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Intellectual capital for green accounting in agribusiness

RESEARCH ARTICLE

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Abstract

Agribusiness organizations have gained an understanding of the need to promote environmentally friendly actions for the present and the future. Green accounting (GA) or environmental accounting is a new branch of accounting that attempts to factor costs related to the environment into the financial results of various operations. The concept of intellectual capital (IC) describes all the resources or capital that determines an organization's value and competitiveness. The implementation of GA principles in an agribusiness organization is a cross-disciplinary work that entails sustainability, accounting, and other fields of research. Thus, competent farmers (human capital), good relationships with stakeholders (relational capital), structural changes (organizational capital), and innovativeness (innovation capital) all of which are concepts of IC are needed for the implementation of environmental sustainability policies and procedures within an organization. This conceptual paper explores key success factors for the GA from the IC perspective. We proposed that, for different reasons and logic, the human, customer, organizational, innovation, and process capitals all play roles as key success factors for good implementation of GA in agribusiness.

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1. Introduction

The 21st century has become an age of prosperity and progress. As the world becomes more sophisticated in different ways, the need to be conscious of the environment surrounding us grows each day. Businesses and corporations have gained an understanding of the need to promote environmentally friendly actions for the present and the future. Green accounting (GA) or environmental accounting is a new branch of accounting that attempts to factor costs related to the environment into the financial results of various operations (Brännström and Giuliani, 2009; Buckwell, 2005). Corporate and businesses have begun to show their commitment towards environmental protection. GA primarily entails the three most significant factors including the people, the planet, and profitability (Brännström and Giuliani, 2009; Moorthy and Yacob, 2013). Also, green/environmental accounting deals with the costs as well as the benefits or advantages that are brought about by the environment to a business concern.

Any bad changes to the environment not only result in negative impacts to the environment but also to the economy. Similarly, any significant change in the economy adversely affect businesses and the way enterprises operate within the economy. Most importantly, a country's Gross Domestic Product can be affected by the changes in the climate and the environment (Brännström and Giuliani, 2009; Moorthy and Yacob, 2013). Thus, people and the corporate world have become more aware and conscious of different environmental issues, and the need for appropriate and sufficient corporate disclosure is growing each day.

In this type of context, corporate governance mechanisms such as a good accounting and finance system is critical to agribusiness firms' survival and progress, especially in the economic down time (Manoel *et al.*, 2018; Mateos-Ronco and Guzmán-Asunción, 2018). A sound accounting and finance system could help a lot when the agribusiness firms try to re-build an effective business model (Scare *et al.*, 2018). Summing up, a systematic discussion of the effects of a modern accounting/finance system for agribusiness from a crucial perspective is needed. This is the reason why we would take the chance to look deeply into the GA system in agribusiness from the intellectual capital (IC) theory, which emphasizes the good integration and use of human, organization, customer, and innovation capitals to benefit agribusiness performance and transformation (business model re-building) (e.g. Blok *et al.*, 2018; Lai *et al.*, 2018; Meyerding, 2017; Olthaar *et al.*, 2019; Xu *et al.*, 2018).

By contribution, this conceptual paper with active propositions conceptually and logically explores the influences of IC on GA in an agribusiness context. In nature, the discussions combine IC as a mature literature and GA as a cutting-edge issue with practical significance on agribusiness as a transforming arena that could contribute significantly to the world's economic and social progress. This paper can also contribute in stimulating future imagination for the related issues surrounding GA in its application in agribusiness.

2. The importance of the IC perspective

The concept of IC describes all the resources or capital that determines an organization's value and competitiveness. IC is the knowledge or the organization's property that can be used in some useful ways such as making money or increasing the market size among fulfilling other purposes for the enterprise. IC is comprised of knowledge as well as the skills that the organization develops for making various services and goods or the employees with critical skills necessary for the success of the business. Some of the examples of IC are branding, employee experience, goodwill, patents, and trademarks. The implementation of GA principles in an organization is a cross-disciplinary work that entails sustainability, accounting, and other fields of research (Cho and Patten, 2013). Thus, competent employees (human capital), good relationships with stakeholders (relational capital), structural changes (organizational capital), and innovativeness (innovation capital) all of which are concepts of IC are needed for the implementation of environmental sustainability policies and procedures within an organization (Edvinsson and Malone, 1997). Therefore, it is important to explore key success factors of implementing GA from the IC perspective.

3. Theoretical foundation and literature review

GA assists in measuring the environmental performance which is closely related to the organization's social role. Thus, from a business point of view, a lot of interest is being developed in understanding, measuring, and the management of costs and revenues related to the environment (Edvinsson and Malone, 1997). Management accounting is closely related to the concept of GA. Management accounting is the process of identifying, recollecting, and analyzing the information for domestic purposes only. The aim of management accounting is to manage the organization's costs, especially taking account of administrative decisions in areas such as production. According to Brännström and Giuliani (2009), the objectives of GA is to present correct information that is understandable to the management to aid them in making good decisions on matters that affect the financial position as well as the environment.

Environmental management accounting is a tool used in the identification, collection, and analysis of information that is related to the costs that are absorbed by the company internally, on the environment, and particularly the costs of raw materials, production, elimination, and outlet waste (Edvinsson and Malone, 1997). According to Brännström and Giuliani (2009), GA covers several issues including accounting for contingent risks, asset revaluation and capital protection, waste and environment, cost analysis in areas such as energy, valuation of investments to include environmental factors, covering ecological costs, assessment of the benefits and costs of environmental improvement programs, and the development of new accounting systems.

According to Edvinsson and Malone (1997), IC encompasses the organization's structural capital (organizational systems and processes, business processes, and software and databases), human capital (experience, skills, competence, and innovative workers), relational capital (linking all the organization's resources to the external relationships with stakeholders like customers, investors, suppliers, and creditors, among others), process capital, and innovation capital. From a broad perspective, IC is synonymous with intangible assets, knowledge assets, invisible assets, knowledge capital, organization's wealth, and hidden value of a company (Edvinsson and Malone, 1997). IC differentiates companies because it creates competitive advantages for companies (Chen, 2008). Thus, IC is a prism through which the achievement of a company can be evaluated.

IC looks at the organizational knowledge as part of the organizational stock. As a result, most scholars interested in the role played by knowledge in an organization have developed a keen interest in IC and its benefits to the firm. Most research on IC fails to cater for the changes in individual behavior and cognition which are essential for learning and improvement. Change is the sole constant variable in the current business environment. Most organizations are developing change responsive structures as well as systems. As business leaders begin to appreciate the role played by IC in their organizations, there is the need to develop effective ways of valuation of intangible assets of firms. There exist significant variations in the current ways of valuing intangible assets. Like in other assets, perception plays a big role in the valuation of intangible assets. While other components of IC are rational and directly measurable, others are of perceptive and affective nature. Thus, some IC assets are more valuable in some regions than others due to a variation in perceptions, demand, supply, fashion, resources, etc. IC will still vary for firms operating in different regions even if they have almost everything equal.

4. The potential intersection of green accounting and intellectual capital

GA intersects with IC because both deals with a company's intangible assets. GA deals with environmental factors while IC deals with knowledge and skills. GA factors environmental costs into an organization's financial result. The need for the GA model arose because GDP fails to account for environmental damages and benefits. Thus, GA helps businesses to manage the possible give and take exchanges between the traditional economic and environmental goals. Also, GA provides vital information that is commonly overlooked during the analysis of policy issues. GA ensures weak sustainability which is a step towards strong sustainability. On

the other hand, an organization's intellectual assets (IC) play a significant role when it comes to improving as well as maintaining the organization's competitive advantage against competitors in the market (Chen, 2008).

With the changing market dynamics in the current world, organizations that used to put more focus on productive capabilities in their operations have embraced a creative operational structure. Companies are currently using special tools (Intelligence Capital) like patents, trademarks, research and development, customer and supplier relationships, human resources, and databases for the management and protection of knowledge. All these IC aspects improve the competitiveness of companies and companies spend a lot of resources in them compared to what they do with their tangible assets. Although most companies, operating in the current market, have discovered ways of facilitating valuation measuring and reporting their intellectual assets, almost all the intellectual assets of companies are not capitalized in the company's financial statements, because it has been difficult to determine those assets' historic costs and their future advantages are mostly uncertain. Thus, the intersection between GA and IC is that both deal with a company's intangible assets. GA records intangible environmental benefits while IC is an intangible asset valuable to a company too.

5. Theoretical analysis and propositions development

5.1 Human capital

Human capital positively influences the success of GA because the implementation of GA policies and procedures within the company depends on the competence, experience, know-how, and skills of the employees who are tasked with the implementation of GA in the organization. The company's top management should lead by example in motivating junior staff members to embrace GA practices. Research has shown that employees are more likely to support green practices in their places of work when their seniors show encouraging behaviors towards those practices. Involving the employees in every step of implementation of GA practices in the organization creates and sustains GA and reporting practices as part of organizational culture.

Proposition 1: Human capital has a positive influence on green accounting success.

5.2 Customer capital

Having a good relationship with the stakeholders of an organization results in a smooth production channel, enhanced market base, and getting the attention of potential customers. It is important to enhance bonding as well as trust relationships with employees, input suppliers, and customers so as to improve the quality of a company's products, lower the prices to improve competitiveness, and markets the output. Relational capital is comprised of all the intangible assets of an organization that are generated by establishing, sustaining, and nurturing quality relationships with the organization's external partners having the potential to improve the performance of the company. Relational capital impacts the performance of a company in two distinct ways. First, it reduces the overall costs. Second, it increases the market value of the products and services marketed by the firm. The knowledge embedded in the relationships between the suppliers, employees and the customers may lead to cost reduction due to economies of scale resulting from increased output and process innovations. An improved level of relational capital increases efficiency in service delivery as well as an improvement in production. Thus, most organizations have developed a keen interest in the relational capital as opposed to financial and physical capital in recent years to improve their competitiveness. Companies have been inclined towards the nurturing of relational capital in the wake of globalized uncertainties surrounding the use of financial assets as well as a strict imposition of environmental norms about the use of physical capital. Relational capital has a positive impact on the success of GA because firms will move swiftly to implement GA practices in their organizations largely due to institutional pressures. For instance, a firm is more likely to implement GA practices when a competing firm does so to avoid disapproval from economically powerful stakeholders.

Proposition 2: Customer capital has a positive influence on green accounting success.

5.3 Organizational capital

Organizational capital also known as structural capital is part of a company's IC. The structural capital of the organization includes all the cumulative experience that is preserved and used for ordinary operations as well as for the enhancement of the organization. Although the organizational capital is important for the development of the organization, there is no consensus as to how to measure its contribution to the current or future output. The elements of organizational capital such as the organizational culture learning and structure are vital factors that give a firm a competitive advantage on the market. In current times, most organizations are striving to integrate various practices into their organizational culture to remain competitive in the dynamic markets (Chen, 2008). Stakeholders have become sensitive to issues of social and environmental accountability. Thus, organizational capital has a positive influence on the GA practices because firms are forced to adopt socially acceptable and credible organizational behavior if they want to thrive and survive in their respective social environments (Cho and Patten, 2013). In the process of pursuing socially acceptable practices and including those practices in their organizational culture, firms improve the environmental accountability practices that contribute positively to the success of GA.

Proposition 3: Organizational capital has a positive influence on green accounting success.

5.4 Innovation capital

Innovation capital comprises of everything that promotes the development as well as the changes necessary for the achievement of the innovation outcomes within an organization for marketplace advantages. Innovation capital includes processes, knowledge, resources, and capabilities that are dynamic and constantly evolving to create a significant innovating capacity (M'Pherson and Pike, 2001). Generally, innovation speeds up the growth of a company, boosts the total earning, creates a competitive advantage, and appeal to the stakeholders. In most cases, innovation capital originates from various IC including the organizational structures, human assets, and social partners in the ecosystem of the organization. When all these factors are brought together in various evolving ways, knowledge is transformed into a new economic value for the company. However, financial capital can only fuel other capitals but it has no capacity to transform knowledge into an economic value. Innovation capital positively impacts the success of GA because innovations result in reduced environmental damage that significantly reduces the costs associated with social responsibilities undertaken by firms to improve their relationships with communities and stakeholders.

Proposition 4: Innovation capital has a positive influence on green accounting success.

5.5 Process capital

The value that a firm derives from the procedures, programs, and the techniques that improve service and goods delivery is known as the process capital. Process capital is one of the components of structural capital and it is seen as a value of processes to any entity whether for profit or not, although it is mostly used in reference to profit-making entities. Process capital involves a series of value-added activities aimed at achieving the overall goal of the business. Various scholars have argued that process capital has a positive influence on a firm's competitive advantage. Firms that engage in green innovation and environmental management minimize the production waste and increase productivity (Chen, 2008). However, those firms charge significantly higher prices for green products and enhance their corporate image obtaining corporate competitive advantages because of the international regulations of environmental protection, and consumers are environmentally conscious as well. Thus, process capital has a positive impact on GA because operation processes, trademarks, copyrights, managerial philosophies, information technology systems, managerial institutions, and organizational capabilities relating to green innovation assists companies to obtain competitive advantages.

Proposition 5: Process capital has a positive influence on green accounting success.

6. Conclusions

This paper has conceptual, methodological, and policy-making implications for future studies. Although GA is an emerging concept in accounting, it requires a multidisciplinary knowledge across sociology, behavioral science, and engineering among other fields. The principle premise behind GA is that firms must internalize environmental costs and benefits. In most firms, the environmental costs are externalized making the society to bear the negative impacts of the actions of firms in the environment because the environment is a public good. Organization's internal environmental accounting mechanisms like cost accounting try to find out the costs of the activities of firms in the environment. GA is important because organizations will always attempt to minimize the harmful effects of their activities on the environment once they are made accountable for any environmental damages. Also, GA compels organizations to predict the expected potential damages of their activities on the environment and create provisions for environmental risks. Thus, GA ensures that firms monitor their actions to minimize potential risks to the environment.

This paper analyzed the key success factors for GA using the IC perspective. The concept of IC is relatively new in management accounting just like the concept of green/environmental accounting. While IC is part of the organization's intangible assets that cannot be valued using the usual financial accounting criteria, GA accounts for the environmental costs associated with the actions of a firm. In most cases, environmental costs are often externalized making the society to pay for them; GA compels firms to act responsibly to avoid harmful effects to the environment. The significance of analyzing the key success factors of GA using the IC perspective is that the elements of IC positively contribute to the success of GA. Firms achieve a significant competitive advantage when they build on various elements of IC. For instance, firms successfully implement GA practices in their organizations when they strive to build organizational capital (good relationships with economically powerful stakeholders) to improve their competitiveness among their stakeholders especially when competing firms are also implementing GA practices. Last but not least, we suggest that future studies could consider an in-depth case study. After all, case studies are critical for understanding the modern progress of agriculture/agribusiness as a traditional field of research.

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