable and transparent ESG data, especially in the context of increased scrutiny and increased needs for accuracy (Huang & Rust, 2022).

Small businesses that seek to engage in CSR initiatives face significant challenges, primarily due to their limited financial resources. Supporting CSR initiatives can be particularly challenging for small businesses compared to larger organisations with greater resource capabilities. Striking the right balance between maintaining profitable business operations and acting in an environmentally conscious manner is a complex issue. Addressing this dilemma often requires the application of creative or "imaginative" solutions. These may include developing partnerships with local organisations, actively

utilising employee volunteerism, or exploring and implementing cost-effective projects that align with the company's core values and beliefs (Assignment Helper, 2024).

When establishing CSR practices in small businesses, it is necessary to consider and plan for specific challenges inherent in traditional ESG reporting. In contrast to large organisations, which can afford to maintain specialised departments dedicated entirely to CSR and have greater organisational flexibility, smaller companies typically operate with more limited assets and capabilities (Huang & Rust, 2022; Assignment Helper, 2024). Despite these limitations, small businesses cannot afford to ignore SR if they are to achieve long-term sustainability, adhere to ethical standards, and have a positive impact on the community (Assignment Helper, 2024). Many companies typically rely on traditional, often manual and siloed reporting processes and outdated software, which leads to a number of adverse consequences (Huang & Rust, 2022):

- *Data inconsistency*: Since different units or departments can collect data, there is a lack of standardisation, which makes it difficult to compare and analyse the data.

- *Insufficient or outdated information*: Companies often lack sufficient up-to-date information on the development of policies and regulatory documents in the field of CSR and sustainability.

- *Resource-intensive processes*: The processes of collecting, analysing and reporting ESG data, carried out manually, require significant time and are highly susceptible to human error.

- *Limited analytical perspectives*: Traditional reporting approaches focus primarily on retrospective data, which provides limited opportunities for predictive analysis or real-time information.

- *The lack of specialised staff and adequate knowledge of CSR issues* is another significant challenge, especially for smaller companies. They may not have the necessary number of employees to plan and implement large-scale CSR plans, as is available in large corporations. Integrating CSR into the existing organisational structure in a way that does not create an excessive burden on existing staff requires a careful balancing act. Small companies often need to invest in additional staff training or seek external expert assistance to acquire the basic knowledge and ensure the successful implementation of CSR projects.

- *Resistance to change* is also a factor that needs to be taken into account. Employees who are accustomed to standard business practices may be reluctant to accept CSR activities, perceiving them as a deviation from the main goal – generating profit. Overcoming this reluctance requires effective internal communication, conducting training on the benefits of CSR and convincingly demonstrating how socially conscious practices can be in harmony with the overall corporate goals and contribute to their achievement.

Against the backdrop of existing challenges, AI stands out as a transformative technology with the potential to fundamentally change both the operational processes in companies and the methods for reporting on their sustainability commitments. AI contributes to increasing transparency and accountability in reporting ESG data for organisations, providing a more effective, comprehensive and accurate approach to disclosing sustainability information (Huang & Rust, 2022). On the other hand, the relationship between digitalisation, sustainability and environmental protection is

characterised by a highly dual nature. Digitalisation functions as a tool supporting ecological protection processes and contributing to the achievement of comprehensive sustainability goals. At the same time, it also poses a potential threat to their implementation, as it is a factor that generates additional resource consumption and increases energy consumption (Mondejar et al., 2021; Voza et al., 2022; Hariyani et al., 2024).

Despite the complex challenges, AI is emerging as a powerful ally for businesses seeking to comply with new regulatory norms. Collecting and processing the vast amounts of data required for reporting is overwhelming for human teams without automation. With the help of AI, companies can monitor sustainability indicators in real time, ensuring that they are always in compliance with current regulations. For example, AI can monitor energy consumption in production facilities or check supply chains for compliance with ethical norms. Following the adoption of a number of European directives, companies that fail to adapt risk being fined or losing the trust of their customers. Therefore, adopting sustainable practices is no longer an option, but an obligation. With AI, companies can not only address these challenges but also become pioneers in the field of sustainable development (Pater, 2024).

3. Methods

This study aims to develop an *AI-based plan-strategy for implementing CSR principles in SFBs' activities*. To achieve this goal, a structured methodological approach was applied, including the following main stages:

1. *Bibliographic analysis*: In the first stage, an in-depth bibliographic analysis of the existing scientific literature, academic studies, and practical reports on CSR, CSR management, and AI application in business was conducted. This analysis aims to systematically identify the main areas that organisations will face when integrating CSR principles into their activities. The results of the bibliographical analysis served as a basis for determining the key problem areas that this strategic plan aims to address.

2. *Formulation of objectives of the strategic plan*: Based on the identified challenges arising from the bibliographic analysis, as well as the expertise and knowledge of the authors in the relevant fields, the main objectives of the proposed strategic plan were formulated. These objectives aim to overcome the identified barriers and create conditions for the successful integration of CSR principles within the context of SFBs.

3. *Defining the role of AI*: The specific role and potential of AI are explicitly defined for each of the stated goals and each stage of the implementation process. This includes identifying particular AI technologies, methods, and applications that can be used to support the implementation of the goals and the adequate flow of each stage of the implementation.

4. *Developing an AI implementation framework*: After defining the objectives, a consistent framework of AI implementation stages, tools and approaches was designed to implement CSR principles and achieve the set goals. These stages represent a structured path for SFBs to integrate AI into their SR efforts.

5. *Pilot testing of the strategy plan*: The developed strategy plan is currently undergoing pilot testing in a small family business. This testing aims to assess its practical applicability

and effectiveness in achieving the set goals and identify potential improvements and adaptations needed to optimise it in a real business environment. Real-world experience from testing can provide valuable feedback that leads to the refinement of how AI is used at each stage.

The research and the developed strategy plan focus on the possibilities for implementing CSR principles in SFBs, given their importance to the Bulgarian economy. According to Capital, in Bulgaria, approximately 25% of active micro, small, and medium-sized enterprises identify themselves as family businesses (Toncheva, 2024). According to the National Statistical Institute of Bulgaria, the number of micro and small enterprises exceeds 424 thousand (NSI, 2023). Therefore, approximately 106,000 companies in Bulgaria operate as family micro-enterprises (with an average number of employees of less than 10 people) and small enterprises (with an average number of employees between 10 and 50 people) (Evro programi, n.d.). These data in themselves demonstrate the importance of SFBs for the economy and the labour market, as well as for the supply chain and the diverse range of stakeholders that family companies encompass. Therefore, the choice of SFBs as a research object allows us to address the potential for sustainable development in a key economic segment, taking into account their specific organisational characteristics, the unique challenges they face, and the opportunities that technologies such as AI offer in the context of the evolving CSR framework.

The proposed methodological approach ensures the systematic and scientifically sound development of a plan-strategy based on existing knowledge, authors' expertise, and practical examples, aiming to provide a valuable and applicable tool for SFBs seeking to integrate the principles of CSR through the capabilities of AI. Additionally, the methodology outlines a sequential process of theoretical analysis and framework development, detailing the role of AI and the practical testing of the framework.

4. Results

As indicated in the bibliographic analysis, the strategy for implementing innovations, including AI-based solutions, in family businesses must meet at least three main criteria: to be *specific*, *time-weighted*, and *accompanied by adequate training*. This means that the plan-strategy must ignore the classic organisational chain, which is guided by the *order-execution* relationship, and *enable the management team and employees to assimilate and adopt innovative proposals and innovations flexibly and adaptively for themselves.*

Such interaction requires an adequate time horizon that is consistent with the specific family company, including its size, management structure, area of operation, experience, and conservatism. Last but not least, each stage needs an accompanying training process that introduces and addresses the various aspects of SR, from personal to corporate, as well as the ethics and effectiveness of AI-based applications. Therefore, although the proposed plan-strategy cannot be perceived as a universal time approach, time horizons have been applied to its stages, which it is advisable to adhere to. This, on the one hand, will guarantee the effectiveness of the training processes, and on the other, will demonstrate the organisation's commitment to achieving the desired change.

What is specific about the model is that, at every step of its implementation, AI-assisted technologies are used to enhance the creativity and efficiency of processes through

deeper analysis of datasets. Another feature of the proposed model is related to the understanding that in SFBs, it is unlikely to have a separate CSR department or a single person who is solely responsible for this. It is more typical for responsibility to be distributed, integrated into existing roles, and strongly influenced by the commitment and example of management (often the owners themselves). The successful implementation of CSR in this context relies to a large extent on each employee and manager being aware of and applying the principles of responsibility in their work.

By comparison, large corporations often have separate departments or teams dedicated to CSR strategies, initiatives, and reporting. In medium-sized companies, one or several individuals may have a primary role in coordinating CSR activities, but it is rarely a dedicated department. Often, these functions are assigned to managers from other areas (e.g., human resources, marketing, communications). In small companies, including SFBs, it is extremely rare to find a separate CSR department or even a single person responsible for this. Instead, one of the following approaches is applied:

• *Responsibility is integrated into existing roles*: The owner or manager often takes direct responsibility for key CSR initiatives. Other employees may have specific CSR tasks as part of their core job descriptions (e.g. recycling manager, charity event coordinator).

• *Shared responsibility and culture*: In the most successful CSR cases in small companies, responsibility for environmental and social aspects becomes part of the organisational culture. Every employee and manager is expected to contribute to these aspects as part of their daily activities and decision-making. Management plays a key role in setting the tone and encouraging this behaviour.

• *The owner as a driver*: Especially in family businesses, the owners' personal values and commitment are often the primary drivers of CSR activities, and they are directly involved in planning and implementation.

The implementation of the model partially undermines this logic, as it should be attributed to a specific person. This does not mean that only one person takes responsibility for CSR results, but rather for the process of developing, implementing, monitoring, and improving the AI plan-strategy. The expression "partially destroys" is also key, because by implementing the plan-strategy, the person responsible for its implementation is guided simultaneously by all three of the mentioned CSR approaches: integration of responsibilities, distributed responsibility, and the owner as a driver.

Formulation of objectives

The effective integration of CSR principles into the operational activities of SFBs requires the development of an adequate strategic framework. At the heart of this framework is the need to formulate *specific, measurable, achievable, relevant* and *time-bound* (SMART) objectives to guide implementation efforts. The importance of setting specific objectives lies in their ability to provide a clear direction of action, to allow for the precise allocation of limited resources typical of small businesses, and to facilitate the measurement and evaluation of progress and impact, thus ensuring the achievement of tangible and verifiable social and environmental results consistent with the strategic intentions of the company. In general, the objectives for developing a strategic plan for implementing CSR principles in SFBs should relate to:

1. Raising awareness and understanding of CSR:

- Description: Using AI to analyse information and educate owners and employees on the principles and benefits of CSR;
- SMART indicators: Within the first 3 months of the initiative's launch, achieve at least 90% participation of owners and all employees in online training on the main principles and benefits of CSR (with a focus on business relevance, supported by AI analysis of information), measuring the level of initial understanding through a test or survey after the training;
- Sample KPIs: Percentage of training completions; Average score on the comprehension test; Number of questions asked on the topic after the training;
- Sample timeframe: up to 3 months.

2. Identify key areas for CSR:

- Description: Applying AI to analyse business operations and identify areas where CSR implementation will have the most significant impact (e.g., waste management, energy efficiency, local community support);
- SMART indicators: By the end of the 4th month, to identify and prioritise at least 3 to 5 key areas of business operations (e.g., waste management, energy efficiency, local community support, ethical sourcing) where CSR implementation has the most significant potential for impact, based on analysis of collected business data using an AI tool, and provide a written justification for the selection;
- Sample KPIs: Number of areas identified and prioritised; Availability of a report/list of recommendations; Time required to complete the analysis;
- Sample timeframe: Up to 4 months.

3. Optimise Socially Responsible Practices:

- Description: Implement AI tools to improve specific aspects of CSR (e.g., supply chain analysis for ethical practices, resource consumption optimisation);
- SMART indicators: Over the next 6 months (from the 5th to the end of the 10th month), to implement and configure AI tools to optimise at least one of the prioritised key CSR areas (e.g., energy efficiency management or supply chain ethical risk analysis), with the aim of achieving measurable improvement (e.g., reducing energy consumption by 15% or identifying all suppliers with high ethical risk);
- Sample KPIs: Percentage reduction in consumption/costs; Number of risks identified; Value of savings/improvements achieved; Number of tools implemented;
- Sample timeframe: From the 5th to the 10th month.

4. Improve communication and transparency:

- Description: Using AI to more effectively communicate CSR initiatives to stakeholders and increase transparency of activities;
- SMART indicators: By the end of the 12th month, develop and launch a CSR communication plan using AI to support audience analysis and content generation, with

the aim of increasing awareness and engagement of at least 2 key stakeholder groups (e.g. customers and employees), measuring this engagement (e.g. at least 20% increase in interactions with CSR content or achieving X number of followers for CSR initiatives);

- Sample KPIs: Number of CSR messages published; Reach of communication (e.g. number of people reached); Level of engagement (likes, shares, comments); Number of CSR inquiries;

- Sample timeframe: Up to 12 months.

5. *Measuring and reporting social impact:*

- Description: Implement AI systems to collect, analyse and report data on the social and environmental impact of the business;

- SMART indicators: Within the first 9 months, identify and implement basic AI systems for automated data collection and initial analysis of data on at least 2 key indicators of the social or environmental impact of the business (e.g. amount of waste generated, water/energy consumption). By the end of the 15th month, based on the collected data, prepare and internally submit a first summary report on the achieved impact on these indicators;

- Sample KPIs: Number of indicators automatically collected; Frequency of data collection; Availability of a database with impact data; Availability of a prepared impact report;

- Sample timeframe: Implementation of systems within 9 months; First report within 15 months.

In addition, it is essential to note that the developed goals and SMART parameters must be adapted to the business's real situation as it builds its strategic plan. The principles are essentially universal, but the content must be highly profiled to the specific family company's external and internal environment.

Defining the role of AI

SFBs in Bulgaria have the potential to establish themselves as leaders in CSR implementation through the effective use of AI, creating value for the community, the environment, and the long-term development of the enterprise.

AI offers powerful tools that can enhance CSR efforts. While AI implementation must be approached with caution to ensure that it is consistent with ethical standards and societal values, there are several key areas (Table 1) where AI intersects with CSR and could enhance the performance of any type and size of organisation (Werner, 2025).

As a concrete example, the "ESG with AI" project was created to help businesses respond to the requirements of the Corporate Sustainability Reporting Directive (CSRD). As new regulations require many companies to submit detailed sustainability reports, this chatbot provides a simplified method to reduce errors, ensure compliance and increase transparency. The ESG chatbot works with users to collect key information and verify that their reports meet the CSRD guidelines. Whether preparing a new report or reviewing an existing one, the chatbot offers step-by-step assistance. It is also helpful for more complex tasks, such as assessing indirect environmental effects or developing long-term sustainability strategies. By providing clear and practical support, this tool enables

companies to avoid costly fines and ensures that their sustainability efforts are correctly documented (Primotly, n.d.; Pater, 2024).

Table 1: Areas of AI application in the context of CSR. *Source*: Authors' development

Areas	Application
Social Engagement	AI is positioned as a critical catalyst to support and drive initiatives aimed at improving public well-being. Through in-depth analysis of vast datasets, AI algorithms can identify key trends and patterns. This analytical potential greatly facilitates informed planning and the practical implementation of interventions in critical areas, such as public health, crisis management (e.g., disasters), and the development of educational programs.
Transparency & Accountability	The implementation of AI-based technologies has the potential to significantly increase transparency and accountability within organisations. Analytical systems utilising AI enable the precise tracking and documentation of a company's environmental impact, including key indicators such as carbon emissions, water consumption, and waste generation. By providing accurate data in real or near real-time, AI actively assists companies in monitoring their progress toward sustainability goals and affirms their responsibility for environmental impacts. Additionally, AI can be applied to in-depth analysis of supply chains, facilitating the identification of potential ethical issues, such as labour rights violations or environmental risks, arising along the chain. This capability enables companies to proactively take timely measures to resolve identified issues and ensure that their supply chains align with CSR principles.
Ethics	Integrating AI into CSR initiatives requires actively promoting ethical practices in the development and implementation of AI systems themselves, with the aim of preventing potential negative consequences and ensuring fairness. This commitment includes conducting systematic audits aimed at identifying and minimising bias in AI algorithms, mainly when they are used in sensitive and critical processes such as personnel selection, credit assessment or law enforcement. Ensuring impartiality and fairness in the functioning of AI systems is directly correlated with CSR goals of promoting social justice and protecting individual rights. In addition, organisations should adopt and implement internal ethical frameworks or guidelines for AI that clearly define fundamental principles such as transparency, accountability and data protection. Integrating these ethical considerations into all stages of the AI technology life cycle – from initial development to final deployment and operation – is essential to ensure their responsible and ethical use for the benefit of society.
Sustainability	The application of AI provides significant opportunities to stimulate sustainable practices in the business sector. Through the integration of AI, energy consumption can be optimised (for example, in buildings), waste generated in production processes can be effectively reduced, and efficiency in logistics and transport can be increased. Integrating AI into sustainability initiatives allows companies to effectively minimise their negative impact on the environment and actively contribute to global efforts aimed at combating climate change. In addition, AI can serve as a stimulus for the development of innovative solutions in the field of renewable energy sources, for example, by optimising the placement of facilities (such as solar panels) or by accurately predicting energy consumption patterns.

Stages of implementing AI apps for CSR

Stage 1: Assessment and Training (3-6 months): Figure 1 visually presents the developed strategic plan, along with its key steps. The initial stage focuses on laying the foundations by raising awareness and understanding. Given the ever-increasing technologisation of production processes, maintaining a high level of human resource education and training

is becoming a fundamental requirement for competitiveness in a modern digital economy (Segal, 2022; Baltazar et al., 2023; Hariyani et al., 2024).

*   *Using AI tools for self-assessment* of existing practices against CSR standards;

*   *Conducting personalised training* for owners and employees on CSR and the role of AI;

*   *Analysis of key stakeholder expectations*, assisted by AI for processing data from various sources.
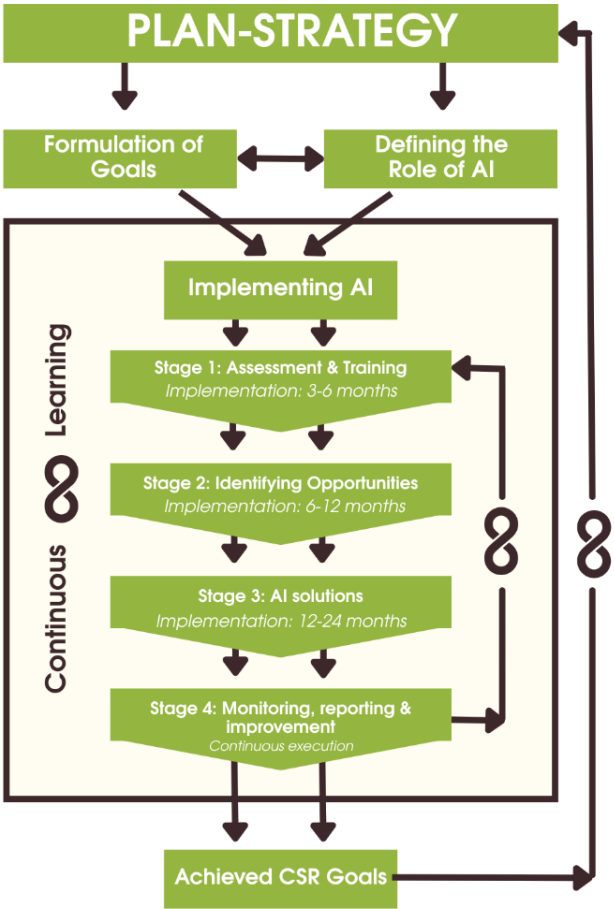

Figure 1: The framework of the AI-based plan-strategy for implementing CSR principles in the SFBs. Source: Authors' development

       Stage 2: Identifying Opportunities (6-12 months): Building on the initial assessment, Stage 2 focuses on identifying specific areas for action. During this period, the following is carried out:

*   *Detailed analysis of business processes using AI* to reveal inefficiencies and the potential areas for implementing socially responsible practices;

- *Benchmarking with successful CSR models* in other similar businesses to identify innovative solutions;
- *Prioritising potential initiatives* based on expected impact and feasibility.

Stage 3: Implementation of AI solutions for CSR (12-24 months): The next stage is dedicated to the practical implementation of the selected initiatives through:

- *Implementation of specific AI systems* for optimisation of resource consumption;
- *Analysis of ethical aspects* in the supply chain;
- *Development of personalised social initiatives*;
- *Improving communication and transparency* through automated tools.

Stage 4: Monitoring, Reporting and Improving (Ongoing): The final stage, which occurs on an ongoing basis, ensures sustainability and provides opportunities for continued development. In this stage, AI systems are applied to:

- Continuous *collection, analysis and reporting of data* on social and environmental impact;
- Feedback analysis allows for *constant improvement of the CSR strategy and practices*.

Implementation of the AI-based plan-strategy in Resource-Limited Environments

While the proposed five-step strategy provides a comprehensive framework for integrating AI into CSR processes, its implementation in SFBs requires consideration of limited *financial, technological,* and *human resources.* To overcome these challenges, a phased implementation of the model is necessary, focusing on the use of minimally viable and affordable AI tools (Table 2). This approach allows businesses to build experience, demonstrate initial success, and gradually expand the scope of their CSR initiatives.

The *step-by-step* approach offers a flexible and scalable framework that allows SFBs to begin their CSR transformation despite resource constraints. By focusing on minimum viable AI tools and gradually expanding the scope, companies can demonstrate progress, build internal capacity, and make CSR an integral part of their business strategy without taking on undue financial risk.

When implementing an AI-based CSR strategy in SFBs, assessing success should go beyond traditional financial metrics by focusing on non-monetary and qualitative criteria. This is especially important in resource-constrained environments where direct financial benefits may not be visible in the short term. The assessment can be based on internal engagement indicators, such as the percentage of employees participating in volunteer initiatives or CSR training programs.

In addition, quantitative and qualitative feedback from customers, employees, and other stakeholders provides valuable information on the impact of the strategy on the company's reputation and social capital. Reporting on quantitative data, such as the number of partnerships established with local organisations or measurable reductions in carbon dioxide emissions and waste, even on a small scale, serves as evidence of progress and creates a basis for further scaling up efforts. In this way, measuring success becomes a holistic process that reflects both the economic, social, and environmental effectiveness of the implementation.

Table 2: Adapting the AI-based plan-strategy for SFBs with limited resources. *Source*: Authors' development

Stage	Definition	Resources
Stage 1: *Raising awareness and understanding of CSR*	Instead of investing in expensive external consultants or formal training programs, small businesses can use AI to generate personalised training materials and take advantage of free resources.	*Generate personalised content*: Generative AI models (e.g. ChatGPT, Gemini) to create short summaries, infographics, or presentations that explain the core principles of CSR relevant to the specific business sector;
		Use free online resources: Free webinars, courses (e.g. Coursera, edX), and newsletters to increase awareness and understanding of the benefits of CSR;
Stage 2: *Identify key areas for CSR*	The focus is on using simple and accessible data collection and analysis tools to help identify the most significant areas for action.	*Data collection with simple tools*: Basic spreadsheets (e.g. Google Sheets, Microsoft Excel) or free survey platforms (e.g. Google Forms) to collect data on resource consumption (energy, water), waste, and employee feedback;
		AI-based data analysis: The built-in AI capabilities in spreadsheets can be used to analyse the collected data, recognise consumption patterns, and identify initial opportunities for improvement without the need for expensive software solutions;
Stage 3: *Optimise Socially Responsible Practices*	To avoid significant upfront investments, implementation begins with a small but focused "pilot" project that proves the effectiveness of the strategy.	*Low-investment pilots*: Implement low-cost solutions, such as smart thermostats to optimise energy efficiency or AI-based chatbots to automate customer responses about the business's ethical practices;
		Focus on one area: Businesses concentrate on one aspect of CSR (e.g., reducing waste or improving working conditions), gradually building on success before expanding their initiatives;
Stage 4: *Improve communication and transparency*	Effective communication of CSR achievements does not require a large budget. It can be done by using free platforms and tools.	*Using AI for content creation*: AI models for generating images and texts can be used to create engaging content for social media (e.g. Canva, Adobe Express) that tells authentic stories about the company's CSR achievements;
		Social media as a primary channel: Social media, along with email, serves as a primary channel for sharing progress and achievements, leveraging the power of personal trust and relationships inherent in family businesses;
Stage 5: *Measuring and reporting social impact*	The focus is on simple yet effective reporting methods that demonstrate progress without the need for complex systems.	*Simplified reporting system*: Instead of investing in complex reporting software platforms, businesses can collect data through free platforms like Google Forms and create simple reports using AI to summarise and visualise the information;
		Qualitative success metrics: Measuring success focuses not only on financial metrics, but also on qualitative indicators such as employee satisfaction, customer feedback, and increasing voluntary commitment to CSR initiatives.

At the same time, in the low-tech, high-trust business models typical of SFBs, AI should not be seen as a replacement technology, but as a tool to strengthen the core values of the company. AI can improve and deepen trust by ensuring transparency and accessibility of information. For example, using AI to trace the origin of raw materials or

to provide detailed data about the production process allows a company to back up its ethical and sustainable claims with verifiable facts. In addition, automating routine and repetitive tasks with the help of AI frees up employees' time, which can be directed towards creating and maintaining personal relationships with customers, partners and the local community. In this way, AI becomes a catalyst that does not weaken, but on the contrary, strengthens the human element and trust that are the basis of the success of this type of business.

Pilot Testing

The pilot testing of the plan-strategy for implementing the principles of CSR with the support of AI began in early November 2023 in a small family-owned winery in Bulgaria. The initiative is the result of the aspiration of part of the younger generation in the family business to make the small family company competitive in global markets and thus expand its offerings beyond Bulgaria's borders. The analysis of the pilot testing presented below provides a basic overview of the implementation process, as the company would understandably like to keep some of its innovations confidential, precisely to maintain its competitive advantage.

The company has currently gone through the full cycle of the strategy plan once, which for them takes about 12 months to complete. The implementation of the model is guided by predefined CSR objectives aimed at *raising awareness, identifying key areas for impact, optimising practices, improving communication and measuring results*. The implementation is taking place in stages, with AI being integrated as a supporting tool at each stage. The selected key areas for action and integration of AI *include sustainability in vineyard cultivation and production processes, as well as the development of educational and communication materials*.

According to the winery management, the vinification process is one of the most complex stages in their production activity. It requires constant monitoring, and even with the permanent presence of personnel in the winery, the need to perform numerous laboratory analyses remains essential for making informed decisions regarding the necessary technological measures. For this reason, with the help of partners, the owners decided to develop and implement an AI application for dynamic control of fermentation. Additionally, the winery has implemented an uncrewed aerial vehicle, a key tool for increasing efficiency. Through the analysis of satellite images, the necessary information is extracted, allowing the drone to apply precisely dosed treatment only in specific areas of the vineyard where the need has been identified. In addition, software is used where AI supports data analysis and optimisation of water and energy consumption (through AI analytical plugins for sensor data and cloud AI services for analysis of production data), as well as waste management and utilisation in wine production – through AI chatbots such as ChatGPT or Gemini, ideas for their utilisation are generated.

In this way, many working ideas are generated, and at present, sorting and handing over packaging for recycling of different origins and compositions has been implemented. Another applicable notion is related to the return and collection of glass bottles and corks from distributors and end customers. The latter is currently proving to be more challenging to organise, which is why it has been postponed as an implementation during the re-run of the plan-strategy algorithm.

Figure 2: An excerpt from the SR and commitment report generated for the winery. Source: Authors' development

In the area of human resources and ethical practices, AI is used to create personalised CSR training materials and to support supply chain analysis for ethical risks. To engage with stakeholders and increase transparency, AI analyses feedback (via basic AI tools for social media analysis) and is applied to support communication through chatbots on the winery's website or through AI writing assistants to generate drafts of CSR reports and communication materials. Finally, to measure and report on social and environmental impact, basic AI systems have been implemented to automatically collect data on key indicators (e.g. water consumption, waste generated) and to create basic reports. The included sample set of AI tools is realistic and tailored to the capabilities of a small business, with the winery's goal to start with more affordable solutions and gradually build on them.

In this case, the implementation of the plan-strategy in the company involves identifying key areas for implementing AI, which at first glance may not be directly related to CSR and sustainability. However, these applications and the data generated and analysed by them are the basis for the formation of reports (Figure 2) containing duly documented information about the ecological way of wine production (mainly the so-called green manure is applied, and invasive soil cultivation is minimised), vinification, human resource management, analysis of communication channels, etc. Although still far from the content of standardised CSR reports, the small winery has chosen a path to learn and improve on the go, relying on SR on the one hand and modern technologies on the other.

As expected, the initial integration of the plan-strategy and AI technology is complicated due to the lack of understanding by both the older generation, who actually run the business, and by the employees in general. The reasons are the low level of knowledge of the principles of CSR and, above all, the fact that it should not only be applied to corporate entities, but also to smaller business units. This also hinders the definition of CSR areas with a specific and priority focus. The second barrier is low digital literacy regarding the capabilities of AI-based applications and the particular ESG areas in which they could find practical applications. This is why the winery is actively developing

materials for internal training in the fields of sustainability and SR, which facilitates each subsequent step in implementing the plan-strategy.

In summary, the presented case study clearly demonstrates that the success of the plan-strategy would be guaranteed only if there was a firm commitment from the family owners, the training and participation of all employees, and a willingness to improve based on results and continuous feedback. Therefore, although the first cycle of the plan-strategy has been completed, the next 6 to 12 months of evaluation and ongoing training will prove to be critical. The pilot testing is still ongoing, and complete data will be analysed and reported in the future.

5. Discussion

Family businesses play a leading role in the global economy, as they represent the most significant number of economic ventures worldwide and often evolve into complex business enterprises. Thus, the business and the family are closely linked in a business controlled by family members, which is crucial for achieving success and ensuring sustainability by passing it on to future generations (Baltazar et al., 2023). The successful development and subsequent implementation of the proposed plan-strategy within the SFBs requires the provision of a specific set of resources. Firstly, from a technological perspective, it is essential to ensure access to suitable AI tools and platforms. Given the budget constraints typical of small businesses, it is advisable to initially focus on free or low-cost solutions that offer the necessary functionalities for analysis and support for strategic planning and implementation. However, the effectiveness of these technological tools is directly dependent on the availability of relevant internal data about the business's activities, including operational, financial, and supply chain data, to serve as the basis for the analysis performed by AI. Ensuring basic technical infrastructure and reliable internet connectivity is also a fundamental condition.

Alongside technological and information resources, human and organisational aspects are critical. Targeted training programs are needed for owners and employees to increase their awareness and understanding of both the principles and benefits of CSR, as well as the practical possibilities for effective use of the implemented AI tools. A key factor for success is the clear and strong commitment of management, which should actively support the initiative and work to create a culture of SR that permeates all levels of the organisation. In this context, possessing a solid foundation in digital technologies and a willingness to acquire new skills is a valuable internal resource.

In addition to the options already listed, the plan-strategy implementation process can be enriched by attracting external expertise. It is possible to collaborate with external experts in the field of CSR and AI specialists, who can offer valuable guidance in choosing tools, adapting the strategy to the specific needs of the business, and overcoming potential technical or organisational challenges. Last but not least, it is essential to consider resources such as the time that the engaged employees and owners will have to devote to the process, which is often a limited resource in small companies. Despite the initial orientation towards more affordable solutions, a specific financial resource should also be foreseen to cover the costs of subscriptions, training or consulting services, even if they are minimal. The successful combination and management of these technological, informational, human,

organisational, external, and temporal resources are key to the successful development and effective implementation of the plan-strategy in the SFBs. Its implementation, in turn, is expected to bring several significant benefits to the SFBs, encompassing both internal processes and external relationships with stakeholders.

In terms of market positioning and relationships with the external environment, key expected benefits include a significant improvement in the brand's reputation and image. Transparent and committed CSR activities can directly increase customer loyalty to products and services, while also strengthening employee loyalty and engagement. Sustainable practices and demonstrated SR are increasingly important factors in attracting investments and partnerships oriented towards sustainable development. Additionally, a strong CSR presence can enhance a company's ability to attract and retain talent, particularly among younger generations, who consider corporate responsibility a key criterion when selecting an employer.

From an operational and efficiency perspective, implementing the plan-strategy can deliver measurable results, such as reducing operating costs through process optimisation and more efficient use of resources (energy, water, raw materials). Using AI for analysis can also enhance the management of risks related to the social and environmental aspects of the business, driving innovation in products, services, and business models. The ability to make better decisions based on data provided by AI analyses of CSR indicators is also a significant benefit. The cumulative effect of all these benefits – improved reputation, increased loyalty, operational efficiency, better risk management and a positive contribution to society – contributes to the long-term sustainability and competitiveness of the small family business in the market, strengthening its position as a responsible and valuable participant in the economy and society. The successful implementation of the plan-strategy in SFBs depends on the interaction and presence of several key factors that encompass both strategic planning and operational execution. A fundamental factor in achieving success is the presence of a clear vision for integrating CSR into the core business and an unwavering commitment from management. Leadership support is essential for initiating, implementing and sustaining CSR initiatives, especially when they involve the implementation of new technologies such as AI. This commitment must be visible and set the tone for the rest of the organisation, motivating them to support and actively participate.

From an implementation perspective, it is key to adopt a gradual approach. This means starting with a focus on specific, well-defined CSR areas where impact can be quickly visible and measurable before moving on to larger-scale initiatives. This step-by-step method enables more efficient resource management, including the adequate allocation of necessary financial, time, and human resources, which are often limited in small businesses. A critical aspect in this regard is the selection of appropriate AI tools that are tailored to both the specific CSR objectives and the technical capacity and capabilities of the family business. The successful management of data required for AI operation and the measurement of its impact are also integral parts of this factor.

The human factor is essential for the sustainability of CSR initiatives. Ensuring targeted training and the active participation of all employees in the process is key to building a common understanding, acceptance and support for CSR objectives, as well as for the effective use of AI tools. Creating an organisational culture that values SR creates

a favourable environment for long-term commitment. In the context of the dynamic business environment, adaptability and a willingness to learn from experience, both from successes and challenges during implementation, are essential for the continuous improvement of the CSR strategy.

Finally, to ensure effectiveness and demonstrate real impact, it is necessary to establish mechanisms for regular measurement and reporting of progress towards the set CSR objectives. This requires defining key performance indicators (KPIs) and implementing data collection and analysis systems that AI can support. Transparent communication of results to all stakeholders – both internal and external (including customers, community, and partners) – is vital for building trust and demonstrating commitment. The interaction and synergy between these factors – *clear leadership, adequate resourcing, gradual and targeted implementation, staff engagement and training, effective measurement and reporting, and the ability to adapt and learn* – are crucial for achieving CSR objectives supported by AI in the context of SFBs. This statement is also confirmed by the fact that these companies tend to avoid risk, which prevents them from investing capital in financing innovative projects that yield uncertain results. A general preference for exploitative innovation strategies among family firms is due to the governance mechanisms implemented by family stakeholders (Baltazar et al., 2023).

However, the management and activities of the SFBs often involve representatives from multiple family generations. This means that they have at their disposal a resource – *emotional*, *social*, and *cognitive* – from at least two demographic generations. When there is such diversity, it is often accompanied, on the one hand, by a desire for continuity, which is reflected in the preservation of traditions and the status quo, and on the other, by a passion for innovation and renewal. This dual nature is not necessarily negative. On the contrary, it can catalyse positive change and serve as a bridge between generations, connecting the achievements of older family members with the future aspirations of the younger generation. And the younger generation often links its future intentions and activities with the possibilities of the modernity it inhabits. In this particular case, these are digitalisation and AI.

The developed framework for implementing AI has the potential to be applied in any small company. In this case, the key advantage of family companies and the fact that they are used in the process of developing and implementing the plan-strategy is the availability of a guaranteed resource (a variety of different generations intensely interested in the success of the company), which is sometimes lacking in other types of small companies. In other words, most modern SFBs have at least one representative of generations Y, Z or even Alpha – generations that have grown up with the possibilities of digitalisation to varying degrees, and therefore would much more effectively and smoothly adopt the opportunities of implementing the plan-strategy in the company's business processes. In the presented case study, the activities of pilot testing the plan-strategy were implemented significantly faster than the time horizons set in the strategy, due to the presence of expert digital skills among the young generation involved in wine production. For this reason, the correct reporting of these skills as an advantage for the small family business under consideration has not been adjusted (reduced) according to the actual reported results.

In fact, this resource – *highly digitally savvy employees* – is not unique to SFBs, but as noted, they are much more likely to have it than a conventional small business. A family member from this demographic profile will also be more likely to be committed to the goals of the family business. A Generation Z employee, for example, employed in a family business, will be much more committed to the organisation's goals than a Generation Z employee employed in a conventional business with which they do not share family values. As Gallo (2012) points out, a CEO of a family-controlled business may have financial incentives similar to those of CEOs of non-family businesses. However, they feel that family obligations will lead to very different strategic choices. Family business leaders often invest with a 10- or 20-year horizon, focusing on what they can do now to benefit the next generation. They also tend to manage their shortcomings more than their strengths, unlike most CEOs who try to make their mark through excellence.

In this sense, the proposed strategic plan outlines a framework for SFBs to integrate SR into their operations more quickly and effectively than a small company without family ties, by intelligently leveraging AI, thereby creating sustainable value for all stakeholders. The challenges identified earlier prevent organisations from achieving the transparency required by stakeholders and the accountability necessary for long-term sustainable success (Pater, 2024). The plan-strategy framework, with its infinite loop (Figure 1), can make things faster and easier and even help solve problems that are inherently difficult for humans to solve on their own.

At the same time, it should not be forgotten that while the potential of AI for transforming CSR in SFBs is significant, a complete discussion also requires consideration of its inherent limitations. Key aspects to consider are the environmental costs associated with the energy consumption of AI systems, as well as the risk of algorithmic biases that can lead to unfair or inaccurate results (Hosseini et al., 2024). These challenges highlight that implementing AI for CSR is not just a technological process, but also an ethical commitment that requires careful selection of tools and continuous monitoring of their outcomes to ensure that they support, rather than undermine, sustainability goals.

Scientific and practical contribution

The development proposes a conceptual model for integrating CSR principles, specifically tailored to the context of SFBs, building on existing theories that often focus on large corporations. The strategy represents a theoretical synthesis of concepts from the fields of CSR, family business management, technology implementation (particularly AI), and sustainable development, offering a framework for studying their interrelationships. The developed theoretical model, along with the identified opportunities and challenges, serves as a solid basis for formulating research questions and hypotheses for future, larger-scale, and methodologically more rigorous studies. The strategy contributes to the development of theoretical frameworks that describe how digital technologies, such as AI, can be used as a tool to promote and effectively manage CSR activities in specific organisational contexts.

The strategy can serve as a roadmap for SFBs that want to start or improve their CSR initiatives by integrating AI solutions. It identifies specific functional areas (e.g., waste management, energy efficiency, administrative processes, data management) in small businesses where AI can be practically applied to achieve sustainability. At the same time,

the development provides a structured approach that can be used by consultants, industry associations or other support structures when working with small and family businesses on CSR and digitalisation-related topics. Despite its limitations, field testing (even a one-off) provides initial empirical evidence of the practical feasibility of some aspects of an AI-based CSR strategy in a small business. The strategy can stimulate SFBs or other SMEs to initiate pilot projects to test specific AI applications for CSR in their business.

Limitations and future research

The theoretical nature of the proposed strategic framework, as well as its one-time testing in a small family winery, imposes significant limitations on the generalisability of the results. The specific industry, the unique characteristics of the studied firm, and the lack of long-term observation limit external validity and do not allow the establishment of causal relationships. These factors highlight the need for larger-scale and empirical studies.

Future research can build on the current framework in several key areas:

1) *Empirical validation and scaling*: Studies are needed to test the strategy in different sectors of the economy and in a larger sample of small and medium-sized enterprises to validate its applicability and assess its long-term effects.

2) *Organisational dynamics and accountability*: One crucial area is the investigation of mechanisms for balancing cultural commitment with formal accountability. This includes investigating the effectiveness of the CSR coordinator role and its optimisation within the organisational structure of family firms.

3) *Intergenerational dynamics*: Another direction is to analyse the dual role of intergenerational dynamics. Future studies could explore whether the engagement of digitally literate generations leads to deeper ethical engagement or is more related to rapid technological adoption.

4) *Ethical and environmental aspects of AI:* It is imperative to integrate critical analysis of the ecological costs and moral risks associated with AI systems. This includes assessing the energy footprint of AI and exploring mechanisms to prevent algorithmic bias in the context of CSR.

6. Conclusion

Corporate social responsibility has become a critical management and strategic aspect for all businesses, reinforced by increasing regulatory, stakeholder and market demands. Small and medium-sized enterprises, including the majority of family businesses, face significant challenges in systematically implementing CSR and especially in complying with new, more stringent ESG reporting requirements, often due to limited resources, lack of expertise and operational inertia. In this context, AI is positioned as a promising tool capable of increasing efficiency, transparency and accuracy in CSR and sustainability management and reporting. However, its implementation requires careful addressing of ethical and environmental aspects.

This paper proposes an AI-based roadmap to support SFBs in implementing CSR principles. The strategy is theoretically grounded, stepping at the intersection of CSR theories, family business specificities and the potential of AI. Its theoretical applicability is expressed in the proposal of a new conceptual framework that can stimulate future

academic research and serve to formulate testable hypotheses regarding the interaction between technologies, organisational characteristics and CSR outcomes in the SMEs sector.

From a practical perspective, the developed strategy provides a valuable reference and identifies specific application areas for integrating AI into the CSR activities of SFBs, adapted to their resource constraints. It can serve as a practical guide for managers and support organisations engaged in promoting sustainability and digitalisation in small businesses. The one-time exploratory testing in real conditions, although limited, provides an initial demonstration of the potential applicability of the strategy.

While the proposed framework provides clear guidance, its successful implementation in the real world depends on overcoming significant structural barriers. Factors such as funding gaps, lack of technical infrastructure, and digital divide pose serious challenges. However, the presented strategy offers a roadmap that enables SFBs to gradually overcome these barriers by using AI to achieve sustainable and transparent practices.

Despite the formulated theoretical and practical applicability, the present study is associated with significant scientific limitations. These include primarily the theoretical nature of the strategy, the small size and specificity of the sample (one case in a specific industry), and the lack of long-term monitoring and a control group. These limitations greatly limit the possibility of generalising the conclusions. Future research will build on the present study by including larger and more representative samples of SFBs from different sectors, conducting long-term testing and monitoring of the strategy's implementation, and employing more rigorous methodological approaches to assess the impact of AI on CSR outcomes.

More in-depth research is also needed on the ethical aspects of the specific application of AI tools in the context of CSR in SMEs. Despite its limitations, the present work highlights the potential of AI as a key factor in CSR transformation for SFBs. It provides a starting point for further efforts in this critical area.

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