“Project sustainability management: risks, problems and perspective”

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PROJECT SUSTAINABILITY MANAGEMENT: RISKS, PROBLEMS AND PERSPECTIVE

Abstract

This research aims to propose and validate research of a New Framework for integration of the concept of sustainability in projects by investigating the relationship between project and sustainability for project success. Integrating sustainability in projects is crucial metric for project success. However, the dearth in literature and the slow pace in emerging literature has left many issues unanswered regarding integration of sustainability in projects and the commitment of project teams to sustainability pillars. Therefore, this article explores the current state of sustainability, its potential weaknesses and therein proposes corrective action for the legitimatization of a New Framework on 'project sustainability' in an authentic environment. The methodological approach adopted in this research is a pragmatic examination of secondary data collected by the project team during a one-year period that demonstrates the effects of neglecting proactive management of the three pillars of sustainability resulting in poor project performance in terms of resources and stakeholder resistance, as well as the lessons learned therein. The findings reveals a low degree of commitment by project teams towards sustainability particularly with regard to social and environment pillars, even though the economic pillar has been given much attention, there is still much to be done. Hence, the importance of the proposed New Framework for project success. This research concludes and recommends the need to integrate sustainability adequately throughout a project life-cycle for the attainment of organizational strategy and satisfying stakeholders' expectations. However, this can take place with a knowledgeable project management team on sustainability.

Keywords sustainability, project sustainability, sustainability indicators, project life cycle, triple bottom line, project success, project failure, project management, economic, social, environmental pillars

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INTRODUCTION

The purpose of this research is to examine the extent to which the concept of 'project sustainability' has been incorporated in project management in an authentic environment of a selected participating institution that had took place during a one-year period resulting in a New Organizational Model. To assess the project's performance within the institution, the strategic goals that drove the project were considered, whose deliverables carried sustainability – social, economic and environmental impacts that far outlast the project itself. The two main normative goals of the project under consideration were therein:

1) to realize both a horizontal and vertical landscape through the implementation of an appropriate restructuring project, thus reducing the organizational layers and devolving of various units whose outcome is a New Model;

2) to line up the institution by mirroring best practices nationally and internationally with pragmatic practices which would have a high impact, provide for efficient and competitiveness in realizing the overall organizational strategy.

This article hence provides a case study of 'project sustainability' in one participating institution, the result of a merging between previously two separate institutions so as to create a single empowered entity from the consolidation of individual structures. The project under review is a five-year post-structural implementation of a merger in order to streamline the merged institution's operations for enhanced performance and competitiveness. The literature shows that a potential merger inherently carries and encompasses a number of hidden sustainability risks, including asset impairment, indemnification expenses, remediation, damage of goodwill, criminal prosecution and regulatory sanctions, including reporting risks (Carvalho & Rabechini, 2017; Gary & Larson, 2008).

The research problem and subsequent significance is that the fields of sustainability and project management have largely been considered by different bodies of literature and hence neglected in project management field (Carvalho & Rabechini, 2017). Sustainability is an important component that can contribute to institutional profitability and hence should be considered in project management. Therefore, the importance of proactively linking the concept of 'project sustainability' within the entire project life-cycle rather than leaving sustainability to chance (Gardiner, 2016; Ozguler & Yilmaz, 2016). However, an apparent research gap exists in literature regarding sustainability and its contribution to project management consequently unsustainable practices will continue to persist as long as the dearth in literature continues (Labuschagne & Brent, 2005; Ullah, Lai, & Marjoribanks, 2013). Therefore, the article aims to bridge the existing knowledge gap between sustainability and project management by proposing and legitimizing a new research framework for 'project sustainability management'.

In the last millennium, attention has been cast on terms such as "resiliency", "sustainability" and "risk", which have progressively been absorbed and taken the floor in the various bodies of debate, including the field of project management and institutional success (Gardiner, 2016; Kivilä, Martinsuo, & Vuorinen, 2017; Kerzner, 2018). Thus, the problem under investigation is whether the deliberate proactive inclusion of 'project sustainability' can possibly have an impact upon project success. The term "risk" from this research perspective is viewed as an uncertainty that affects the institution in a variety of ways ranging from economic, environmental and social, to name but a few (Gachie, 2015, p. 47). Therefore, prudent risk and uncertainty management is the key to successful project management (Chapman & Ward, 2004, p. 858). Incorporating and expanding upon the concept of sustainability to include risk and other terms such as resiliency is essential (King IV, 2016). This is so that risk cannot be excluded from the debate on the concept of sustainability. The state of sustainability is even more obscure when it comes to examining the concept with other project management terms. Therefore, the gap persists because of the dearth in research that examines the concept of risk, resiliency, sustainability and project management jointly. The apparent vacuum in research regarding sustainability in project management hinders the comprehension and the ability to authentically apply and address sustainability issues by the project managers (Ozguler & Yilmaz, 2016; Carvalho & Rabechini, 2017). Hence, this article attempts to make a contribution to knowledge on sustainability by examining the concept of sustainability and project management in the form of 'project sustainability' in an authentic project management cycle.

Furthermore, the underlying notion in this article is that projects fuel innovation and aid institutional growth into new markets (Gardiner, 2016; Gachie, 2015). Hence, this research implies that projects play a crucial role in enabling institutions to operate sustainably. However, scholarly articles observe that assessing some of the indicators of 'project sustainability' and associated contribution is difficult to quantify or express in monetary terms because of the complex and intangible nature of most projects (Sánchez, 2015; Alqaisi, 2018).

The intangible social element of sustainability in the form of a lack of attention to changing end-user project perceptions and expectations can in fact threaten an institution's ability to operate feasibly, resulting in a range of problems during the project implementation phase, a lack of acceptance and

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denying the institution a "license to operate" (Gachie & Govender, 2017, p. 4). The positive side is that proactive investment in 'project sustainability' yields greater benefits in terms of project acceptance translating into increased productivity, innovativeness, better governance and competitiveness (Gachie, 2015; Kerzner, 2018). At the same time, this research is for the idea that investment in sound 'project sustainability' practices reduces costs by improving resource efficiency and waste management, whilst providing greater insight into the pragmatic functionality of the project (Gachie, 2009; Carvalho & Rabechini, 2017). Therefore, in order to address both the tangible and intangible 'project sustainability' issues, a clear comprehension of the various metrics which are involved in a project and how they interact is crucial. 'Project sustainability' is crucial in restoring, preserving and enhancing the institutional targets, whilst simultaneously ensuring the viability of a project in its entirety (Carlsson & Jacobsson, 2002; King IV, 2016).

This article also provides a basis for future discussion and debates on just how to suitably approach the issue of 'project sustainability' in persuading a diverse number of stakeholders to accept and buy into a project from its conception to implementation for competitiveness (Gachie & Govender, 2017). The notion is that a project team is in a position to significantly impact both the tangible and intangible 'project sustainability' metrics are executed within the institution (Silvius & Schipper, 2014). With the research problem in mind, this research seeks to address the following research questions:

1. How can the concept of sustainability be integrated and implemented into a project life-cycle?

2. What recommendations can be made to proactively integrate sustainability in a project?

This article comprises of the following five sections: at the beginning, the introduction and the problem statement are provided. The first section is the literature review, which breaks down and examines the concept of 'project sustainability' in the form of social, economic and environmental dimensions, as well as the relationship between these concepts. The second section focuses on the research methodology, whilst the third section presents an analysis of the result, while the forth section presents the research discussion. The final section provides the conclusion followed by actionable recommendations that will ensure the integration of sustainability in future project management.

1. LITERATURE REVIEW

1.1. A project

A project by definition has a start date and an end date, hence, a life-cycle. Even though the restructuring that took place at the participating institution can be considered a change and transformation management (Burnes, 2000), the case study under investigation fits in to the definition of a project, which is "a distinctive transitional operation that has a definitive time line in terms of start and finish" (Project Management Institute (PMI), 2013, p. 4).

A project, though conducted for a finite period of time, can be placed in the same category with an organization, because it utilizes the organization's permanent resources, assets and processes so as to ensure its long-term competitiveness in producing products, services and in streamlining internal organizational procedures (Chapman & Ward, 2004; Jacobsson, Lundin, & Söderholm, 2015). Therefore, as a temporary organization within the main infinite organization, a project should integrate sustainability principles within itself (Jacobsson, Lundin, & Söderholm, 2015).

1.2. Sustainability

In literature, the term sustainability has more or else lacked an exact description, however, in general, sustainability can be seen as the process of sustaining a change in a balanced manner (Neumayer, 2010). Applying the concept of sustainability in projects, a sustainable project can be defined as one that is in harmony with institutional needs and which will ultimately enhance both

the current and future to fulfil the stakeholders' needs and ambitions (Kivilä, 2017; Sánchez, 2015; Hallstedt, 2017).

The concept of sustainability in a project is characterized by the pursuit of a common ideal through environmental, economic and social interconnected pillars, as well as including the cultural, technological and political subdomains. The concept of sustainability contains within it a duality of meeting current needs, while still allowing for future needs to be met, which must be comprehended as a point of compromise and regarded as being equal (Brundtland Report for the World Commission on Environment and Development (WCED), 1987; World Summit on Sustainable Development, 2002). The participating institution's projects are therefore not exempt from sustainability considerations and should be duly included. Therefore, this research is a call for institutions to integrate the concept of sustainability in projects, because the resources that they depend on are finite and if not adequately managed they will carry long-term consequences. Institutions are undergoing a paradigm shift whether voluntarily or not from viewing sustainability as an option to being concerned with the consequences of sustainability in all operations (Gachie, 2015). However, rather than reactively address sustainability within projects, it is important to identify both the 'current' and the 'future' in project management. However, this places a project in a dilemma, which is more concerned with profitability in the 'current', which contradicts one of the fundamental principles of the concept of sustainability a call to think from the end in mind and not in the current mentality. Hence, this article seeks to contribute towards integrating these two fields (project management and sustainability) by exploring how they can positively impact and enhance on one another.

In this research context, sustainability is a triangle that encompasses environmental, social, economic perspectives and Elkington (1998) observes that "sustainability" and "sustainable development" are not synonymous. However, a link does exist between the two concepts in that both terms in their broadest sense attempt to capture a wide spectrum of values that an institution must embrace in the form of the three sustainability perspectives, also referred to as the 3Ps (People, Profit and Planet) or Triple Bottom Line (TBL), a term coined by Elkington in 1998. In this research, a project fits the criteria of being sustainable if all of its components universally take responsibility in advancing and strengthening the interdependence and mutually reinforcing the three pillars of sustainable development at different levels.

This research identifies several instruments and frameworks that can be regarded as relevant to the three pillars of sustainability assessment, which include the Codes of Conduct and Principles, International Policy Frameworks, Sustainability Reporting Frameworks, Balanced Scorecard (International Organization for Standardization (ISO), 2006; Kaplan & Norton, 2004). However, this research will propose a new structural framework for evaluating 'project sustainability' as a means of contributing towards the body of knowledge by collating data in an authentic project environment.

1.3. The three pillars of sustainability

A review of literature indicates that the economic pillar is generally regarded as being more important than the other two pillars with the social and environmental pillars ranking at a lower level (Labuschagne & Brent, 2005; Carvalho & Rabechini, 2017).

1.3.1. Economic perspective

From this research perspective, the economy is viewed as a sub-system of human-social needs within an institution, with the social dimension itself being a sub-system of the environmental system as shown in Figure 1, hence, the interrelationship between the three pillars of sustainability. A gain in one dimension ought to result in a gain in another; compromising one pillar inevitably compromises the other pillars.

As shown in Figure 1, economic development cannot be achieved without firstly considering all of the other pillars. The wise use of environmental resources and social well-being will affect the economic element (Silvius & Schipper, 2014; Sánchez, 2015). The King IV (2016) code emphasizes the importance of having a board of directors ensur-

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Source: Adapted from Lal and Keen (2002, p. 70).

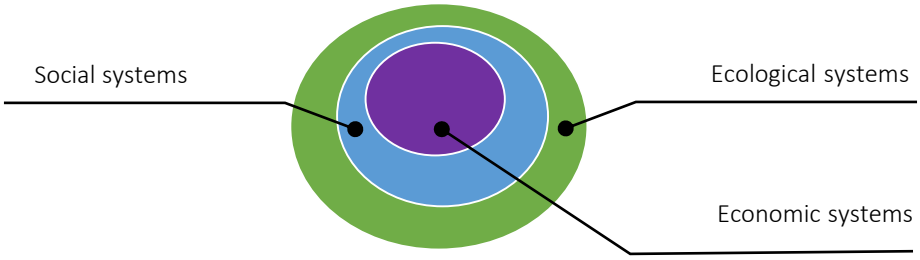

Figure 1. Ecological, social and economic subsystems

ing that an organizational strategy should result in sustainable outcomes with regard to the TBL, while the Johannesburg Stock Exchange (JSE) requires JSE listed companies to produce financial statements reporting on all three pillars. The importance of the economic pillar cannot be underestimated, as the pillar protects and sustains an organization's investors capital, hence, the need to maximize profit, reduce costs, increase revenue, profitability, return on investment (ROI) and improve quality (Gachie, 2009).

1.3.2. Social perspective

Social perspective is a second pillar of 'project sustainability' without which sustainability cannot stand, as it seeks to identify and manage the key stakeholders whose needs and expectations can act as the catalyst for the project success. Both key internal and external stakeholders such as employees, trade unions, customers and suppliers are considered in literature to be valuable assets in an organization (Thomas, 2012; King IV, 2016). Unfortunately, how well an organization caters for its employees without exploiting them is generally undervalued (Ullah et al., 2013). As already mentioned, incorporating social and environmental concerns is in the least as important as economic concerns in profit maximization (Ullah et al., 2013; Labuschagne & Brent, 2005).

1.3.3. Environmental perspective

The environmental pillar is also known as ecological issues and is concerned with the setting in which the people inhabit and is concerned with its preservation and the extent to which humanity has negatively impacted it by their activities and has failed up-to-date in preserving it (Elkington, 1998; King IV, 2016). A pure pursuit of economic goals has been responsible for the degradation of the environment (Ullah et al., 2013). It should therefore be considered that the social well-being and economic growth of nations cannot be achieved without giving consideration to all the three pillars and how they affect one another (Labuschagne & Brent, 2005; Kivilä et al., 2017).

1.4. Link between sustainability and project management

Even though project management and sustainability have been considered in literature from different perspectives and seen as contradictory concepts, which are not best suited to working harmoniously, despite the perceived outward differences, the need to integrate the concept of sustainability in project management is recognized in literature (Ullah et al., 2013; Carvalho & Rabechini, 2017; Hallstedt, 2017). However, research on how this integration is accomplished authentically is limited, if done is only embraced at the strategic level, rarely considering the internal and external tactical perspectives such as operational, projects and programs (Labuschagne & Brent, 2005; Carvalho & Rabechini, 2017). Based on the literature review, the term 'project sustainability' in this research is defined to include terms such as stability, resilience and risk in order to imply the need to proactively manage the project's sustainability pillars, while simultaneously minimizing risk and increasing project resilience.

1.5. Proposed framework based on literature

The researcher proposed a priori framework that utilized the literature review to collate and group several metrics into a checklist to represent and act as indicators under each pillar for assessing

Source: Created by the researcher based on the literature review for this research purpose.

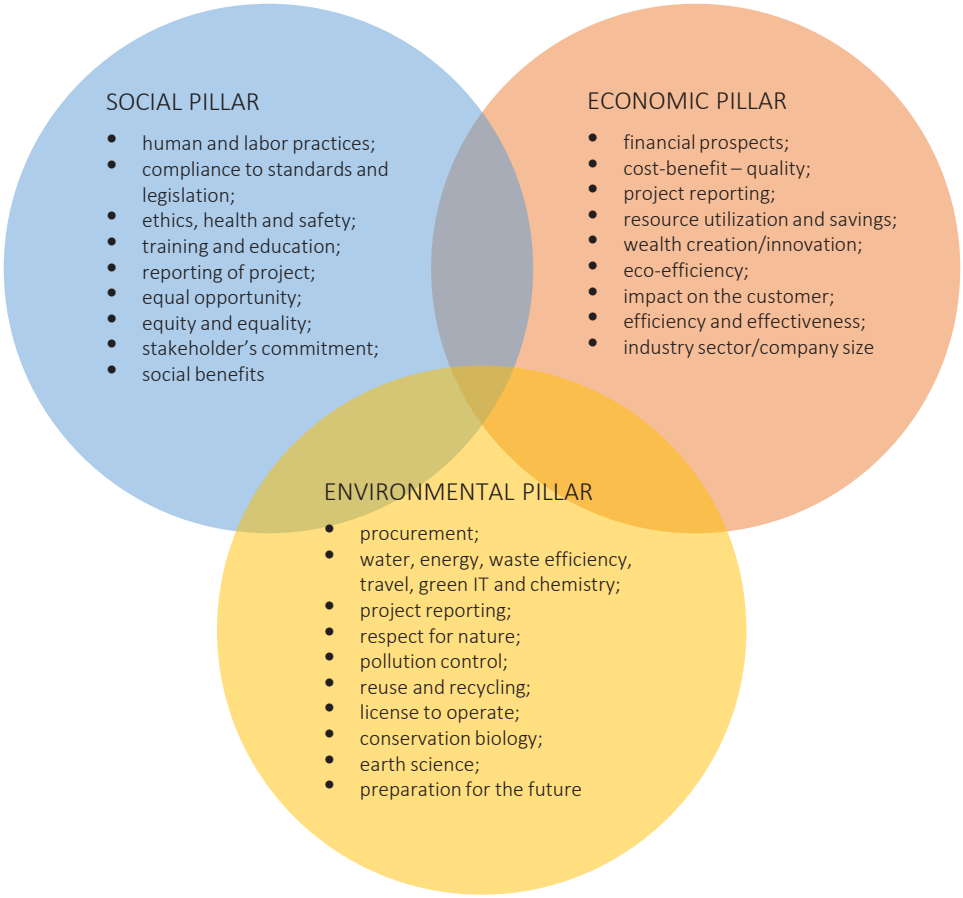

Figure 2. Framework

the level of sustainability within the participating institution project management. The researcher categorized the three pillars of the concept of sustainability, namely Planet (environment), People (social), Profit (economic) with their corresponding metrics collated illustrated in Figure 2. The framework will serve as a sustainability compliance index to be used to determine to what degree each metric performs in relation to a sustainability criteria.

2. RESEARCH METHODOLOGY

This article has adopted both an explanatory and descriptive case study perspective of the phenomenon of 'project sustainability' management within a real-life context using secondary data, which were the outcomes of interviews, questionnaires and document analysis collected by the participating institution's project team during a period of one year.

This article utilizes a framework (Figure 2) comprised of metrics collated initially using a literature review, because relying on institutional data alone may not be sufficient, because the institution may not have the insight of important sustainability metrics in their totality. Therefore, utilizing the institutional metrics alone would very likely be incomplete and not sufficient. The metrics were selected according to their applicability, data availability, usability, data accessibility, clarity and relevance with the aid of a sustainability criteria matrix.

In order to collect the sustainability criteria and related metrics on each of the three sustainability pillars, the methodology comprised of four stages, namely: (1) collecting existing sustainability project related metrics from literature review; (2) evaluating and comparing the metrics based upon the secondary data of this research; (3) reducing and selecting the metrics using the priori meta-criteria, which is developed based on the liter-

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ature review; and (4) proposing a final structural framework that can be used in future research.

In order to maintain consistency, a better comparison and an independent approach to the subject matter, the secondary data were analyzed from an arm's length perspective to the problem under investigation.

3. RESULT AND ANALYSIS

This section begins by providing with a result and analysis of the extent to which each sustainability pillar is to be addressed in the institution under review followed by a comparison of all the three pillars. Each pillar is made up of several metrics.

3.1. Results and analysis of economic perspective

The economic benefits of the project were concerned with the types of benefits that the institution considered as important. The institutional stakeholders unanimously agreed that cost savings and the efficient of use of resources would ensure the institution performing profitably. The project economic pillar comprised of several metrics such as identifying project activities, budget considerations and risk considerations in terms of planned outcomes and actual results achieved. The economic metrics are presented in Figure 3: the resulting framework that incorporates both the metrics from the literature review and from the institution's project data.

3.2. Results and analysis of social perspective

According to the stakeholder register, the stakeholders included the employees, trade unions, executive council and management.

The social pillar metrics collated from the secondary data shown in Figure 3 included project reporting, key stakeholder assessment, training, education and organizational learning, labor practices, decent work, human rights, and health and safety.

The social pillar which in essence should have been awarded a similar or higher level of importance performed poorly in comparison to the economic and to the environmental pillars. The noticeably lower attention corresponds with what was found in the literature review.

Activities for inclusion of the key stakeholders were undertaken only too late and reactively (see Figure 3). Failure to involve the users' internal stakeholders is a major sustainability issues that placed the restructuring project in jeopardy.

3.3. Results and analysis of environmental perspective

The environmental pillar comprises of metrics such as procurement, travel, energy, waste, water, project reporting on the planet and resources. Project procurement was strictly adhered to in line with the institutional protocols suppliers based solely on laws, codes and regulations. South Africa laws and regulations with regard to procurement increasingly impose themselves due to additional factors, such as Black Empowerment, which weighs heavily on the choice of suppliers. In the participating institution, suppliers were based on cost and location ignoring environment-enhancing policies, whilst attempting to ensure the interests of key stakeholders.

Metrics identified in this pillar include resources, travel, and waste management among others as shown in Figure 3.

Overall, the results indicate that the environmental pillar was not well executed and placed poorly, even more so than the social pillar. Even though there is a dearth in literature in numbers, however, it is clear that the environmental pillar was not well addressed to the same extent as the economic pillar, which conforms to what was found in the literature review.

3.4. Result and analysis based to the priori framework

Since the metrics in the first step were identified using a forecasting approach (Figure 2) based on literature review, the metrics were then categorized based on four levels as shown in Figure 3 of sustainability advancement as determined in literature, namely compliant, reactive, proactive and

Source: Collated by the researcher from the participating institution's project data .

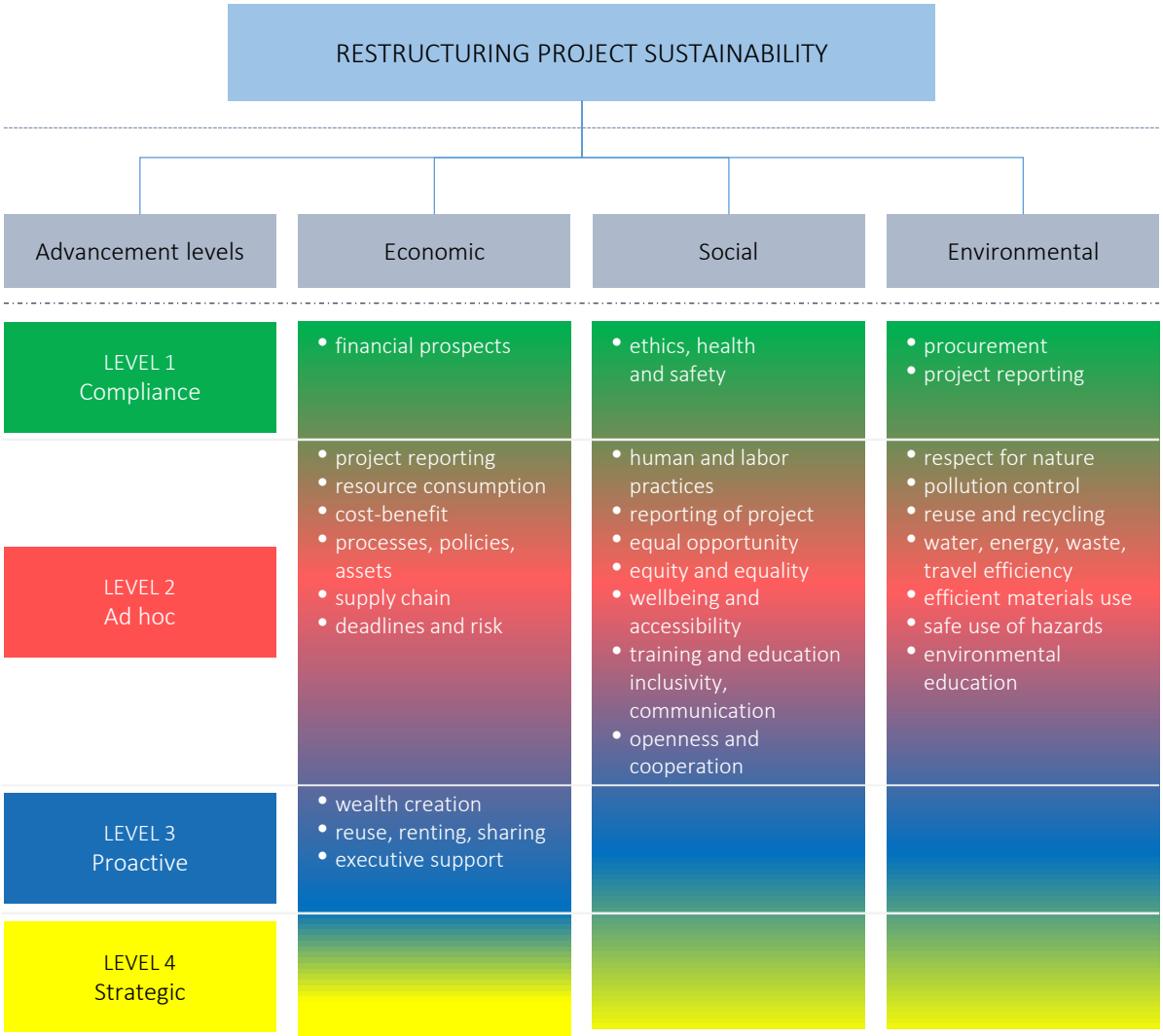

Figure 3. Project sustainability metrics

strategic to determine the degree to which sustainability was incorporated in the project.

The first level identified was the compliant, concerned with integrating sustainability pillars at a minimal level and subliminally with the intention of only complying with laws, codes and regulations.

The second level is reactive, concerned with integrating sustainability pillars explicitly, for the purpose of only reducing the negative impacts of the project.

The third level is proactive, integrating sustainability even more explicitly and as one of the areas that the project makes a contribution towards.

The fourth and final level fully embraces, integrates and makes justification for sustainability pillars as one of the strategic project drivers.

Having populated the new framework (see Figure 3), it now clearly reveals the poor extent at which the sustainability pillars were incorporated in the participating institution project, with the majority of metrics only being considered in ad hoc stance, namely level two only. Level one is insignificant, as it serves only as a checklist to show that the project complied with the rules and regulations and nothing more. Only a few of the economic pillar metrics were integrated at the third level and forth level. All of the metrics within the social and the environmental pillars were at the first and second

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level, with a majority falling under the second level and shows little indication of shifting to the higher levels.

The implication is that the economic pillar is better integrated and addressed, introducing the notion that this pillar has been afforded a higher importance within the institution in general. As for the other two pillars, it can be seen that their metrics were not considered as being important, which contributed to the overall poor project performance. The final New Framework is illustrated in Figure 4, in the conclusion section is the cumulative work of the initial priori framework (Figure 2) and the sustainability metrics (Figure 3).

4. DISCUSSION

The research findings have shown that the pillars were not treated equally in the participating institution's project, which serves to confirm the literature review. The economic pillar was demonstrably well addressed to a better extent than the social and environmental pillars. The preferential treatment of the economic pillar as shown by the literature is once again recognized in this research, which goes against the TBL philosophy of balancing sustainability.

The results of the analysis also indicate that each pillar can stand alone separate from the other; but more than that, they are interrelated and have an effect on one another. The issue of reporting Profit, People and Planet shows a higher relationship, making a compelling business case. However, the death of literature on 'project sustainability' has done nothing to aid the apparent poor integration of the concept of sustainability in project management, necessitating further research in this thread. Over time, as 'project sustainability' becomes more synonymous with project management, a greater level of integration in all likelihood is going to improve the situation. The extent to which 'project sustainability' will be incorporated in the future will also shed light on the commitment of project managers to sustainability.

With regard to economic metrics, since the institution's project leadership directs project activities, therefore, they have control over the policies, standards and protocols, which are to be adhered to, as well as to inclusion of sustainability pillars in an authentic environment. Apart from scholars making a contribution in literature, the onus for addressing 'project sustainability' holistically and sufficiently falls on the project teams.

With respect to social metrics, the participating institution is currently perfecting the metrics observed in the form of standards, policies and regulations regarding deliverables to improve diversity, labor practices, health and safety, decent work, human rights and equal opportunity employment metrics in areas such as non-discrimination, freedom of association, gender, religion and race and ways to improve health and safety conditions within the institution.

Concerning the environmental metrics, the participating project performed poorly in this metric because resources for the project were selected solely on cost, as well as functional and technical requirements rather than based on their effect on the environment as reuse capabilities and value. The institution is underway drafting specific, as well as general environmental policies, which will ensure integration of environmental pillar in the institutional strategy and in future projects.

CONCLUSION

Based upon the findings, a number of key requirements are identified for future sustainable project management as follows:

- at the present moment, analyses of the project committee interviews and questionnaires conducted on end-users identify a commonly held theme by organizations members is that "rather than amending the organizational issues, which are exacerbated by the scope and structural complexity of the New Model as intended the new structures are exacerbating them";

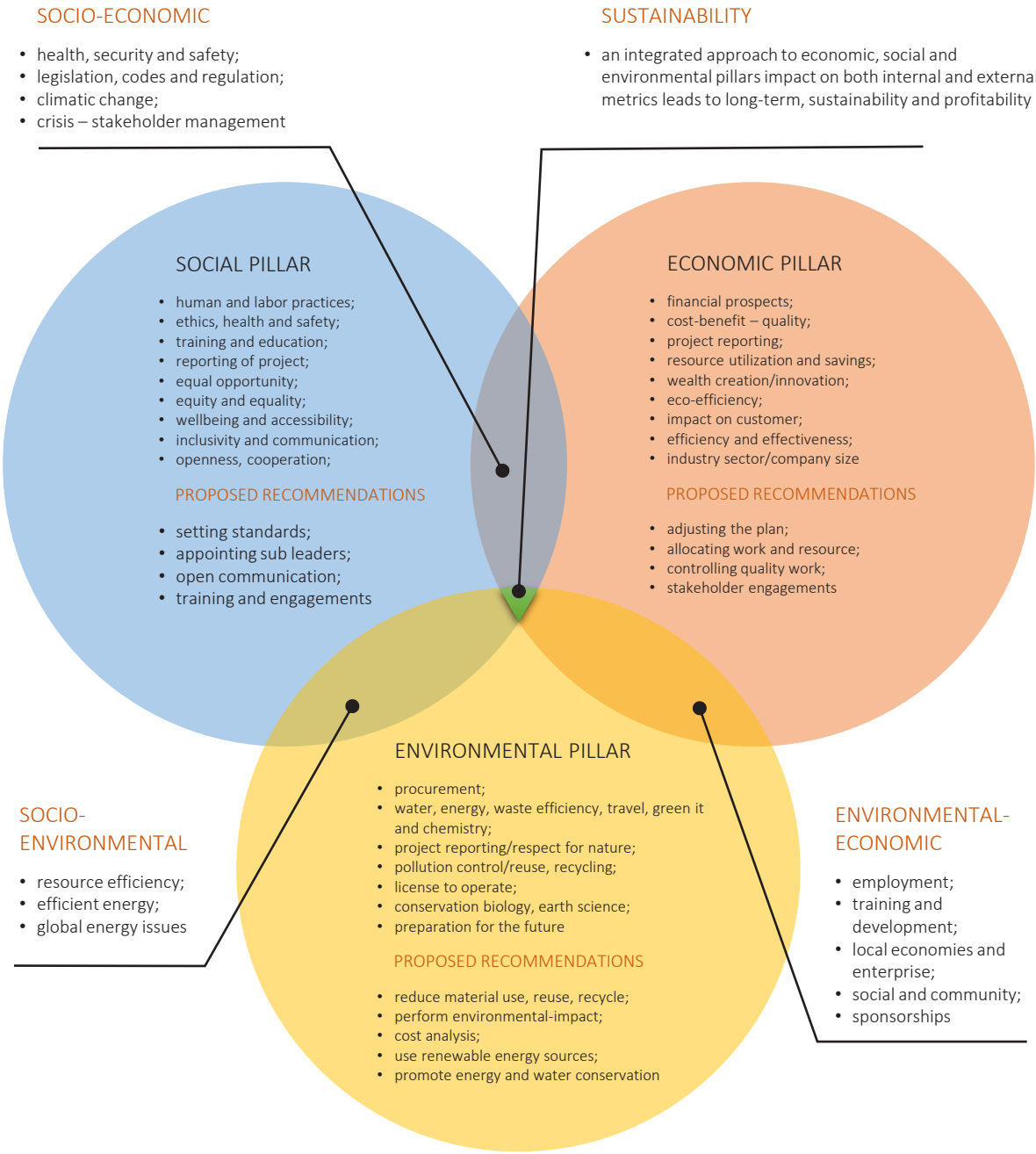

Figure 4. New Framework proposed by the researcher based on the metrics collated in both literature and project data

- the project team did not fully incorporate the concept of sustainability, which inhibited the capturing of emerging sustainability pillars during the project life-cycle;
- the findings demonstrate a lack of project consistency and end-user buy-in, therefore, the appointment of a specialized project team and leader that could have positively contributed towards the project acceptance, whilst simultaneously reducing project risk;
- the research found that a strong institutional project facilitator, stewardship and end-user buy-in were deemed to be the most critical factors for the institution to take real action in making progress towards proactive management of all the three pillars of sustainability; and

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- the New Framework (Figure 4) proposed and applied in this research in evaluating the restructuring project is not a universal fact. However, the validity and importance of this New Framework must be considered and evaluated in relation to individual projects.

RECOMMENDATIONS

On the basis of this research, the researcher proposes several recommendations which are based upon the conclusions to help improve the quality of future project sustainability management:

- the institution should from the commencement of the project, integrate the element of 'project sustainability' within the project as a source of competitive advantage;
- the institution should put in place an interpretive sustainability management guideline and template for sustainability project management in future projects;
- the institution should also carry out a post-assessment assessment to regulate the 'project sustainability' factors associated with the implemented projected in order to determine the profits and areas of reviews of the structural transformation restructuring project;
- a clear focus and attention for testing new sustainability mechanisms and financing initiatives should be put in place in proactively managing the implemented project;
- the institution should also enhance the application of the proposed New Framework (Figure 4) for the better identification and management of project sustainability;
- the institution should establish a disclosure strategy to address transparency that prioritizes the needs of key stakeholders, aligning 'project sustainability' with institutional value, by using leading sustainability standards to guide meaningful disclosure;
- sustainability management model should be put in place to encompass the different metrics of sustainability issues ranging from the social pillar, to economic pillar, to ecological-environmental pillar. An example is the training of human resources so as to expedite the decentralization of various structures, because some are not specialists in all aspects of human resources such as in the labour laws, which will contribute significantly towards the final project acceptance and minimize risk factors in the future by putting in place a framework focusing for commitment to a stakeholder centred risk management approach;
- the use of a framework is a crucial step towards building long-term organizational prosperity. Adoption of the New Framework approach would facilitate the pursuit of a forward-gazing management climate, as it relates to minimizing sustainability risk, identifying opportunities and seizing potential opportunities for innovation;
- finally on th e basis of the New Framework (Figure 4) proposed, it is recommended that the framework is further applied and tested throughout a wide range of industrial sectors and contexts facilitating the adoption of the concept of sustainability with the body of literature and in project management as a whole.

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