

Sustainability and Project Management – The Drivers and Benefits

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Abstract

This research is looking at the concept of sustainable project management and its importance in real life project management. Firstly, the research will examine the meaning of sustainability and sustainable management. Next, it will examine, evaluate and classify the different drivers for the integration of sustainability in project management as social, economic, legislative and environmental drivers. Then, the research will discuss the potential benefits of implementing sustainability in project management throughout project's lifecycle. The researcher concluded that there are many environmental, social/ethical, legislative and economic benefits derived from integrating sustainability into project management throughout project's lifecycle, however, there are some restrictions as the tools for integration are still under development.

Key words: Sustainable; Project Management; Sustainable Management, drivers and benefits

الاستدامة وإدارة المشاريع – الأسباب والمنافع

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قسم هندسة العمارة – الجامعة التكنولوجية

الخلاصة

هذا البحث يتناول مبدأ الإدارة المستدامة للمشاريع وأهميتها لإدارة المشاريع في الواقع. أولاً، يتناول البحث معنى الاستدامة والإدارة المستدامة بإيجاز. ثم يتطرق البحث إلى اختبار وتقييم الأسباب الأساسية لتطبيق الإدارة المستدامة في إدارة المشاريع وتقسيمها إلى أسباب اجتماعية، اقتصادية، تشريعية وبيئية. ينتقل بعدها البحث إلى مناقشة أهم المنافع المحتملة من تطبيق إدارة المشاريع المستدامة خلال فترة حياة المشروع. وقد توصل الباحث إلى أن هنالك العديد من الفوائد البيئية، الاجتماعية/الأخلاقية، القانونية/التشريعية والاقتصادية التي من الممكن تحقيقها من خلال تطبيق الاستدامة في إدارة المشاريع على طول فترة حياة المشروع، بالرغم من ذلك فإن هنالك مجموعة من المحددات تتمثل بكون أدوات التطبيق لا زالت تحت التطوير.

1. Introduction

“The world is changing rapidly and if you do not start taking actions soon we could end up affecting not only our future generations’ lives but also the whole system on our planet”. Many of us have heard or read this sentence through the media, academic literature or from other people. We also hear that we need to be more sustainable and that sustainability is the only solution, but what is sustainability. Why should we care and what are the drivers and benefits for corporations to integrate sustainability in their



projects? Most importantly, Can we make any changes as project managers and what are the tools to monitor and integrate sustainability in project management?

This research will try to answer those questions through reviewing the academic literature. The research will first look at the meaning of sustainability and the key drivers for integrating sustainable practices within project management. This is followed by looking at the key advantages of sustainable project management to corporations and people. Then evaluate some of the tools that could be used in the integrating sustainability principles in project management. Finally, a number of key points will be summarized in the conclusion.

2. Defining Sustainability

The term “*Sustainability*” is not a new in the academic literature. In fact, Meadows et al. (1972, p.269-271) say that sustainability began with the beginning of human civilization. Several societies understood that the use of fire and their desire for food could alter their existence in one area thus; they will have to manage and sustain a regular use or travel to another area Mebratu (1998, p.494,495). The World Wide Fund for Nature (2008, p.22-30) state that the major interest in sustainability and wide use of the term in the academic literature did not start to spread until the mid-20th century as the ‘*Environmental Movement*’ started and highlighted that there are environmental costs associated with the production and the use of materials people enjoy in the meantime. The concept of sustainable development which is considered as the overall umbrella associated with the sustainability for human on planet earth is defined as “*the development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (United Nations General Assembly, 1987). Accordingly, the United Nations through their reports ((UNEP), 2012, p.52-61) and ((UN), 2012, p.2-9) highlighted some issues to try to address through integrating sustainable development on the different Governmental, Organisational and general public levels. The next section will briefly explore these issues.

2.1.The concerning changes and issues derived from unsustainable human development

According to Maltzman and Shirley (2011, p.3-16) and Akhter et al. (2010, p.83-98), there are four main impacts by human development which sustainability is trying to address. The first impact is climate change or global warming. According to Brown et al. (2011, p. 153-172) and Peake and Smith (2009), climate change phenomenon could be attributed to the rapid industrialization, urbanization and the decrease in green and wild land. This increases the amount of greenhouse gases such as CO₂ in earth’s atmosphere, which in turn prevent large amount of sun’s heat from escaping the atmosphere and reflect it back to earth causing the global temperatures to increase. See Figure 1.

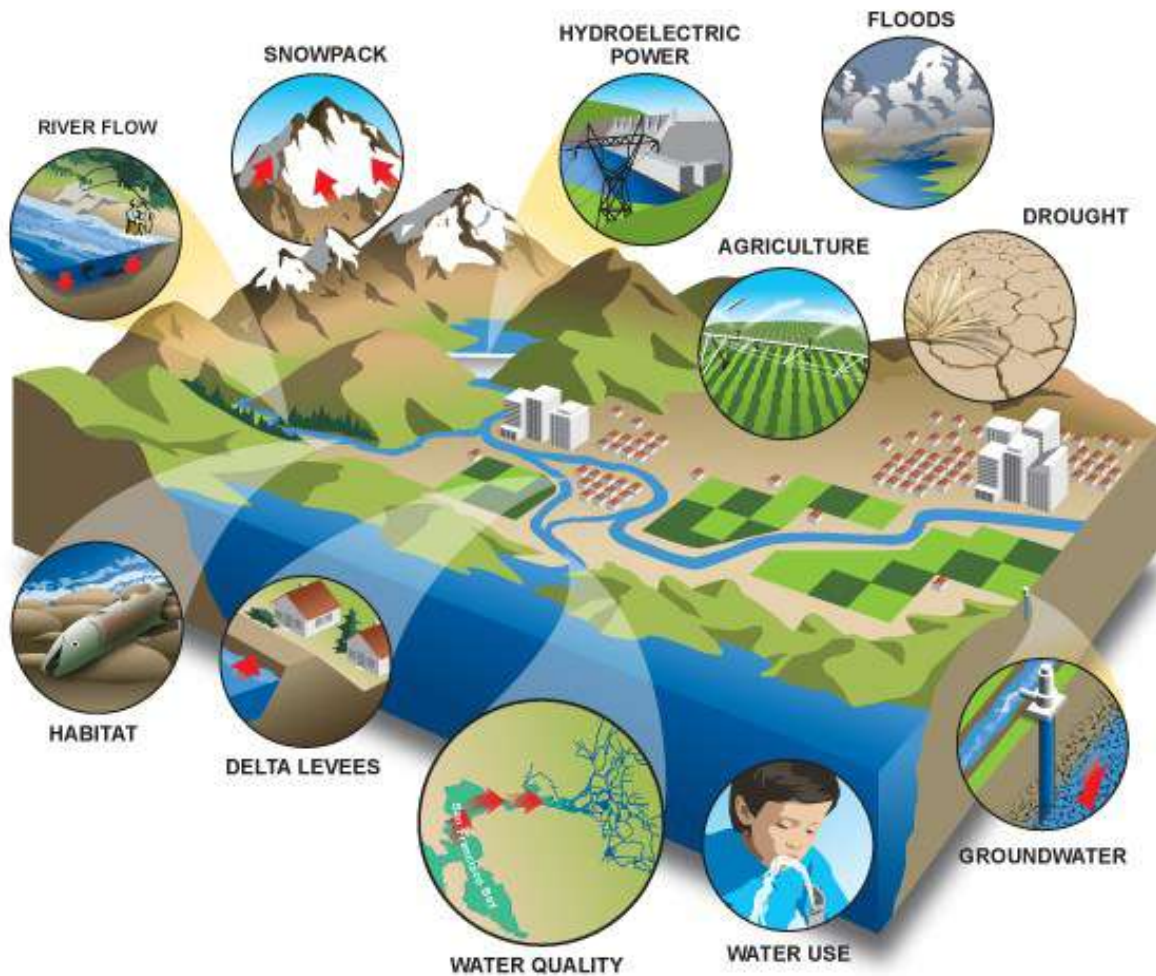
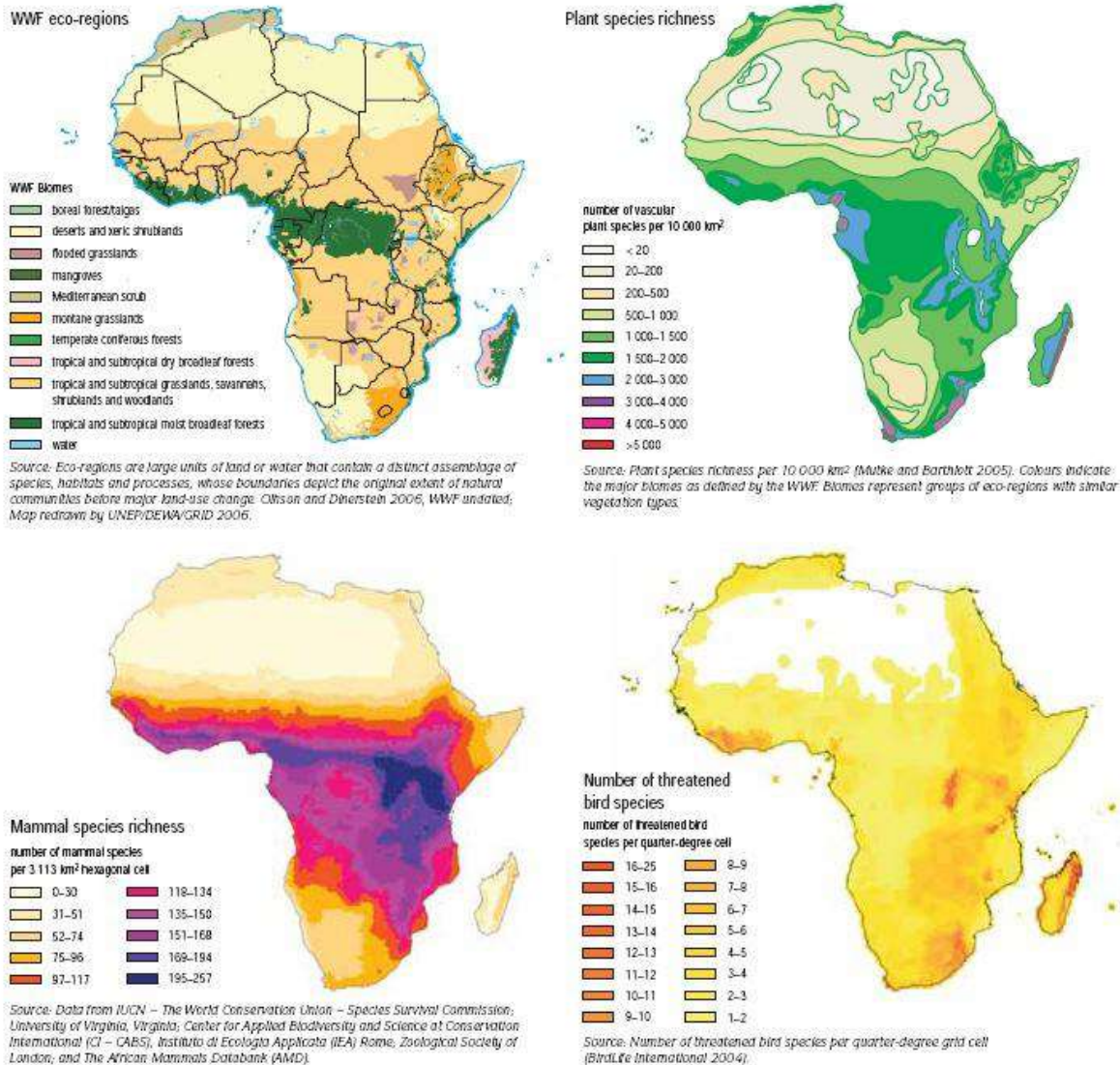


Figure 1: the process of climate change ¹

The second impact is environment degradation and the loss of biodiversity; the loss of biodiversity worldwide is a consequence of climate change, excessive use of natural resources as well as the impact of human development and urbanisation (O'Riordan and Stoll-Kleemann, 2002, p. 33-45. & Narasaiah, 2005). This could affect life on earth in general as the balance could be disrupted which will affect humans as well as other types of life on earth as the effects of the vicious circle continues (see Figure 2).

The distribution of biodiversity

Figure 2: Loss of Biodiversity ²

The third issue is the increase of poverty and inequality; according to the United Nations (UN, 2012, p. 14-23) and UN Habitat (2009, p. 3-22), the gap between the rich and the poor is widening and the levels of poverty and inequality is rapidly increasing around the world especially in the third world countries. Unless fast and steady actions is implemented to remedy or decrease the effects of inequality and poverty, the numbers will continue to increase affecting not only these countries but the globe in general as

Source: http://www.eoearth.org/files/143901_144000/143957/distribution_of_biodiversity.jpg²

these people use the environment in unsustainable matter in order to afford for their living. See Figure 3.

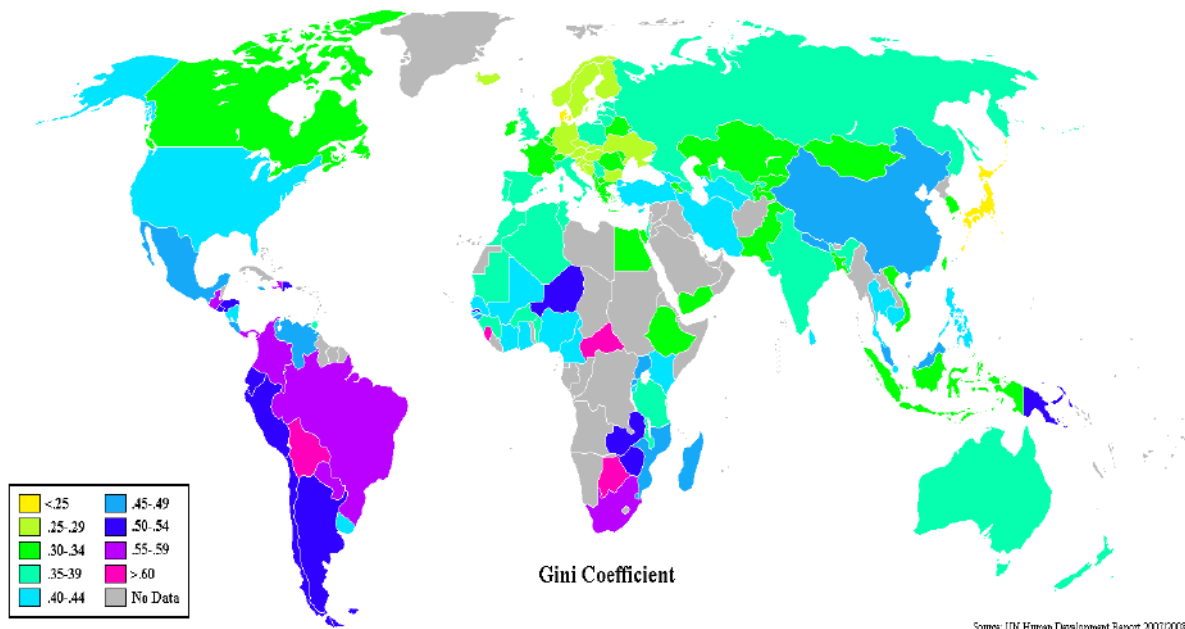


Figure 3: Gini Coefficient showing increase in poverty and inequality ³

The fourth impact is the increasing demand on energy which raised the issue of energy security forming a direct pressure on governments to find a solution for this problem. The World Wide Fund for Nature (2008, p.25) state that; the rapid urbanisation and rural-urban migration as well as industrialization and the miss-use or over-use of available energy sources have led to an increasing demand on energy. With the lack of sustainable energy sources and technology usage, the continuous use fossil fuel could end up in more pollution and an increase of greenhouse gases in earth's atmosphere.

All these issues made it even more crucial to start taking fast and steady actions by governments, people and organisations towards reducing the effects of these dangerous phenomena. The main goals for these actions is to achieve sustainability which stop or at least limit the impact humans are making on their planet and the life on the different levels which range between governments to each individual person (UN Habitat, 2009).

2.2.The three-legged stool of sustainable development

From the issues highlighted in the previous section, it is possible to observe that sustainability is based on three main concepts:

- Futures thinking and Inter-generational responsibility.
- Eco-System thinking and considering the planet capacity to absorb waste and sustain life.

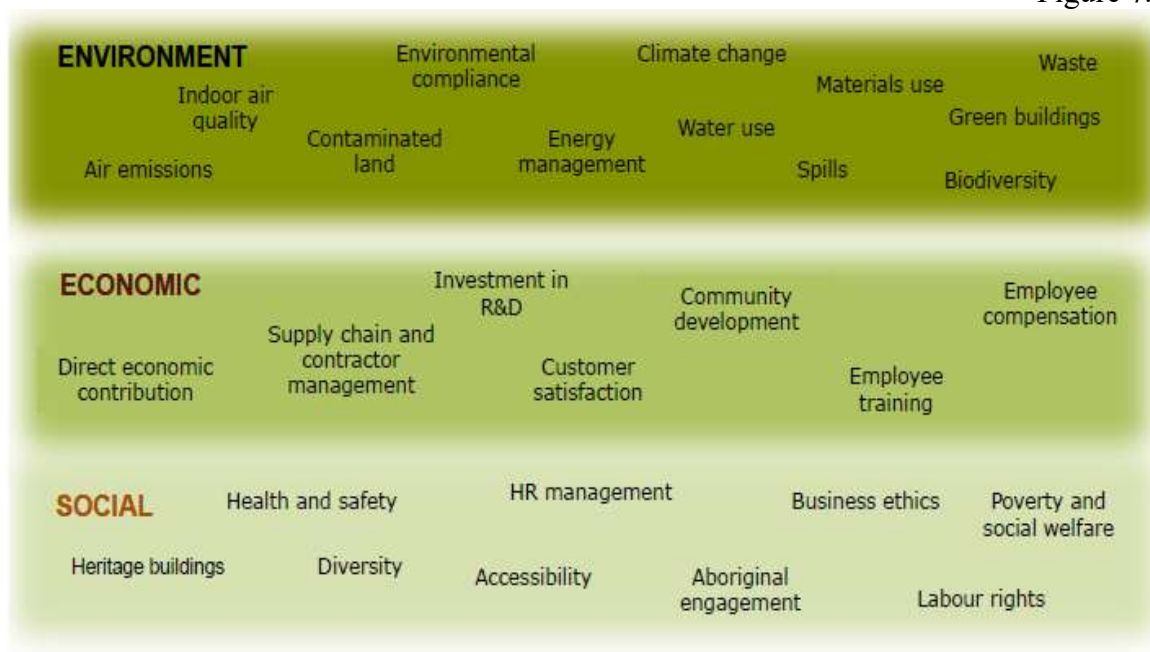
Source: UN Human Development Report 2007/2008³



- Social Justice: integrating human rights, stakeholder voices, dignity, equity and basic services.

Accordingly, it is possible to see that sustainability is based on three pillars environmental sustainability, economic sustainability and social sustainability. Based on Adams (2006, p.1-4) without these three pillars working in conjunction, sustainability could not be achieved. This could be attributed to the fact that people cannot really care about the environmental sustainability without having sustainable social life and feeling the importance of their opinions and decisions and without having the economic sustainability that support them in their life.

Figure 4.



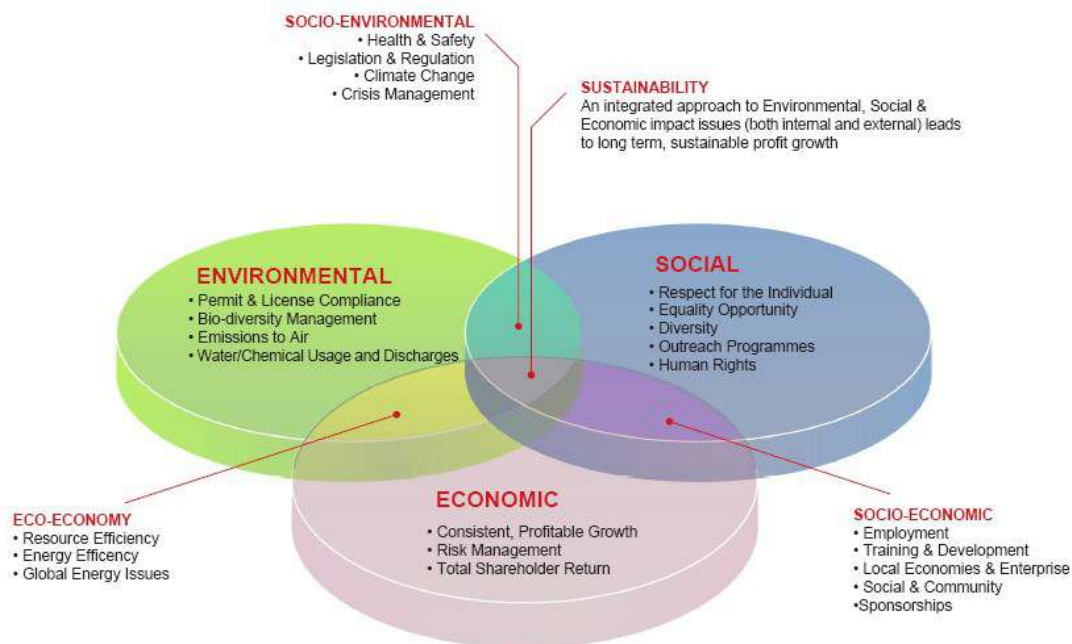


Figure 4: The three pillars of sustainability ⁴

3. Project Management Role in Achieving Sustainability

Corporates and firms are responsible for taking some serious steps into achieving sustainable development. In fact, achieving sustainability through corporations and firms could be more successful as the development often happens on that level, in addition, firms practices, especially manufacturing, are responsible for the majority of CO₂ emissions and the excessive need for natural resources and energy. Hence, by enhancing the performance of these firms in terms of sustainability, it is possible to achieve major reduction of CO₂ emissions, the effects of climate change and take huge steps towards more sustainable development (Labuschagn and Brent, 2007, p. 3-4), (Linnenluecke and Griffiths, 2010, p. 1-3) and (Maltzman and Shirley, 2011, p. 17-22). Achieving sustainability on the corporates level, however, is not an easy task as most of these corporates and firms are profit orientated. Therefore, the concept of achieving sustainability through project management started to spread in the last two decades while highlighting a number of benefits for corporates from “Sustainable project management” or “Green Project Management” (TenStep Inc., 2012). Maltzman and Shirley (2011, p. 53) argued that “although projects fall on a spectrum from those that are green by definition, such as a solar installation, to those that aren’t primarily about sustainability but have green elements, any project can be run in a more sustainable

⁴ Source: https://storia-del-mondo.wikispaces.com/file/view/Sustainability_PIE_graph_3.jpg/146498537/Sustainability_PIE_graph_3.jpg

manner". In their report, Haanaes et al. (2011, p. 21-22) say that sustainability should be integrated with project management directly through changing the whole life cycle of these projects. This is to make them more sustainable throughout the use of sustainable or green project management and thus enhancing the performance of these organisation and the projects and at the same time promoting sustainable behaviour which will help in achieving sustainable development overall.

4. Key Drivers for Sustainable Project Management

Many drivers make the integration of sustainability in project management more important and interesting for project managers and firms. According to the Corporate Ecological Responsiveness Model introduced by Bansal and Roth (2000), there are four main categories drivers for sustainable project management; Environmental, Economic & Socio-Economic, Social & Ethical drivers and Legislative drivers (See Appendix 1). These drivers could internal within the company or external from the business environment surrounding the firm. See **Error! Reference source not found..**



Figure 5: The drivers for integrating sustainability in PM ⁵

4.1.Environmental Drivers

There are many environmental drivers for sustainability. Such drivers are improving resources efficiency, and decreasing the bad effects of a project on the environment in terms of CO₂ emissions and waste. These drivers could be considered as both internal and external. According to Bansal and Roth (2000, p. 733-734), environmental drivers are very important drivers as some firms understand that the reduction of bad environmental impacts is essential for company's existence in the long term. This could be further explained by saying; as the availability of certain resources is decreasing due to excessive use, the cost is increasing which make it unprofitable for the company to continue or could require the firm to change their business or loss costumers. On the

⁵ Based on Spedding and Rose (2007), TenStep Inc. (2012) and Soyka (2012)



other hand the integration of sustainability could deliver some benefits to the firm as it will be discussed later on this research.

4.2.Social and Ethical Drivers

Another category of drivers is social drivers. According to Gamero et al. (2008, p. 725), social and ethical drivers are very important as they are directly related to company's and project's public picture which could promote company's picture thus create value and increase shareholders satisfaction about the firm. Linnenluecke and Griffiths (2010, p. 357-366) add corporate ethics, culture as social drivers and corporate social responsibility. They also lead their study into a model to show the relation of sustainability and culture in terms of creating value for the company. See Figure 6. As firms take their responsibilities in terms of achieving sustainability, it could influence good behaviour amongst their employees and workers which, in turn, could be carried with them outside the company (internal driver). Also it will deliver competitive advantage for the company as it will be considered as "socially responsible" and that could lead to create value and attract customers, expertise and support from third party organisation such as NGOs and CBOs⁶ (external driver).

4.3.Legislative Drivers

According to (UNEP) (2012, p. 55-66) and Akhter et al. (2010) , an increasing number of countries, especially in the European Union, are setting down legislations to promote or impose sustainable behaviour on firms and companies. Thus, company's compliance with these regulations is essential for them to work in the long run and could also reduce the possibility of any risks derived from not complying with sustainability regulations in these countries such as fines, additional taxes and company's closure. The integration of sustainability within project management practices could enhance company's opportunities in investing in different countries with specific environmental standards. Accordingly, legislative drivers are considered highly important (maybe the most important) as they directly affect the existence and the success of a company in the present time and still, nevertheless, have an enormous impact of company's future development.

4.4.Economic Drivers

According to Soyka (2012, p. 267-304) and Maltzman and Shirley (2011, p. 57 & 145), there is a number of economic drivers for integrating sustainability in project management such as cost saving derived from cost reductions during the operational segment like decreasing the use of raw materials and energy, reduction of waste and the costs associated with waste treatment. It could also help in creating value through technological development. In their report, Ambec and Lanoie (2008, p. 46-48) said

⁶ CBO: community based organisation is a civil society non-profit organisation that operates within a single local community. They are essentially a subset of the wider group of non-profits. Like other non-profits they are often run on a voluntary basis and are self-funded. Within community organizations there are many variations in terms of size and organizational structure

that more and more companies are investing in integrating sustainability in their project management practices as they start to realise the potential benefits of this integration and enhancing the value for the company. Figure 7 show an example of the economic drivers for sustainability.

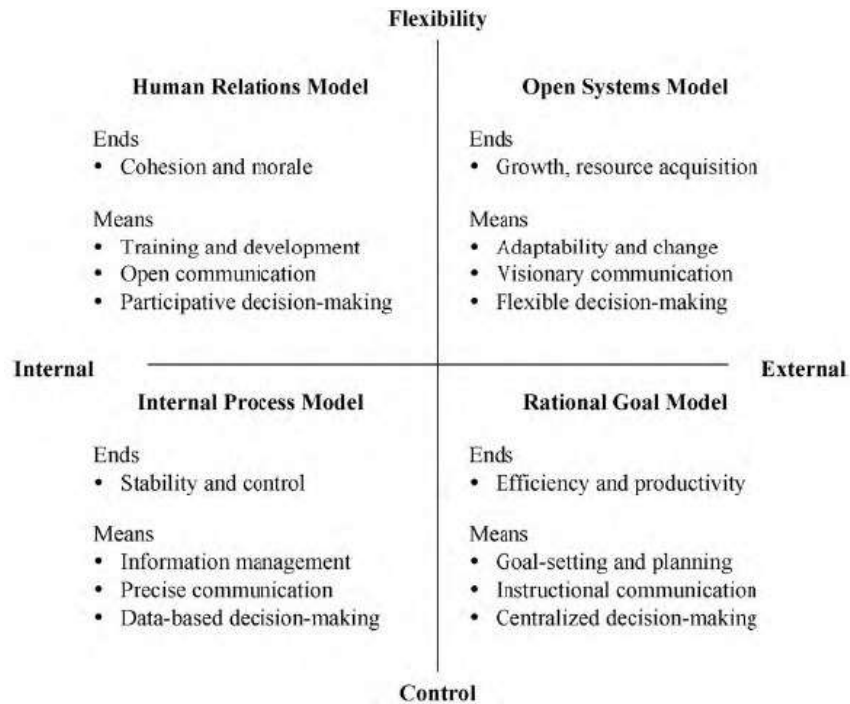


Figure 6: Competing values framework ⁷

⁷ Source: LINNENLUECKE, M. K. & GRIFFITHS, A. 2010. Corporate sustainability and organizational culture. *Journal of World Business*, 45, 357-366.

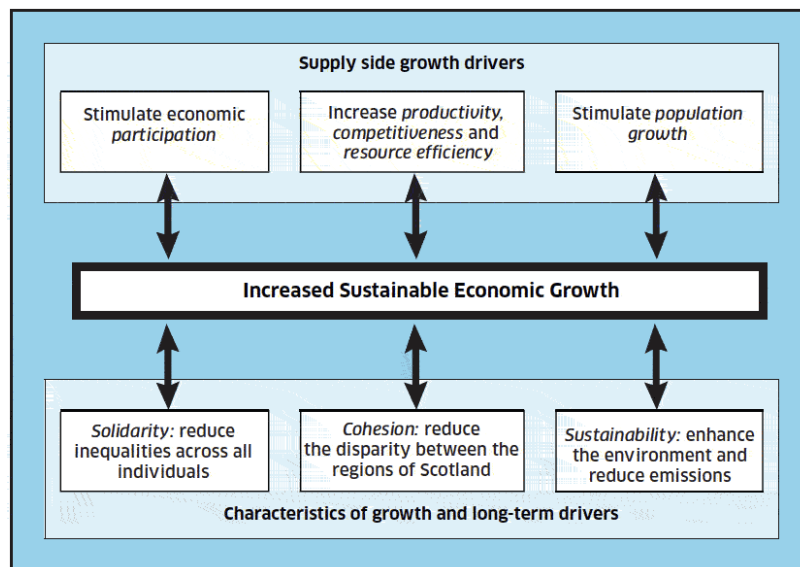


Figure 7: The economic drivers for sustainability ⁸

5. Advantages of Incorporating Sustainability in Project Management

The benefits of integrating sustainability into project management could be seen in many ways. According to Clarkson et al. (2011, p. 142 & 143) and Ambec and Lanoie (2008, p. 46-48) It could help to increase the value of the organisation, create opportunities, eliminate/reduce risk, increase profit and reduce cost.

According to Ambec and Lanoie (2008, p. 47) model, sustainability could create new opportunities, increase profit by providing better access to certain markets, differentiate the products of the company from other competitors giving it competitive advantages, and enhance the selling as more people will be attracted by the brand of the company in the market and its sustainable practice. Additionally, sustainability could eliminate/reduce risks and reduce cost as it help enhancing the relation within the supply chain. Suppliers, regulatory bodies and external stakeholder will be more supportive to the company, in addition, the reduction of the use of energy and materials due to the more innovative and sustainable use of them could reduce cost overall pushing the profit even higher. This also apply to the cost of labour and capital which could also be reduced as the company integrate sustainability in their project management practices as the less workers and capital is needed. See Figure 8.

However, the model misses an important segment of the benefits which is social and cultural advantages. Sustainable project management play an enormous role in improving the culture of the company and their workers as the sustainable practices could be effective outside the company as well providing more sustainable use of the materials as other companies try to compete. Also the different stakeholders and

⁸ Source: <http://www.scotland.gov.uk/Resource/Img/357756/0106047.gif>

employees will be more supportive to decisions when it takes their opinions into consideration which could improve their performance thereafter.

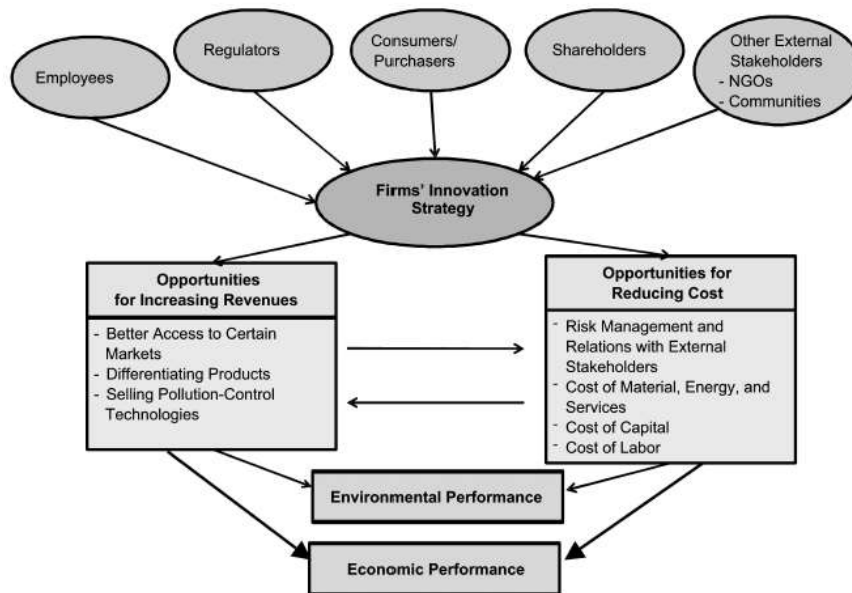


Figure 8: Positive Links Between Environmental and Economic Performance ⁹

In order to fully appreciate the challenges and advantages of incorporating sustainability into project management, there is a need to understand the integration processes/approaches. Although there are many approaches to integrate sustainability in project management, most of these approaches are based on four main stages which are initiation, planning, implementation and monitoring of the sustainable practices. See Figure . These different stages affect all of the different levels within the organisation starting with the supply chain and ending with the costumers and stakeholders. The Halcow sustainable model (Figure 10), introduced by Halcrow (2012), is one of the toolkits to implement sustainability in projects. It is also based on five stages in a closed dynamic cycle that start with the scoping stage (*Planning*) which is associated with consulting clients and stakeholders and prioritising the different solutions and requirements. The next stage is setting the criteria (*Designing*), which is associated with developing criteria for the implementation, this is followed by the assessment stage and then the review stage within which the company assess and review the performance of the integration (*Monitoring*), and finally the system innovation stage within which actions are taken to improve performance.

⁹ Source: AMBEC, S. & LANOIUE, P. 2008. Does It Pay to Be Green? A Systematic Overview. Academy of Management Perspective, 22, 45-62.



Figure 9: Process of integration of sustainability



Figure 10: Halcrow Basic Process¹⁰

This model, however, is very generic and it could be difficult to apply on the different projects especially complex projects. In addition, it seems that the model is more orientated towards being an operational model rather than an implementation model for projects. The model, nevertheless, is highly adaptive and could be successfully applied to a range of small and medium size project as it showed in the table below:



	Context and tools	Applicability
1	Project sustainability appraisals	High
2	Lifecycle asset management	High
3	Programme management	Medium
4	Development <u>masterplanning</u>	Medium
5	Water resource management	High
6	Renewable energy development	Medium
7	Sustainable built environments	Medium
8	Analysis and development of policies and strategies	High
9	Organisational sustainability management	High
10	Corporate responsibility reporting	High

There is a lack of organisation/project-type specific sustainable project management integration models in the academic literature (Linnenluecke and Griffiths, 2010, p. 357) and (Maltzman and Shirley, 2011, p. 71-73). This means that the specific advantages of incorporating sustainability into project management is not obvious in the current time and this could be considered as a disadvantage to the whole process.

Conclusions

In conclusion, it was clear that sustainable project management is going to be the replacement for the traditional project management as it includes future impacts into consideration when thinking of project life cycle. The driver of integrating sustainability into project management varies but it has large influence on organisations. These drivers can be classified into: 1) Environmental drivers that could improve the supply-chain. 2) Social and Ethical drivers related to the organisation's public picture. 3) Legislative drivers as an increasing number of countries are implementing sustainability laws into their legal system and laws. And finally 4) Economic drivers such as cost savings derived from decreasing materials and energy usage as well as better waste recycling. Many organisations as seen in the research are going forward to integrate sustainability into project management as the benefits of this implementation is more obvious. However, the tools and approaches used to integrate sustainability is still under development and it will require more time to develop to a level which make it easy to apply on all projects.

Although the integration of sustainable project management in an organisation depends on many factors, the process of the integration will probably not take too long to initiate as the enormous benefits of this approach as well as the pressures by governments, stakeholders, firms, NGOs is increasing worldwide. It is essential, nevertheless, to try to facilitate the procedures and provide more literature about the integration of sustainable project management in order for it to work and be profitable.



The academic literature lacks a pre-defined models for sustainable project management integration into the different organisations flavours worldwide. Thus, current integration will have to be spontaneous and natural within a strategic plan. This is not just to obey the legislation of a country but also as responsibility towards the world and the environment.

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Appendix 1: Motivations for Ecological Responsiveness

Motivation	Exemplary Quotes	Showing Strong Evidence
Competitiveness	It was seen as good business management to turn a waste product into something which has value. Environmental initiatives are seen as both an environmental opportunity and a business opportunity.	3 food retailers 1 P&O company 2 Japanese companies 1 other
	There are a number of firms which are thinking about how to establish an ecobusiness. . . . The expense for environmental conservation is becoming so big that there are plenty of business opportunities.	
	Jealousy, competitiveness, call it what you like. That is what drives the organization. It is greed and competition.	
	And I suppose if we're brutally honest about it, if environmental issues have volume, put money in the till, then it will become a primary consideration.	
	We did environmental management because of our concern for citizenship. Yet, in the end, this can be related to money.	
	Environment is going to be some kind of business strategy.	
Legitimation	The worst scenario is that we do something stupid and then we pay for it in the way of fines, penalties, and lousy reputation.	1 food retailer 5 auto manufacturers 4 oil companies 7 P&O companies 2 Japanese companies 5 others
	At the end of the day, we are talking about insurance.	
	We wanted improve the image . . . and make it easier for us to operate.	
	The business issues are forced home through stakeholders, which include customers, employees, shareholders, peer competitors, suppliers, and increasingly more, the local community.	
	We are trying to gain legitimacy or credibility with stakeholders and also with competitors.	
	We will do what we need to do legally.	
Social responsibility	It's something that we can do, costs nothing to do it, and it's the right thing to do from our standpoint, the right thing to do from the consumer's standpoint.	3 food retailers 1 P&O company
	Overall, when I show you our policy, the thing that we talk about in our policy is being committed to working with government to find the best reward for what is best for the environment. I don't mean what is best for our industry or for [us] but what is best for society.	
	It's about being a good environmental citizen, about being responsible. There's nothing wrong with doing good.	
	Proving that we are aware of what we should be doing . . . irrespective of the financial situation of the business.	
	We are talking about managing a better company. . . . The "better" is that in the true sense there is the moral better. We want to be because we can afford to be.	
	We've always recognized that the feel-good factor is important and this is just one of the ways in which this is built up.	

Source (Bansal and Roth, 2000)