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Sustainability communication and evaluation: A practice-based case study on British-Egyptian universities value-chain

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Abstract

Purpose – The purpose of this paper is to explore and analyse sustainability management practices carried out in a British university then develop –for its Egyptian university partner– adapted strategy map and balanced scorecard to communicate and evaluate its sustainability performance.

Methodology – This study used a strategic management approach in communicating and evaluating sustainability in higher-education. After reviewing the relevant interdisciplinary literature, the authors used a qualitative case-study approach (depth face-to-face interviews and focus group with subject-matter-experts in this higher-educational value-chain) to develop quantitative assessment tool.

Findings and practical/social implications – The current findings provide university leaders/academics with fruitful insights about effective sustainability management; thus, satisfying their stakeholders' needs in terms of social, environmental and economic gains.

Originality/value – From an interdisciplinary perspective, it conceptually integrates the literature of sustainability management, higher-education for sustainable development, and strategic education management while developing a practical assessment tool for an emerging market.

Keywords – Sustainability Management, Green Performance Evaluation, Sustainable University, Environmentally-responsible Value-Chain, Emerging Market, Higher Education for Sustainable Development, Balanced Scorecard, Strategy Map, Contemporary Education Management.

Track – Sustainable and Responsible Business.

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1. Introduction and motivation

Universities have played a significant role in building the learning community and our societies in general (Adel, 2016; Zorio-Grima, Sierra-García and Garcia-Benau, 2018). Therefore, universities must play the same role to preserve the world and its environment for future generations (Longhurst *et al.*, 2014; Mahrous and Adel, 2017; Zorio-Grima *et al.*, 2018). Also, the conceptualisation of sustainability was shaped by universities, generated throughout its research work, and recommended by their researchers (e.g., Galpin, Whitttington and Bell, 2015) to be applied to different markets for an enhanced organisational performance. Thus, different stakeholders of the higher educational value chain expect universities themselves to act as sustainable organizations. This can be achieved through practice, demonstration and offering education for sustainability (Figueredo and Tsarenko, 2013). Nevertheless, there has been a paucity of research on sustainability communication and assessment in universities through using comprehensive case studies and frameworks in order to sustain a continuous process of improvement (Wright, 2010).

As for the sustainability concept in higher education, León-Fernández and Domínguez-Vilches (2015) and Aleixo *et al.* (2016) contended that a sustainable and environmentally responsible university is the one that operates and uses the required resources in satisfying its current needs while protecting the environment for the future needs of its society and the coming generations. Wright (2002), Brinkhurst *et al.* (2011) and Aleixo *et al.* (2016) pointed out that the main sustainability initiatives/efforts carried out by universities should link the theory with the practice. Accordingly, this can be implemented through creating: (a) internal awareness among its academic/administrative staff and students about the efficient use of resources and protecting their environment (Drayson, Bone, Agombar and Kemp, 2014); and (b) public awareness in the society about the benefits of green operations and environmental sustainability (Figueredo and Tsarenko, 2013). This leading role of universities can be applied through offering educational modules/programmes for sustainable development, academic research on sustainability, training workshops/conferences targeting environmental issues, cross-faculty multidisciplinary meetings for sharing good sustainability practices, inter-university collaboration with government on social work and community services, and academia-industry partnerships for economic development (Wright, 2010; de Castro and Jabbour, 2013; Md. Kamal and Asmuss, 2013; Drayson *et al.*, 2014; Adel and Zeinhom, 2018).

Concerning the practical assessment tool of sustainability, a number of prior studies advocated the usage of balanced scorecards (BSC) and strategy maps in *managing sustainability*, in addition to other studies that called for using BSC and strategy mapping in *managing universities*. However, to the best of our knowledge, only few studies that developed sustainability BSC and strategy maps for assessing *sustainable universities*' performance in a more comprehensive manner. For example, Chen *et al.* (2006), Adel (2010), Cugini, Michelon and Pilonato (2011), Binden, Mziu and Suhaimi (2014), and Han and Zhong (2015), after building on the earlier work of Kaplan and Norton (1996, 2000), advocated the usage of the BSC and strategy maps for communicating and evaluating the *organizational performance of universities*. Whereas, other researchers (e.g., Duarte, Cabrita and Cruz-Machado, 2011; Duarte and Cruz-Machado, 2014; Sayed and Lento, 2018) suggested using balanced scorecard in measuring *green/environmental and lean organisational performance*. Moreover, Figge, Hahn, Schaltegger and Wagner (2002) introduced *sustainability* BSC and strategy map after embedding social and environmental indicators. On the other hand, Shriberg (2002), Md. Kamal and Asmuss (2013), and Alghamdi, den Heijer and de Jonge (2017) identified other methods used by higher educational institutions to measure their environmental/sustainability performance (e.g., university environmental management system (EMS) checklists, sustainability questionnaires, and environmental key performance indicators (KPIs)). However, interdisciplinary researches (e.g., Comm and Mathaisel, 2003; de Andrade Guerra, Garcia, de Andrade Lima, Barbosa, Heerdt, and Berchin, 2018) asserted that applying balanced scorecards with customised KPIs and strategy maps

is crucial for a more balanced *performance assessment of sustainable and environmentally responsible universities*.

Hence, our research purpose is to develop comprehensive frameworks to communicate and evaluate sustainability in universities especially within emerging higher educational markets like Egypt, which is an attractive yet unexplored area of contemporary sustainability research. Motivated by the above-mentioned reasons, the current study explored and analysed sustainability management practices carried out in a British green university then developed –for its Egyptian university partner– hierarchical strategy map and balanced scorecard to communicate and evaluate its sustainability performance effectively and efficiently. Further, from an interdisciplinary perspective, it conceptually integrates the literature of sustainability management, higher-education for sustainable development, and strategic education management while developing a quantitative assessment tool for a British-Egyptian higher educational value chain using a strategic management approach.

The remainder of the present paper is organized as follows; section two critically discusses the relevant conceptual and empirical interdisciplinary research literature on the sustainability management in universities, education for sustainable development, and the strategic communication and evaluation of sustainability through using balanced scorecards and strategy mapping approach. Further, section three presents the research methodology used by the current study. Moreover, section four summarises the findings of the qualitative data analysis related to the case study conducted at a British-Egyptian higher educational value chain and presents its developed balanced scorecard and strategy map. Finally, section five encapsulates the main conclusions and limitations of this research along with suggesting main recommendations for future sustainability management research.

2. Sustainability management in higher education

As highlighted by Larrán Jorge, Herrera Madueño, Calzado and Andrades (2016), prior studies recommended that higher educational institutions should focus more on integrating sustainability dimensions in its curricula as well as its internal managerial processes. Hence, this section conceptually integrates two streamlines of management and educational research namely; sustainability management and higher education for sustainable development while discussing the importance of using strategic communication and evaluation tools in higher education.

2.1. Sustainability management and education for sustainable development in universities

Sustainable development is defined as the growth that satisfies the current needs without jeopardising the future needs of the society and the coming generations (Nicolaides, 2006; Longhurst *et al.*, 2014). With reference to the teaching and learning process, education for sustainable development (ESD), after being coined by the United Nations, was defined by many authors. For example, a study conducted by the Quality Assurance Agency for Higher Education (QAA) and the Higher Education Academy (HEA) (Longhurst *et al.*, 2014) defined it as the process of providing learners with the knowledge and skills required to act in a way that protects the future economic, social, and environmental wellbeing of their communities (Sterling, 2012; Ilieva, Beck and Waterstone, 2014; Longhurst *et al.*, 2014; Disterheft, Caeiro, Azeiteiro and Leal Filho, 2015). This definition is aligned with the main goal of education, which is serving and adding value to the society (van Weenen, 2000). For the purpose of promoting its importance, the UN named the period of 2005-2014 as a special decade for ESD (Ilieva *et al.*, 2014). From a university's context, some authors (e.g., Disterheft *et al.*, 2015) added the word higher (i.e., HESD) to the original ESD term. Both terms, the ESD and HESD, are differentiated in the literature from the environmental

education (EE) through clarifying that the later focuses only on the environmental aspect rather than the other two, social and economic, dimensions of sustainability (Lukman and Glavič, 2007; de Andrade Guerra *et al.*, 2018). Consequently, a sustainable university (SU) or higher educational institution (SHEI) is the one that uses the required resources efficiently to satisfy its current needs while protecting the environment for future needs of its society and the coming generations in addition to helping its stakeholders through education to act in the same way (Wright, 2010; León-Fernández and Domínguez-Vilches, 2015; Aleixo *et al.*, 2016).

In regard to the managerial-related perspective, sustainability management refers to the incorporation of sustainability aspects –social, environmental, and economic– within the organisation's main management practices and activities (Figge, Hahn, Schaltegger and Wagner, 2002) and then ensuring the effective management of its sustainability strategy in terms of formulation, communication, implementation, and evaluation (Figge *et al.*, 2002; Kaplan and Norton, 1996; 2000). Thus, effective management and reporting of the sustainability strategy will lead to its improvement (Adams, 2013).

Concerning its effective implementation, Galpin, Whitttington and Bell (2015) concluded that maintaining favorable organisational culture of sustainability has a positive effect on retaining your sustainability strategy in the long-term and enhancing future organisational sustainability performance. Besides, Adams (2013) and Disterheft *et al.* (2015) identified other critical success factors (e.g., empowerment, leadership support, effective communication, unified interpretation, clear goals with measurable KPIs, and shared vision) that facilitate successful sustainability management in higher educational institutions.

With respect to the barriers towards maintaining SU, Nicolaides (2006), Wright (2010), and Sterling (2012) reported some hurdles/obstacles that can make sustainability difficult to be implemented in universities; for example, some staff/students are unaware of the meaning and importance of sustainability, some educators are unwilling to add extra courses/topics to their workload, and other educators or employees may view sustainability practices are irrelevant and not part of their jobs.

2.2. Communicating and evaluating sustainability in universities using BSC and strategy map

Lozano (2011) promoted the importance of sustainability assessment and reporting by universities for the purpose of sustaining a cyclical process of improvement and communicating the university's positive sustainability initiatives to its various value chain stakeholders.

As a quantitative performance assessment tool, the balanced scorecard (BSC) –after being introduced by Kaplan and Norton– was defined, used and viewed by many authors (Kaplan and Norton, 1996; Figge *et al.*, 2002; Wang, Wan and Zhao, 2014; Rahimnia and Kargozar, 2016; de Andrade Guerra *et al.*, 2018) as an evaluation matrix that supported the traditional individual financial measures with additional KPIs in order to assess organisational performance in a more balanced manner according to four perspectives (e.g., learning and growth, financial, internal process, and customer delight).

Concerning the importance of successful communication of sustainability strategies in universities, Djordjevic and Cotton (2011) concluded that creating shared description, understanding and interpretation of the university's formulated sustainability strategy among its staff/students is crucial for its effective execution. For that reason, strategy mapping can act as an effective tool for sustainability communication in higher education. Strategy map (SM) was developed by Kaplan and Norton as a visual communication tool that can bridge the gap detected between a formulated strategy by leaders and its execution across the entire organisation (Kaplan and Norton, 2000; Figge *et al.*, 2002; Wang, Wan and Zhao, 2014; Rahimnia and Kargozar, 2016; de Andrade Guerra *et al.*, 2018). Through the usage of this graphical cause-and-effect framework, a sustainability strategy can

be effectively and efficiently communicated among various organisational stakeholders with a single picture depicting this strategy (Kaplan and Norton, 2000; Figge *et al.*, 2002; Wang, Wan and Zhao, 2014; Rahimnia and Kargozar, 2016; de Andrade Guerra *et al*., 2018).

From a sustainability-related perspective, Figge *et al*. (2002) advocated the usage of an adapted *sustainability* BSC and its SM, which involve economic, social and environmental dimensions for a better communicated and evaluated sustainability strategy. Afterwards, Binden, Mziu and Suhaimi (2014) and Rahimnia and Kargozar (2016) called for applying the BSC and SM to *universities* for the purpose of setting and measuring its organisational objectives effectively.

On the other hand, regarding the ongoing debate on the suitability of using the balanced scorecard in higher education, Sayed (2013) addressed some obstacles reported in the literature that can hinder the implementation of BSC in universities such as the lack of well integrated information systems with updated financial data and the limited commitment of top management in addition to the difficulty of its implementation at a departmental/unit level.

However, interdisciplinary researches (e.g., Comm and Mathaisel, 2003; Lin, Hu, Tseng, Chiu and Lin, 2016; de Andrade Guerra, Garcia, de Andrade Lima, Barbosa, Heerdt, and Berchin, 2018) asserted that applying balanced scorecards with customised KPIs and strategy maps is crucial for a more balanced *performance assessment of sustainable and environmentally responsible universities*, especially after integrating sustainability dimensions into its four mainstream business management perspectives (Figge *et al*., 2002). At this point, it is important to mention that sustainability is measured in the prior literature in terms of three –environmental, economic and social– dimensions (GRI, 2011; Schoenherr, 2012; Larrán Jorge *et al.*, 2016).

3. Research methodology

As discussed by Meyer (2001), Hartley (2004) and Noor (2008), a case study research is suitable for a detailed analysis of data collected in relation with certain organisational processes and its relevant context to throw the light on a particular research area/issue/problem. They pointed out that a case study approach: (a) is beneficial to organisational research, (b) helpful in investigating contemporary processes and set of organisational practices in holistic and comprehensive view, and (c) provides a detailed analysis and depth understanding to the practicality and applicability of specific theoretical issues (Meyer, 2001; Hartley, 2004; Noor, 2008). Furthermore, Creswell (2014) asserted that a qualitative case study approach can be used in exploring a process especially in the area of evaluation. From a practical perspective, Neale, Spark and Carter (2017) used a qualitative practice-based case study approach in order to describe and discuss the adapted practices of a managerial process in a British university. Accordingly, a qualitative practice-based case study approach was selected by the authors of the current study.

Regarding the current chosen context, the Egyptian higher education is viewed by the current researchers as an attractive emerging market (due to the accelerated rate of its quality improvement programmes as a result of many validation and internationalisation agreements sustained with global partners) (Adel, 2017; Adel *et al*., 2017, 2018) yet uninvestigated context of contemporary sustainability research. Also, following the study of Wang, Shi, Sun, Huisingh, Hansson, and Wang (2013), which pointed out that learning from the ESD practices that are carried out in universities of developed countries can be beneficial while studying the implementation of similar practices in the emerging markets. The current study explored and analysed the sustainability management practices carried out in a British university then developed –for its Egyptian university partner– customised strategy map and balanced scorecard to communicate and evaluate its sustainability performance from a strategic management perspective. Two reasons lie behind choosing this private university in Egypt (Modern Sciences and Arts (MSA) University) and its international partner in the United Kingdom (UK) (University of Greenwich): (1) based on the researchers' judgment that this higher-

educational value chain was able to manage its sustainability practices in terms of social, environmental and economic gains; and (2) the ease of access to the required detailed data related to the research area under study as one of the current researchers is working there as a mentor in University of Greenwich UK as well as a lecturer/leader at MSA University and directly involved in the collaborative research and quality monitoring and enhancement processes carried out with the UK partner.

Concerning the data gathering methods, Creswell (2014) discussed different methods of qualitative data collection (e.g., interviews, corporate documents and focus groups) that can be used by the qualitative researchers to gain depth understanding and fruitful insights from different angles. As for the current research, qualitative primary data were collected through: (a) ten face-to-face semi-structured depth interviews in UK and Egypt; (b) a focus group with the subject-matter-experts (SMEs) (i.e., academics, managers and leaders) in the Egyptian MSA University; (c) two strategic management committee meetings with academics and managers, who are members in the centralised MSA quality assurance and accreditation center and working on updating the key performance indicators (KPIs) used in MSA strategic audit to meet the requirements of The National Authority for Quality Assurance and Accreditation of Education (NAQAAE) in Egypt and Greenwich University its UK partner; and (d) two meetings conducted with the university's president and the deans and senior staff of nine faculties in MSA University. At this point, it is important to mention that one of the authors of the present study is a member in the aforementioned strategic management committee as well as a participant in the monthly university's meetings for the deans and senior staff that are conducted to share good practices among different faculties and discuss the required developmental areas related to the university's sustainable development.

With regard to the depth interviews, the researchers of the current paper conducted ten in-depth interviews in UK and Egypt with: (1) the Head of the Educational Development Unit at University of Greenwich UK; (2) the Head of Sustainability Unit at University of Greenwich UK; (3) MSA University President; (4) the Head of MSA centralised quality assurance and accreditation center; (5) MSA Human Resources Department Manager; (6) the Vice dean for community service and environmental affairs at MSA Faculty of Management Sciences; (7) MSA link tutor responsible for liaising with the British partners to develop the validated undergraduate programmes; (8) the organising coordinator of the international joint research conferences with the British partners; and (9) two practitioners working in the area of performance evaluation, sustainability projects and balanced scorecards' development.

As for the focus group, a total of nine MSA faculties were contacted –through email and phone– of which six accepted to participate in the focus group and sent twenty four subject-matter-experts (SMEs) (i.e., including deans, heads of quality units and academics working in the strategic performance evaluation in these faculties). Following the study of de Andrade Guerra *et al.* (2018), the KPIs and perspectives of the BSC and strategy map were developed after reviewing the prior research literature and then modified to include relevant sustainability dimensions after the consultation of the aforementioned SMEs. Similarly, one of the two current researchers conducted this focus group, that lasted for five hours, with twenty four SMEs from six different faculties (Arts and Design, Mass Communication, Biotechnology, Engineering, Dentistry, and Languages) through which the KPIs and perspectives of the developed BSC and strategy map were discussed and adapted in alignment with the requirements of MSA value chain stakeholders (e.g., learners, educators, society, accrediting bodies, UK partners such as Greenwich and Bedfordshire Universities in UK, and the Egyptian Supreme Council of Universities).

For the current study, interviewees were purposely chosen based on the researchers' judgment that they are subject-matter-experts, who are empowered and currently holding managerial and academic positions related to different sustainability management processes conducted throughout this value chain (Malhotra, 2007). According to the *saturation* principle elaborated by Creswell

(2014), the current authors stopped collecting research data when they found out that further data gathering did not contribute to additional insights.

As a result, the researchers were able to obtain a comprehensive understanding and thorough analysis of the sustainability communication and evaluation process carried out at this British-Egyptian universities value chain. Table I summarises the types and sources of data gathered by the current authors for this research including the sources of primary data (i.e., from depth interviews, focus group and strategic management committee meetings) as well as the secondary data (i.e., internal data available in this higher educational value chain databases/records concerning sustainability in addition to the Higher Education Academy frameworks related to higher education for sustainable development (Sterling, 2012; Longhurst *et al.*, 2014)).

Table I. The types and sources of data collected for the current research

	Data collection method	Key areas of data collected
Qualitative primary data collection	1. Ten face-to-face semi-structured depth interviews in UK (two with the head of sustainability unit and head of the educational development unit at University of Greenwich UK) and in Egypt (eight with SMEs in MSA University)	❶ Financial and economic BSC/SM perspective: - Savings from electricity and water efficiency and better assets' utilisation gains ❷ Value-chain stakeholder BSC/SM perspective: - Specifying the main stakeholders in this value chain (including the environment and society) and the mechanisms of delighting them ❸ Environmental-friendly internal processes BSC/SM perspective: - All the environmental friendly managerial practices related to marketing, human resources and operations management ❹ Education/research for sustainable development BSC/SM perspective: - Various strategies related to maintaining research and education for sustainable development
	2. Face-to-face focus group in Egypt with twenty four SMEs from six different MSA faculties	
	3. Critical reflection on two strategic management committee meetings as well as two deans/senior staff meetings for organisational KPIs development/adaptation	
Qualitative secondary data collection	4. Internal data available in MSA University databases/records such as MSA strategic audits (developed to satisfy the accreditation requirements by our national quality assurance bodies) and the quality monitoring and enhancement reports (required by our UK partners and the QAA) concerning sustainable development	
	5. University of Greenwich documents including its sustainability policy (e.g., University of Greenwich, 2017) and sustainability management frameworks	
	6. The Higher Education Academy UK frameworks related to the research/education for sustainable development (Sterling, 2012; Longhurst *et al.*, 2014) and the sustainability reporting guidelines published by the Global Reporting Initiative (GRI, 2011)	

4. A case-study on sustainable and environmentally responsible higher educational value chain

This study used a strategic management approach in communicating and evaluating sustainability in higher-education. After reviewing the relevant interdisciplinary literature, the authors used a qualitative case-study approach (data collected from depth face-to-face interviews, focus group and meetings for sustainable development with subject-matter-experts) to analyse sustainability management practices carried out in a British university then developed –for its Egyptian university partner– a modified strategy map and quantitative BSC to communicate and evaluate its sustainability performance. Following the study of de Andrade Guerra *et al.* (2018), the BSC perspectives and KPIs (as shown in Table II) and strategy map (as mapped in Figure 2) were developed by the current research after reviewing the prior literature and then were modified to include relevant sustainability dimensions after the consultation of SMEs through primary data collection. Moreover, the following sustainability management framework of the British-Egyptian higher education value chain (as illustrated in Figure 1) was developed by the current research in terms of three environmental, economic and social dimensions of the Global Reporting Initiative (GRI, 2011).

As for the British partner, Greenwich University has won an award by the Times Higher Education magazine in London and was named the best in sector for higher education sustainability management. Furthermore, its sustainability strategy and frameworks were recommended to be used by other universities working on managing their sustainability performance (University of Greenwich, 2013). Whereas in Egypt, MSA University performed different practices related to sustainability management and education for sustainable development that needed to be communicated to its stakeholders and evaluated for the sake of continuous improvement.

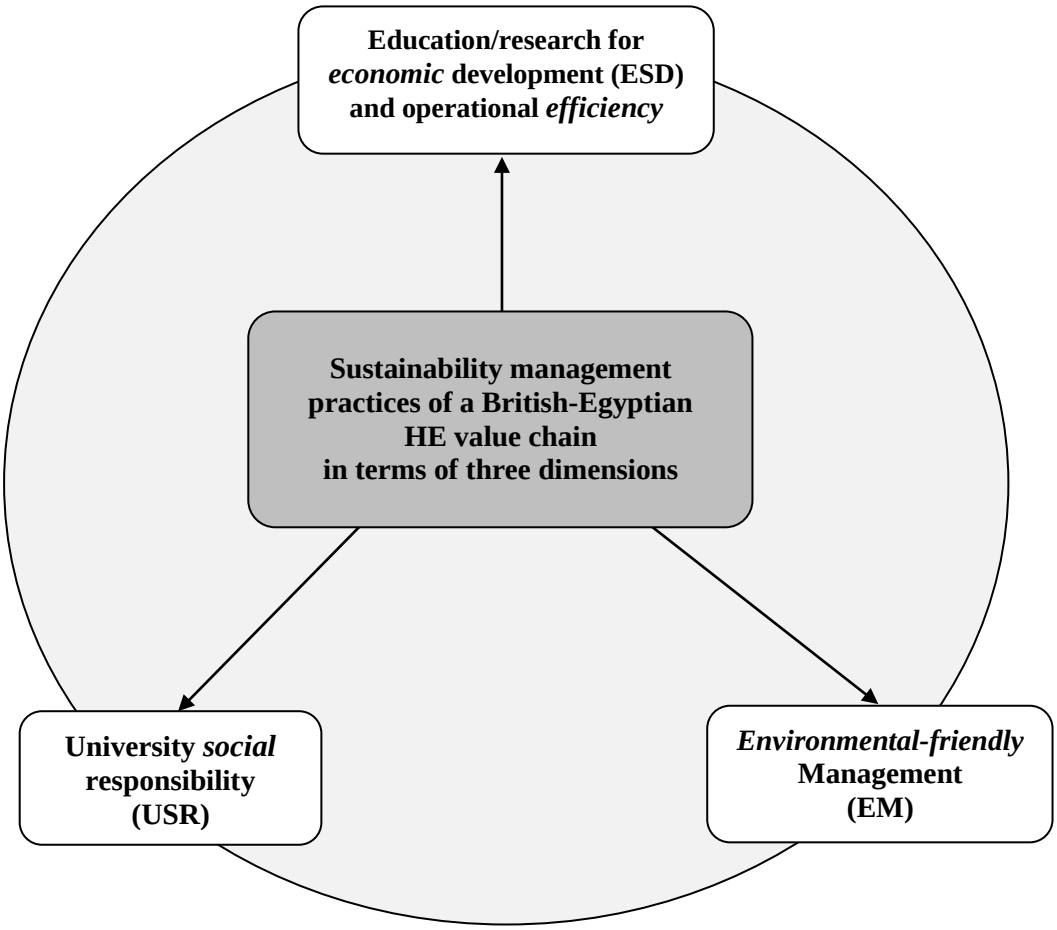

Fig. 1. Sustainability management framework of British-Egyptian HE value chain developed by current research in terms of three environmental, economic and social dimensions of the Global Reporting Initiative (GRI, 2011)

The following BSC objectives/KPIs (as illustrated in Table II) and strategy map (as depicted in Figure 2) were developed by the current authors for MSA University after:

(1) Reviewing the sustainability policy of University of Greenwich (University of Greenwich, 2017);

(2) Scanning the relevant researches that proposed objectives for sustainability management and generic, not BSC-based, KPIs for measuring sustainability in universities (Cusick, 2008; Figueredo and Tsarenko, 2013; Suwartha and Sari, 2013; de Castro and Jabbour, 2013; Md. Kamal and Asmuss, 2013; León-Fernández and Domínguez-Vilches, 2015; Larrán Jorge *et al.*, 2016; Alghamdi, den Heijer and de Jonge, 2017; Sassen and Azizi, 2018);

(3) Analysing the primary qualitative data collected from interviews, focus group and sustainability meetings; and

(4) Reviewing the prior studies that proposed BSC and strategy map for managing *organisational sustainability* (e.g., Figge *et al.*, 2002) in addition to previous researches (e.g., Rahimnia and Kargozar, 2016) that advocated using the BSC and strategy mapping specifically in *universities* to set and measure its organisational objectives, and few studies that presented a BSC with its strategy map in *environmental higher educational programmes* (e.g., de Andrade Guerra *et al.*, 2018).

Table II. MSA University's BSC for sustainability performance evaluation developed by the current research

Perspective	Objective	Key Performance Indicator (KPI)
Financial and Economic Perspective	➢ Increase the efficiency through best usage of resources	☑ No. of energy-efficient light bulbs used ☑ No. of water saving taps used ☑ Costs savings from sustainability practices
	➢ Improve the campus assets' utilization rate	☑ Assets utilization ratio
	➢ Reduce wastes resulted by any non-value adding activity	☑ No. of non-value adding activities eliminated
Value-chain Stakeholder Perspective	➢ Promote the funds dedicated for university social responsibility (USR) activities (e.g., through "Lebaladna" charitable association in MSA University)	☑ Amount of funds dedicated for USR ☑ No. of homes built for homeless people ☑ No. of meals distributed among the poor individuals via the Egyptian food bank
	➢ Motivate students/learners to engage in USR activities	☑ % of staff engaged in USR activities
	➢ Enhance teaching/administrative staff engagement in sustainability activities	☑ % of staff engaged in sustainability-related events, workshops and conferences
	➢ Develop collaborative programmes with UK partners on sustainability management and education/research for sustainable development	☑ No. of new collaborative programmes on sustainability with UK partners
Environmental-friendly Internal Processes Perspective	➢ Generate favorable integrated marketing communication campaigns on sustainability practices	☑ No. of IMC campaigns on sustainability practices (e.g., car pooling and green purchasing policies)
	➢ Offer HR incentives for green practices	☑ Amount of incentives on green practices

	➢ Conduct e-training and e-CPD programmes on green/environmental friendly operations	☑ No. of e-training and e-CPD programmes on green/environmental friendly operations
Education/Research for Sustainable Development Perspective	➢ Increase the number of academic modules on sustainability	☑ No. of academic modules on sustainability
	➢ Promote the academic research targeting social/environmental issues	☑ No. of academic research targeting social/environmental issues ☑ Amount of research funds invested in sustainability research
	➢ Provide training programmes on sustainability practices to academics and administrative staff	☑ No. of training programmes on sustainability practices
	➢ Upgrade the Moodle for facilitating e-learning and paperless green operations	☑ No. of programmes/modules updated throughout Moodle
	➢ Update the electronic library with more academic journals related to sustainability	☑ No. of academic databases/journals related to sustainability

As pointed out in the literature (e.g., Scholey, 2005; de Salas and Huxley, 2014; Kádárová, Mihalčová, Kádár and Vida, 2015; Lueg, 2015), a strategy map can be used to facilitate the organisational communication of its strategies among its internal and external stakeholders. Accordingly, as shown in Figure 2, MSA University can use this approach to describe and communicate its sustainability strategy to its internal as well as external stakeholders (i.e., learners, teaching and administrative staff, accrediting bodies, society, and UK educational partners). Regarding its importance as an external communication tool, the Head of MSA Centralised Quality Assurance and Accreditation Center –one of the interviewees– asserted that:

> Using the strategy mapping approach in delivering our sustainability strategy to our external accrediting bodies especially The National Authority for Quality Assurance and Accreditation of Education (NAQAAE) will act as effective and efficient way of creating clear and common interpretation of our sustainability plan and its KPIs. Thus, we can guarantee that we successfully maintained the ninth quality assurance and accreditation dimension (i.e., social responsibility and sustainable development in universities) required by NAQAAE in Egypt.

Also, MSA link tutor (i.e., who is responsible for liaising with our British partners to develop the validated undergraduate programmes) emphasised that:

> The BSC strategy map will show our UK partners in only one page the framework of how we enrich our educational programmes and research work with the needed knowledge and skills to help our students in participating actively in the sustainable development of their countries.

Furthermore, the Vice dean for community service and environmental affairs at MSA Faculty of Management Sciences stated that:

> Having a graphical representation of our sustainability plan with measurable KPIs will provide us and our partners in the community service with a solid framework for continuous evaluation and development of our current and future plans.

The conducted interviews revealed the importance of using the BSC strategy map, which was articulated by the following figure and developed by the current research for communicating MSA sustainability performance.

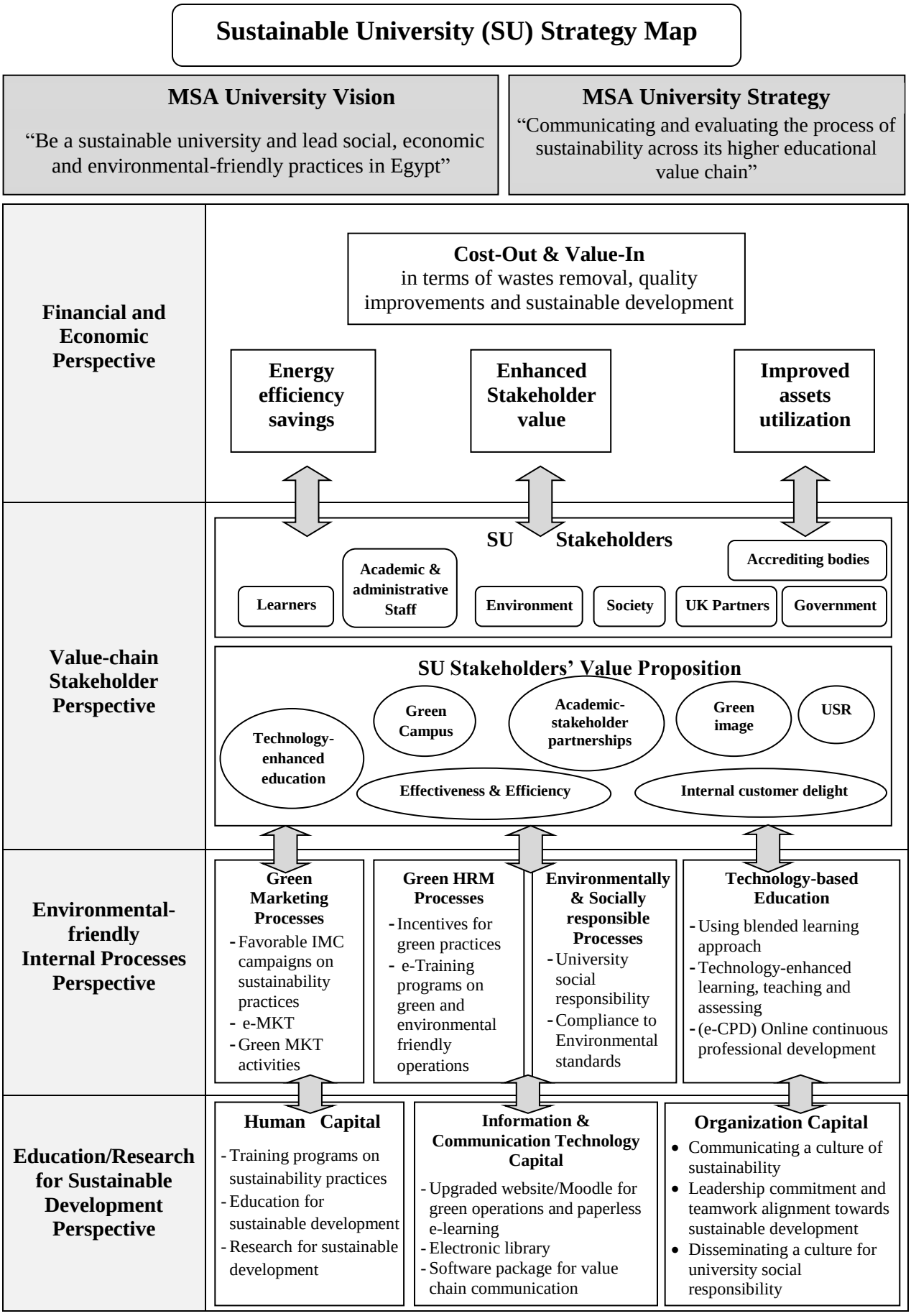

Fig. 2. MSA University's strategy map for communicating sustainability performance developed by the current research

5. Conclusions, limitations and recommendations

Concerning the practical communication and evaluation tool of sustainability, a number of prior studies advocated the usage of BSC and strategy maps in *managing sustainability in different manufacturing and service organisations*, whereas other studies called for using BSC and strategy mapping in *managing universities*. Furthermore, from an integrated perspective, limited number of interdisciplinary researches (e.g., Comm and Mathaisel, 2003; Lin, Hu, Tseng, Chiu and Lin, 2016; de Andrade Guerra, Garcia, de Andrade Lima, Barbosa, Heerdt, and Berchin, 2018) asserted that applying balanced scorecards with customised KPIs and strategy maps is crucial for a more balanced *performance assessment of sustainable and environmentally responsible universities*, especially after integrating sustainability dimensions into its four mainstream business management perspectives (Figge *et al*., 2002).

Thus, the purpose of the current paper was to explore and analyse the sustainability management practices carried out in a British university then develop –for its Egyptian university partner– modified strategy map (SM) and balanced scorecard (BSC) to communicate and evaluate its sustainability performance according to four adapted perspectives: (1) financial and economic perspective, (2) value-chain stakeholder perspective, (3) environmental-friendly internal processes perspective, and (4) education and research for sustainable development perspective.

Based on the reviewed relevant interdisciplinary research literature and the findings of the present qualitative data analyses (depth interviews and focus group conducted with subject-matter experts, and corporate documents), the authors modified the four BSC and SM perspectives while taking into consideration: (a) the unique higher education context; (b) the nature of an Egyptian emerging market; and (c) the incorporation of relevant sustainability key performance indicators (KPIs) in terms of the economic, environmental and social dimensions.

Regarding the nature of the emerging market and its relationship with the applicability of multi-dimensional frameworks, Saad and Patel (2006) warned from the difficulty of using multi-dimensional set of measures in emerging markets and developing countries. However, the current researchers found out that using multiple financial and nonfinancial measures in a BSC framework is new yet applicable in the emerging higher education context in Egypt. This can be justified by the accelerated rate of the quality improvement programmes conducted at the HEIs in Egypt as a result of many validation and internationalisation agreements sustained with global partners. Also, these HEIs are currently preparing their strategic plans and disclosing their evaluating KPIs for the purpose of obtaining the quality accreditation from national accrediting bodies as NAQAAE.

Following the study of Wang *et al.* (2013), which pointed out that learning from the ESD practices that are carried out in universities of developed countries can be beneficial while studying the implementation of similar practices in the emerging markets. The current study, similarly, found out that sharing the good sustainability practices with our UK partner (e.g., using technology to enhance efficiency (Adel and Allam, 2014; Adel, 2015), best use of resources, offering workshops for sustainable development, academic research on sustainability, cross-faculty multidisciplinary meetings for sharing good sustainability practices, and inter-university collaboration with non-profit associations for social work and community services) was very beneficial and helped the current authors to develop for the Egyptian University a customised strategy map and balanced scorecard to communicate and evaluate its sustainability performance from a strategic management perspective.

The current findings provide university leaders and academics with fruitful insights, empirical guidance, and various practical and social implications about effective sustainability management; thus, satisfying their stakeholders' needs (i.e., learners, teaching as well as administrative staff, society, national accrediting bodies, and international educational partners) in terms of social, environmental and economic gains.

With regard to using the case study approach, generalisation to other institutions is debatable. However, as pointed out by Yin (2009) and discussed by Creswell (2014), the detailed investigation carried out by a single case study can present a framework for additional case studies –related to other emerging and developed higher educational markets that are evaluating their sustainability– conducted to achieve analytical rather than statistical generalisation.

The present authors encapsulated the following recommendations for MSA University leaders/academics in the light of the current findings and according to studies prepared by the Higher Education Academy UK (Drayson, Bone, Agombar and Kemp, 2014), van Weenen (2000), and Levy and Marans (2012) along with the sustainability policy of University of Greenwich (University of Greenwich, 2017):

a. Programmes and modules leaders should incorporate graduate attributes related to sustainable development;

b. More engagement is needed by the students and educators in social work to add value to their societies;

c. Greater attention from the university's departments (e.g., purchasing, marketing, human resources management, information technology and quality management) should be directed towards conducting additional sustainability practices throughout their operations;

d. University's researchers should conduct collaborative research work and conferences with the UK partners on sustainability management and education for sustainable improvement to share the good practices and tackle any developmental areas;

e. Update the current university's vision and mission statements to reflect its sustainability practices as an environmentally and socially responsible higher educational institution; and

f. Continuous monitoring and evaluation of the university's sustainability performance to maintain a process of improvement throughout its value chain.

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