

Research Paper

A Paradigm Shift: Looking Forward to Sustainability in Organizations

Jason Andrews and Leena Fukey
Christ University, India

Kandappan Balasubramanian
Taylor's University, Malaysia

Puvaneswaran Kunasekaran
Universiti Putra Malaysia

Thanam Subramaniam
Taylor's University, Malaysia

© The Author(s) 2022. This article is published with open access by Taylor's Press.

Abstract: This study aims to explore the various avenues of sustainability, change management and other factors that can act as a catalyst in the adoption of sustainable concepts within an organization. Primarily a concept study, this paper is a compilation of studies across various industries to understand the present scenario of sustainability in organizations and how it can be managed. The study is built on research papers and projects from various years and formulates a thought process to propose change management as a catalyst to adopt sustainable concepts in organizations. The paper brings to light the different aspects of sustainability in organizations by stressing on different strategies that can be used to ensure a balance between anthropogenic actions and green initiatives. New schools of thought have emerged regarding aspects of design and built form of structures, paving the path to new trends that can be adopted through industries during their initial design and planning. There has been an evolution of operational processes and best practices in companies as well. Organizations are shifting to a greener tomorrow through various systems put in place that project sustainability. Aspects of change management continue to play an important role and the degree of its effectiveness defines the transitional pace and journey from conventional systems to sustainable practices. The findings of this study provide architects and managers a strong knowledge base on how organizations should be formed and function, right from the initial building structure design to practices and processes undertaken by the management in organizations. The study enlightens professionals to look at sustainability, not as an alternative per se, but a necessity for the future management of organizations.

Correspondence: Thanam Subramaniam, Taylor's University, Malaysia.
Email: thanam.subramaniam@taylors.edu.my

Keywords: Sustainability, green design, green architecture, best practices, change management, communication.

Suggested citation: Andrews, J., Fukey, L., Balasubramanian, K., Kunasekaran, P., & Subramaniam, T. (2022). A paradigm shift: Looking forward to sustainability in organizations. *Asian-Pacific Journal of Innovation in Hospitality and Tourism*, 11(2), 167–186.

Introduction

The greatest threat to our planet is the belief that someone else will save it” – Robert Swan.

Too often, we find ourselves caught in the rat race of work-life that we fail to even take a moment to understand what our actions are leading to. Anthropogenic experts say that human actions have a direct impact on how the environment around us functions, and its reaction towards man is just a consequence of his actions. The greenhouse gas effect due to rapid and heavy industrialization has led to a rise in environmental issues such as climate change (Duman, İçerli, Yücenurşen, & Apak, 2013). Sustainability, thus, is an emerging topic of discussion that has been growing across industries, in response to the failure of conventional practices and designs to stem environmental degradation or destruction. Different scholars have various interpretations of what the term “sustainability” means. But the crux of the matter is actions that can bring harmony between man and nature.

According to Berry & Rondinelli (1998), ecological sustainability is the necessity to protect the normal functioning and balance of the ecosystem as well as conserve natural resources. At present, it has developed into a competitive strategy for an array of organizations. In this respect, Mottaki & Ammini (2013) argued that economic development and business sustainability can only be achieved if there exists synchrony and order between the aspects of nature, social agendas, environmental accountability and financial activity. In other words, sustainability can only stand true if it is a win-win situation for both man and nature. For the environment, it is an act of replenishing itself, and having substantial resources for an ecosystem to function without any threats of scarcity, and for man, it is the utilization of these resources in a way that satisfies his needs while ensuring that there is plenty left for future generations to come. Aspects of sustainability can come alive through various avenues of integration, from the formation of building structures to actions and processes carried out by humans. Tolan Jr (2012) contended that sustainability that is harnessed through the structure of buildings which consumes lower levels of energy, be it electricity, water or other natural resources, can ultimately lead to the trimming of the building’s carbon footprint. This directly or indirectly curtails any detrimental effect on nature.

Today's style of working has engulfed man in a wave of cutthroat competition and an insatiable appetite to gain profits and build empires. In the hustle and bustle of corporate work life, many business practices are found to affect the natural settings of the environment. There is therefore a need to redesign and reform companies (Griffiths & Petrick, 2001) in a manner that its management not only attains the goals set by the company, but also operates in accordance with the environment. With the ongoing research and studies in this field, there are a multitude of techniques and tools that businesses can use in order to enhance their relationship with nature. The use of eco-friendly practices is a fundamental element in protocols, something that organizations ought to look into, in order to realize true sustainability. Various tools, such as Total Quality Environmental Management and schools of thought such as Six Sigma, not only allow for the betterment of the state and quality of the environment, but also help increase the profit-making ability of businesses, in terms of the right usage of resources and also growth in productivity of employees and mechanisms, due to a lighter and healthier approach to work. Many a times, organizations are fixated on the use of complex tools and techniques (irrespective of their impact), that they tend to forget the simplest principles of sustainability that they can adopt throughout the company. Reduce, reuse and recycle practices that are inculcated in schools are sometimes all it takes to make a significant impact.

The United Nations Earth Summit, held in 1992, concluded that natural resources are exhaustible and man's extraction and use of these resources as well as the improper handling of waste generated can and does disrupt the natural setting of things and the capacity of the planet to sustain itself (Adriaanse et al., 1997). Further, in order to be able to support a better community and provide for the forthcoming generations, there is a necessity to reduce economic actions on nature as a whole. This comes as a hurdle to businesses in their race to increase quality, cut and manage costs and build their flexibility as an organization (Curkovic, 2003).

Looking from a perspective wherein one has to be conscious about one's actions, it can be said that there is a need to pay due diligence to problems that spring up, especially in relation to the environment. Schools of thought that support the conservation of resources and energy, recommend that reducing the amount of pollution caused can curtail the overall degradation of the ecosystem (Sarkis & Rasheed, 1995). Businesses also need to look at the costs involved before diving into any such actions. According to Duman et al. (2013), it is vital that companies not only initiate, but take steps to lessen, if not completely remove, the consequences of man's actions on the ecological sphere, throughout the process of conversion of materials to goods. But not all is bleak. Mejías, Paz, & Pardo (2016) stated that when ecological, economic and social factors of performance and laws are brought together, organizations can get involved in activities that are not only beneficial to the environment and social groups, but can produce financial rewards in the long run. In a lot of ways, these parameters and

actions chosen by the organizations that delve into sustainability can turn out to be a competitive advantage. For a lot of these initiatives to be deployed, innovation is a crucial element (Brown & Duguid, 1991) that can allow companies to harness the true power of sustainability. Difficulties that arise between actual work, the power and effect of learning and the concept of innovation as a whole lie in the precepts and practices adopted by the company. Another hurdle in the adoption of practices that are eco-friendly is the pre-conceived notion that it is a burden that would drain the company of money (Cote, Lopez, Marche, Perron, & Wright, 2008). Today, due to external pressures and strict regulations by governments, companies adopt various strategies to meet the needs of Corporate Social Responsibility (CSR) (Ciliberti, Pontrandolfo, & Scozzi, 2008). Many companies perceive CSR as a source of not only local, but international competitive advantage as well (Berry & Rondinelli, 1998). With the shift in economies, from a product-based economy to a service-based one companies are now paying more attention to consumers who have now evolved into “pro-sumers”. These individuals or groups of individuals have started to apply pressure on companies, as stakeholders, and are voicing their concern for better processes and activities that protect the environment (Klassen & McLaughlin, 1993). Therefore, CEOs, directors, managers, employees and other stakeholders of a business are tasked with creating and managing a sustainable organization.

Another aspect to explore for sustainability is the initial design of the physical structure of buildings and other facilities. This is where the critical role of architects and designers comes in. “The concept of sustainable architecture”, according to Susan Maxman, “isn’t a prescription. It’s an approach, an attitude (Guy & Farmer, 2001, p. 140). It shouldn’t really even have a label. It should just be architecture.” Many other scholars agree that sustainability in reality should not just be a concept that is deliberately added or used as a marketing tool, but instead incorporated as an integral design of life. Sustainability, in the architectural sense, has to deal with an array of aspects that incorporate the essence of nature in the way buildings are designed and built. There is a balance struck between how people and structures interact with each other (Mottaki & Amini, 2013). Guy and Farmer (2001) argued that the study and concept of building sustainably is more of a social construct and that more attention should be given towards creating and building awareness on the consequences of conventional designs and practices, as opposed to sustainable practices. In this regard, the concept of designing and building sustainably revolves around the idea of reducing the impact of human actions and designs while at the same time, generating higher levels of value (Cucuzzella, 2015).

Tolan Jr. (2012) stated that green buildings, a concept under the umbrella of sustainable development, are structures that consume far lesser energy when compared to traditional or conventional structures and have an integration of renewal/ inexhaustible energy into their operations. Architecture of this sort is

generally considered to be rare, as the professionals that study and practice designing buildings of this form are lesser in number. Nevertheless, conventional architects are turning heads by integrating “green” concepts, wherein they use materials that consume low levels of energy that are generated through conventional sources and adopt more natural designs such as eco-friendly ventilation and lighting, to name a few (Guy, 2002). However, there is an ongoing debate on what is more favorable – the appearance of buildings or the performance of the materials and structures (Guy & Moore, 2007).

Berkebile & McLennan (1999), in their article, put forth an analogy that appropriately justifies that buildings ought to be treated as though they are flowers and not machines, through a holistic outlook at the process of design, construction and maintenance of the structure. They further go on to quote Buckminster Fuller, by saying that architects ought not to imitate the natural setting of the environment but find themselves well suited to the principles that she exemplifies. Architects therefore have the power to express multiple aspects of mother nature in the form of designs (Farmer, 2013), that are better suited to the ecological state of affairs, when compared to the present scenario. While there are a few tools such as biomimicry and vernacular architecture available for designers, as opposed to an ever-growing array of conventional structures (those that have negative impacts on the environment at large), the study of these art forms, although growing, remain limited. Hence, it is vital that more awareness is spread about the sustainable aspects of development to future architects who are poised to join the industry.

Environmental issues can tarnish an organization’s reputation, cause large financial losses and spoil the relationship with stakeholders (Hunt & Auster, 1990). An example of a global incident was the Exxon Valdez oil spill that caused huge amounts of damage to the habitat, animals and nature at large as well as debts that the company could not recover from. Hence, it is vital that the right design of structures are taken in order to prevent colossal ecological disasters.

For every new aspect that emerges, an old one faces obsolescence. Change is therefore an inevitable process that occurs in any situation and across all industries (Jalagat, 2016). It is in this light that change management initiatives are adopted by organizations and architects, to ensure a smooth transition from one level of knowledge to another. Change management is the term that is given to a process or an approach to aid, support and maintain the transitional, transformational or developmental modifications that are directed to employees in an organization, using a variety of tools, resources, monetary elements and benefits. Change is a key element that governs the survival of any company. According to Gilley, Dixon and Gilley (2008), companies stay competitive when they are able to carry out continuous and transformational change. It is only through step-by-step change management that companies can adopt initiatives of sustainability, in the design, built form as well as operational processes.

This study aims to explore the array of researches conducted on the management of organizations, from an architectural point of view, to identify the essence of sustainability and how it can be implemented in organizations.

Sustainability through Management

Every organization is managed with the sole purpose of generating revenue to cater to various needs. Revenue is obtained by selling products that are processed from raw materials. To gain maximum benefit, all processes would have to be efficient and effective, to cover the costs of setting and running the operations. In terms of protecting the environment, the processes would need to be in harmony with the environment, not stressing the natural setting, reducing waste and preventing pollution. Organizations are only considered sustainable if they are able to execute various aspects of sustainability. This means a substantial presence of sustainable practices and procedures in every element of working. In an organization that operates at the highest sustainable level, sustainability elements are seamlessly incorporated into the basic protocol of the operations and the training schedules of all new employees.

Integral to every production process, are key elements such as the materials used, the process of manufacturing and the delivery of goods to the intended clients. The materials that are used play an active role in the overall realization of sustainability in a business. Just like how the human body is comprised of cells, thus is the relationship of materials to an organization. A healthy body can never comprise of unhealthy cells; hence, the health or quality of the materials used determines the level of quality that builds a business (from within). For a green initiative, it is vital for companies to look for sustainable materials (Adriaanse et al., 1997) as the use of naturally available materials is in synchrony with nature. Further, in moving forward to a more sustainable future, the increase seen in industrial economies must be segregated from the physical aspects of maturity and growth. Looking at the basics of material use, simple measures taken to emphasize green development such as the “3 R” concept can be highly effective. In relation to the whole process of product manufacturing, practicing the concepts of Reduction, Reuse and Recycle (Sarkis & Rasheed, 1995) can save the organization substantial amounts of money, time and effort. The concept of reduction can be seen in the overall reduction of materials used (which in turn leads to reduced wastage of unused and excess materials) and also a reduction in the number or amount of defects. Both concepts help in the conservation of material, which invariably leads to the saving of other elements of production such as heat, electricity, fossil fuels, labor and time as a whole. This can also reduce the time needed to rework on goods that are not of standard for sale. In this respect, sustainability is made possible through the conscious efforts of employees in an organization.

The difference between “recycling” and “reuse” can be seen when products with only minor flaws can still be used after receiving only minor treatment (reuse), as opposed to the latter, where products must undergo significant processing changes and are only occasionally defined. The practices that encapsulate the fundamental concepts of sustainability, therefore, allow for easier acceptance of regulations and lowered chances of risk. This will be well perceived by customers, who are the end users of products. Duman et al. (2013) argued that adopting these initiatives can lead to an overall growth in how the company is perceived in the market and consequently, build its market value. The scholars highlighted further the role of every employee and how they can support sustainable development by adopting best practices in their workplaces. Indeed, by adopting sustainable practices, an efficient functioning of business and the preservation of the environment can be achieved.

Thanks to globalization, the effects of business processes go beyond the location and time that they are carried out (Duman et al., 2013). With regard to the manufacturing process, organizations can opt to look into remanufacturing, a viable and sustainable approach that looks at conserving goods within the company, by repairing or ensuring the products are taken care of. Many companies have adopted the concept of Environmentally Responsible Manufacturing (ERM) (Curkovic, 2003), which is a standard that organizations can rate themselves on. When companies incorporate ERM in their working standards, they are actively involved in realising sustainable goals that are governed by both internal factors and external pressures. The process enables the running of manufacturing plants in a ecological and environmentally conscious way, keeping in mind the effects of their actions on the environment, instead of just profits. Managers across almost all industries look forward to working by these standards, that focus on reducing or eliminating waste and minimizing air, water or soil pollution. According to Curkovic, Melnyk, Calantone, and Handfield (1999), in order to attain sustainability, an organization should first be efficient in its procurement of raw materials and disposal to minimize the waste generated and lessen the amount of stress caused to the environment. Waste, according to most scholars, is an element that ends up consuming the available resources around it and increases the cost incurred by the company in the storage, handling and disposing of it. Thus, effective reduction of waste can help companies increase their profits.

When a company opts out of conventional systems that generate large amounts of waste, and transforms into an eco-friendly company, its effectiveness, productivity and efficiency levels increase and it can manage costs better. This strategy can also help the company become more resilient and prepared in handling external forces or pressure. Numerous studies identified four factors that need to be in place in order for a smooth transition from conventional practices to sustainable practices:

- Good relations with shareholders
- Ability to envision a future for the company
- Ability to gain innovative reach through renewable/ non-toxic energy
- Ability to reduce risks and develop skills that are viable enough to make profits from sustainable procedures

One of the best ways to monitor the materials used in the various processes of a business is by using “Environmental Accounting”— a tool that can balance the parameters of environmental costs with that of ecological performances.

Another avenue to build the sustainability quotient of companies is through its supply chain management (SCM), a practice that has received a substantial amount of credit in recent years. The concept of adding a “green touch” to supply chain management has proven to be a surefire way of success for the organization as well as the environment. While certain companies can work on adding sustainable aspects to SCM – using green technology and practices to reduce the carbon footprint of SCM – other companies look at SCM with sustainability as Corporate Social Responsibility (CSR). The latter companies formed, what is now known as, Corporate Environmental Responsibility (CER), the natural route or environmental dimension of initiatives implemented by organizations (Kovacs, 2008). Life cycle assessment tests are carried out on the design and daily operations of supply chains.

An Environmental Supply Chain Management (ESCM) system incorporates aspects of a sustainably-run organization and integrates it with the supply chain, in order for it to run efficiently and productively, without proving to be a hurdle in the race for sustainability (Cote et al., 2008). In a working system, it is futile for a company to run on sustainable grounds, if only certain departments specialize in that field and adopt green practices. Ciliberti et al. (2008), in their article, stressed that all operations in a company must be aligned to sustainable attitudes and concepts. In other words, how well these concepts are perceived in the work sphere and how well employees and systems are equipped to handle changes and certain contingencies. Berry and Rondinelli (1998) proposed that today’s organizations should move away from looking at sustainability as a regulatory measure and instead view it as an option that requires a certain amount of pro-activeness.

Another system that is widely used in organizations all over the world is Total Quality Environmental Management (TQEM) which has been growing in terms of vitality. Since its introduction, it has moved from being solely statistical in its process, to encompassing an entire system that manages the overall standards required for a business (Klassen & McLaughlin, 1993). With the traditional assessments of productivity, the technology in use has always targeted the level of quantity and the standard of quality while ignoring social and ecological concerns (Sarkis & Rasheed, 1995). The initial Total Quality Management later evolved to incorporate aspects of ecology in order to promote green initiatives and sustainable concepts. Its tools

address various issues and levels in an organization to manage costs and reduce or eliminate the amount of waste generated. TQEM is a system that can be deployed across different departments in the organization, be it operations, marketing, finances, etc. The central focus of TQEM is the elimination of waste and the progressive and incremental development of operational standards, especially those related to the maintenance of processes.

According to Curkovic and Sroufe (2007), "TQEM has collectively been defined as an economically driven, system-wide and integrated approach to the reduction and elimination of all waste streams associated with the design, manufacture, use and/or disposal of products and materials." They further go on to state that the basic principle of TQEM is taking note that pollution, regardless of the form, is a waste. The reduction of this pollution, as discussed by several authors throughout the review of this study, lies at the heart of sustainable development, and shares the same importance as the right allocation and utilization of resources. Systems like TQEM and Six Sigma have been used throughout sectors internationally in an effort to limit these characteristics and their exploitation. With regard to the efficacy of TQEM, scholars agree that it can only be effective if its benefits surpass its costs; and not on the basis of a moral or ethical justification called upon by internal and external factors. Thus, TQEM must prove its financial benefits or growth before it can be adopted and implemented in the first place.

In this regard, some scholars (Curkovic & Sroufe, 2007), feel that Total Cost Assessment (TCA) stands as a potential hurdle to the implementation of TQEM. As stated earlier, the primary objective of businesses is profit, and practically, the adoption of TQEM in scenarios where cost is not recoverable, is not feasible for organizations. In such situations, a special TQEM-TCA model of reference can be set up. The total environmental costs and savings for the framework is calculated and taken into consideration. Based on the findings and the evaluation, TQEM may or may not be adopted in organizations. When looking at costs, it is a common fact that firms tend to concentrate on their financial status, and there has been a realization that traditional or conventional methods of treating pollution are not cost-effective. Thus, the framework that is captured in the TQEM-TCA model holds valid for several functions across the industries. A strategy that some firms have adopted when it comes to lack of financial assets to deal with waste, is the complete elimination of waste itself. This not only improves the efficiency of the establishment but also has been proven to be one of the best strategies in pursuit of sustainable development in organizations. Research shows that in 1998, the overall cost in relation to environmental law control exceeded over \$1 trillion, while approximately \$120 billion was splurged on the avoidance and control of pollution (Berry & Rondinelli, 1998).

Aspect	Total quality management (TQM)	Environmental excellence
Definition	Multidimensional with strong customer orientation Integrative management policies Internal and external feedback to detect and correct problems (defensive) External anticipation to gain a competitive advantage (offensive)	Considers the long-term fitness for use of the products explicitly over the entire product life cycle (direct and indirect effects on surroundings and users) Initially a reactive posture (defensive) Anticipative, strategic orientation to gain a competitive advantage (offensive)
Benefits	Productivity and profitability gains Improved market share Incremental product and process improvements Potential barriers to entry for competitors Compliance with international quality standards	Improved efficiency and productivity Elimination of unproductive waste entering the environment Increasing public profile of environmental certification and awards (potential barriers to entry) Prevention of future liabilities and potential environmental incidents
Costs	Creation of quality: appraisal, training, process improvement and ongoing contact with customers and suppliers Quality failure: manufacturing scrap, lower productivity, higher inventories, dissatisfied customers and increased field service	Creation of environmental value: prevention, employee training, audits, product and process improvement, and external contact with third parties Environmental failure: lost future opportunities, regulatory fines, negative public image, future liabilities
Strategic aspects and integration	Philosophy of total quality must be integrated into all areas Strategic quality goals must be integrated into a cohesive approach Multifaceted approach to total customer satisfaction Top management support/direction	Systemic integration of the product from cradle to grave – design, manufacture, delivery, use and post-consumption fate Top management directed – environmental excellence integrated into corporate strategic goals Strategic development of alternative technologies External stakeholders satisfaction
External orientation	Please customers to achieve total satisfaction Anticipate latent needs Co-operative partnership with suppliers and customers Flexibility and adaptability to meet market developments	Partnership with customers, suppliers and third parties to address and anticipate environmental needs Examine external interaction with natural environment Move from a reactionary to anticipatory stance for future environmental trends
Product and process development	Robust product design and improved process capability Optimize total product life cycle to raise quality and lower costs (design, manufacture, service and education) Application of statistical analysis tools	Integrated planning for all phases of the product life cycle Improvements in the process design and developments of alternative technologies Goal of “no allowable failure”
Human resource	Top management driven Cultural orientation, including employee education and empowerment Integration of quality responsibility into everyone's job Quality manager to facilitate continuous improvement	Top management driven Promote employee education and involvement Integrate responsibility into each person's job Environmental manager to nurture and reinforce continuous improvement
Sustaining improvement	Continual establishment of new goals Adaptive mechanisms to anticipate and predict future quality trends Frequent measurement and evaluation, especially in management review systems	Reinforce and build on past success with challenging new goals set annually (partly through management review systems) Emphasize preventive action Monitor external trends for new opportunities

Figure 1. Comparison between TQEM and environmental excellence
(Source: Mejias et al., 2016)

Nevertheless, TQEM has proved to be a difficult endeavor as managers from various organizations fail to assess the effects of its programs due to the lack of

appropriate parameters and requirements. Hunt and Auster (1990) enlisted clearly the different characteristics suited to the different approaches of sustainability. The characteristics are divided into stages or sections associated with the level and susceptibility to adopt and adapt to environmental continuity. These stages are realized at the level of companies and departments along with individuals. The developmental flow is represented in Figure 2.



Figure 2. The five stages of environmental continuum (Source: Hunt & Auster, 1990)

On the whole, the quality of operations conducted by a business can be measured in terms of quality by this system, but its implementation in the field is dependent on an array of factors that govern its lifespan in organizations. Many studies concluded the same and laid emphasis on the fact that waste elimination is the most important aspect when it comes to ecological preservation.

Sustainability through Architecture

The United Nations' World Summit identified factors of economy, society, culture and the environment as milestones on the road to sustainable development (Mottaki & Amini, 2013). From an architectural perspective, sustainability is all about design

and its functions. Many scholars have debated over the fact that architecture stands for the grounds on which any sustainable structure is laid. However though, it is a well-known fact that architecture stands at the forefront of expressing creativity and delivering designs that are meant to convey meanings. Be it through the use of different forms of vernacular art to contemporary forms of design, architecture has the power to draw attention to a structure. This attention, in many ways, can be used as a marketing and education tool to spread awareness about certain concepts. Right from the blueprint design, the architect has power to control the way a building is shaped. Every building therefore, is the brainchild of an architect.

This is of vital importance, especially when it comes to sustainability. The concept of sustainability can be adopted into the working structure of the building based on the knowledge of the architect and his/her free will to express himself/ herself in the form of a building. This can make or break the concept of sustainability in the architectural and design field and can be used to grow techniques that come under “green architecture”. The materials that are used in the construction of a building play an equally important role in the formation of the sustainable quotient of the structure. The use of eco-friendly materials can add to the sustainability of the building, whereas, conventional materials can create stress to the environment and endanger occupants’ health. Eco-friendly materials refer elements of mud, clay, wood and other earth materials.

The energy that is created by the building and for the building also have a direct impact on how well the building performs as a sustainable structure. Lachman et al. (2013) highlighted that the management of the various forms of energy is a vital aspect of the development of green structures. The authors further mentioned that green buildings are built in a way that they decrease the total impact of the structure on the environment as well as human health. Further, buildings, at the end of the day, need to be economically realizable and must be easy to maintain (Guy, 2002). Thus, sustainability is designing a structure that is easy to maintain (supports the longevity on the structure) using effective and efficient materials and designs. The sustainability factor that is added to the structure through these designs build the potential advantages and improve the flexibility of the structure as well as preserve the nature around it. Other aspects that need to be looked at by the architects that design the buildings are thermal insulation, smart routes of temperature control and a well-designed ventilation system.

One way of incorporating sustainability into buildings is with the help vernacular art. The buildings constructed through this art form adopts the lifestyle and culture of the people living in and around that locality. It is based on the geography of a place and displays a stronger inclination towards tribal people and those that stay on the fringes of civilization. Mottaki and Amini (2013) brilliantly described the crux of vernacular architecture as the fundamental architectural language of the people around that area. It is the use of customized techniques to build structures

using traditional value, ethics and a deference for the environment. The common or mutual link between the patterns of life and ecology that we see in vernacular architecture is “nature” itself. Various scholars believe that man ought to work in harmony with nature and not oppose it in any sense.

Knippers and Speck (2012) stated that the design aspect of architecture and the evolution of life form are processes without determinations. Today, buildings are required to meet various criteria that are quite complex, but scholars only see that these requirements will have to be built on natural grounds so as to allow the building adapt to an ever-changing environment throughout its life cycle. In the previous few decades, however, the growing environmental demand is shaping the way buildings are designed. More attention is being given to the impact buildings have on the natural ecosystem around it. Architects also attempt to make the best of both worlds, by creating buildings that serve the purposes of conventional structures, while utilizing green techniques. These structures are coined as high-performance green buildings. Kibert (2004) described that high-performance green buildings carry elements that are created, constructed, managed, refurbished and dismissed through ecological principles with the intention of enhancing occupant health while reducing the stress on its surrounding environment.

Buildings that are constructed today, according to Kibert and Grosskopf (2007), are certified with Leadership in Energy and Environmental Design (LEED). This certification recognizes buildings for their high performance, while staying true to ecological principles. These buildings embrace the principle of energy conservation and improved aesthetics, using naturally occurring materials or those that do not bring harm to the environment. LEED is a process of change that can be seen incrementally, rather than radically. According to Kibert and Grosskopf (2007), ideal green buildings ought to meet certain criteria to be called so:

- Incorporation into the natural ecology and ecosystems
- Increase in use of passive source of energy
- Optimized buildings that do not deplete natural resources
- Deployment of Indoor Environment Quality measures

These buildings also need to be built with materials that are reusable and recyclable, to minimize wastage of resources even during the disposal phase of the structure. The vision that most architects have about green buildings, is at times, challenging. Although the concepts may work during the design stage, maintenance is where the shortcomings of the concept can be seen. Rohracher and Ornetzeder (2002) highlighted a realistic scenario whereby although the owners may realize the dream of a sustainable building, tenants often fail to put that into practice. There are various aspects to sustainable architecture, as listed in Table 1 (Guy & Farmer, 2001). These aspects bring out the various elements that could be perceived as an ideal perspective of sustainable development. Table 1 highlights a few features about the six dimensions of sustainability and talks about the appropriateness of each of

those dimensions. Sustainable development can thus be deemed as field that can be looked at from an array of perspectives, depending on the creator of the design.

Table 1. Aspects of sustainability in the future

Eco Technic	<ul style="list-style-type: none">• Policy driven• Belief that science can provide solutions to environmental problems
Eco Centric	<ul style="list-style-type: none">• Nature is generated through a natural scientific paradigm• Logic is founded on a need for a radical reconfiguration of values
Eco Aesthetic	Architecture for the reduction of ecological footprint
Eco Cultural	Reorientation of values to engage with environmental and cultural concerns
Eco Medical	Sustainability in relation to its response to human and social health and concern
Eco Social	Extends beyond a concern for the individual to encompass a political discourse

Source: Guy & Farmer (2001)

There are a multitude of aspects that relate to the sustainability of organizations and buildings. There exists a social concern that these are carried out with the purity of the principles that are espoused by the various authors under the study.

Framework of the Research Process

The study was designed as a review of an array of papers. The papers are a blend of different schools of thought, that are put forth by authors of journal articles, books and online articles. A vast knowledge base was examined to gather data for this analysis. Over 65 journal articles were considered for this conceptual paper. This knowledge base was sub-divided into categories such as Sustainable Architecture, Sustainability in Organizations and Change Management. The breakdown of the systematic study is given in Figure 3. Note that linkages between Sustainability in Organizations and Sustainable Architecture and Change Management have been represented respectively by the placement of topics on either side (Left-hand side of Sustainability in Organization links to Sustainable Architecture and right-hand side of the same links to Change Management). The various topics under study are also highlighted in Figure 3.

Discussion

There is a vast body of literature that accounts for why sustainable change ought to be implemented in organizations. Change management occurs in a series of steps,

whereby, the willingness of employees to change dictates the extent to which it can be implemented successfully. To transition from conventional processes to sustainable ones, calls for the implementation of change management. It was found that those who bring in change in an organization carry out their duties well, but are hindered in their endeavor by employees or staff members who interfere with arguments and problematic behaviors, which pose a hurdle to change management (Predișcan & Braduțanu, 2012). Uncertainty about certain topics is also seen as a threat to the change management in organizations. In many cases, communication or the delivery of messages is deemed critical to help employees understand changes in an organization including the pros and cons of the change (Ford & Ford, 1995). Therefore, it is imperative that for any change to be implemented, it should be announced clearly, together with its objectives and the paths taken to attain the new goals set.

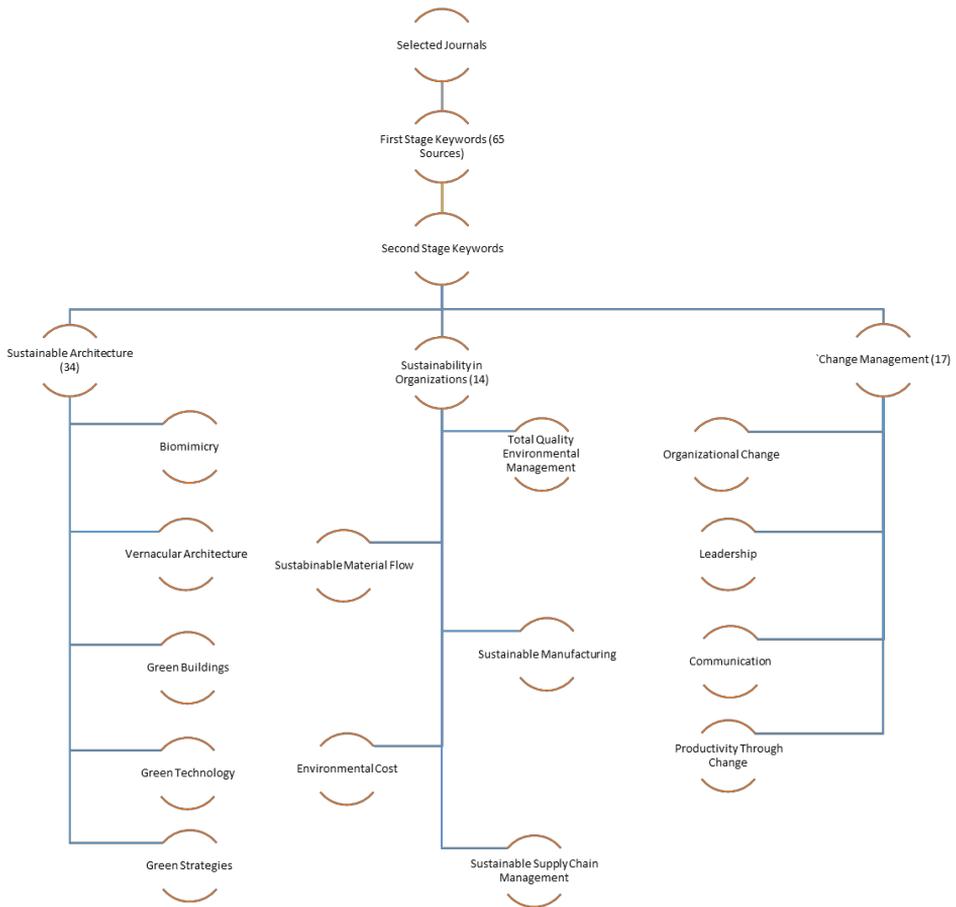


Figure 3. Systematic study of literature

Shifting from conventional business practices to sustainable practices involves incremental change that can only take place through small steps, throughout the organization. In the context of architects, the study has revealed that even though sustainability is perceived as highly beneficial, there are very few capable individuals who seek to make the world a better place by incorporating it into their designs. This only serves to highlight the need for better awareness for all future architects to implement sustainable aspects into their designs. Change is inevitable in nature, but its perception makes all the difference.

Results

The various studies reviewed highlight various issues related to sustainability. Many studies have similar conclusions and these common topics are listed in Table 2.

Table 2. Common topics of sustainability from review

Sustainable Development	Klassen & Mclaughlin (1993)	Duman et al. (2013)	Berry & Rondinelli (1998)	Cucuella (2015)
Innovation	Klassen & Mclaughlin (1993)	Brown & Duguid (1991)	Griffiths & Petrick (2001)	
Reduction in Shareholder Pressure	Mejias et al. (2016)	Seuring & Muller (2008)	Griffiths & Petrick (2001)	
Efficiency	Mejias et al. (2016)	Cote et al. (2008)	Kibert (2004)	
Productivity	Brown & Duguid (1991)	Berry & Rondinelli (1998)	Hunt & Auster (1990)	Griffiths & Petrick (2001)
Total Quality Environmental Management	Klassen & Mclaughlin (1993)	Sarkis & Rasheed (1995)	Curkovic (2003)	Curkovic & Sroufe (2007)
Green Manufacturing	Sarkis & Rasheed (1995)	Curkovic et al. (2000); Seuring & Muller (2008)		
Green Strategies	Klassen & Mclaughlin (1993)		Tolan Jr. (2012)	Berkebile & McLennan (1999)

Table 2 (con't)

Sustainable Supply Chain Management	Kovacs (2008)	Cote et al. (2008)		
Green Buildings	Kibert (2007)	Kibert (2004)	Tolan Jr. (2012)	Berkebile & McLennan (1999)
Longevity	Kibert & Grosskopf (2007)	Guy (2002)	Berkebile & McLennan (1999)	Hunt & Auster (1990)
Materials	Adriaanse et al. (1997)	Kibert (2004)	Guy & Farmer (2001); Guy (2002)	Berkebile & McLennan (1999)
Waste and Pollution Elimination	Sarkis & Rasheed (1995)	Kibert (2004)		Berkebile & McLennan (1999)

Scope for Future Studies

Sustainability offers organisations immense opportunities to deliver a better guest or customer experience. With the shift in economies, from that of a manufacturing to one of service, the potential of sustainability can be realized. As such, there are immense opportunities for future research to study the various dimensions of sustainability and the practicality of adopting and implementing these concepts into business operations.

Open Access: This article is distributed under the terms of the Creative Commons Attribution License (CC-BY 4.0) which permits any use, distribution and reproduction in any medium, provided the original author(s) and the source are credited.

References

- Adriaanse, A., Bringezu, S., Hammond, A., Moriguchi, Y., Rodenburg, E., Rogich, D., & Schutz, H. (1997). *Resource flows: The material basis of industrial economies*. Washington, D.C: World Resources Institute.
- Al Hussaini, D. K. (1995). *Design in nature and architecture* (Unpublished master's thesis). Carleton University, Ontario, Canada.
- Berkebile, R. J., & McLennan, J. F. (1999). The living building. *The World & I*, 14(10), 160–169.
- Berry, M. A., & Rondinelli, D. A. (1998). Proactive corporate environmental management: A new Industrial Revolution. *The Academy of Management Executive*, 12(2), 38–50.

- Brown, J. S., & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organizational Science*, 2(1), 40–57.
- Ciliberti, F., Pontrandolfo, P., & Scozzi, B. (2008). Investigating corporate social responsibility in supply chains: A SME perspective. *Journal of Cleaner Production*, 16(15), 1579–1588.
- Cote, R. P., Lopez, J., Marche, S., Perron, G. M., & Wright, R. (2008). Influences, practices and opportunities for environmental supply chain management in Nova Scotia SMEs. *Journal of Cleaner Production*, 16(15), 1561–1570.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, Ca: Sage Publications.
- Cucuzzella, C. (2015). Is sustainability reorienting the visual expression of architecture? *RACAR: revue d'art canadienne / Canadian Art Review*, 40(2), 86–100.
- Curkovic, S. (2003). Environmentally Responsible Manufacturing: The development and validation of a measurement model. *European Journal of Operational Research*, 146(1), 130–155.
- Curkovic, S., & Sroufe, R. (2007). Total Quality Environmental Management and Total Cost Assessment: An exploratory study. *International Journal of Production Economics*, 105(2), 560–579.
- Curkovic, S., Melnyk, S.A., Handfield, R.B., & Calantone, R.J. (2000). Investigating the linkage between total quality management and environmentally responsible manufacturing. *IEEE Transactions on Engineering Management*, 47(4), 444–464.
- Duman, H., İçerli, M. Y., Yücenurşen, M., & Apak, İ. (2013). Environmental cost management within the sustainable business. *The Online Journal of Science and Technology*, 3(2), 86–96.
- Farmer, G. (2013). Re-contextualising design: Three ways of practising sustainable architecture. *Architectural Research Quarterly*, 17(2), 107–119.
- Ford, J. D., & Ford, L. W. (1995). The role of conversations in producing intentional change in organizations. *The Academy of Management Review*, 20(3), 541–570.
- Gilley, A., Dixon, P., & Gilley, J. W. (2008). Characteristics of leadership effectiveness: Implementing change and driving innovation in organizations. *Human Resource Development Quarterly*, 19(2), 153–169.
- Glaser, B. G., & Strauss, A. L. (2006). *The Discovery of Grounded Theory*. Transactional Publishers.
- Griffiths, A., & Petrick, J. P. (2001). Corporate architectures for sustainability. *International Journal of Operations & Production Management*, 21(12), 1573–1585.
- Guy, S., & Farmer, G. (2001). Reinterpreting sustainable architecture: The place of technology. *Journal of Architectural Education*, 54(3), 140–148.
- Guy, S. (2002). Sustainable Buildings: Meanings, Processes, Users. *Built Environment*, 28(1), 4–10.
- Guy, S., & Moore, S. A. (2007). Sustainable Architecture and the Pluralist Imagination. *Journal Of Architectural Education*, 60(4), 15–23.

- Hunt, C. B., & Auster, E. R. (1990, January 15). Proactive environmental management: Avoiding the toxic trap. *MIT Sloan Management Review*. Retrieved from <https://sloanreview.mit.edu/article/proactive-environmental-management-avoiding-the-toxic-trap/>
- Jalagat, R. (2016). The impact of change and change management in achieving corporate goals and objectives : Organizational o-perspective. *International Journal of Science and Research*, 5(11), 1233–1239.
- Kibert, C. J. (2004). Green buildings: An overview of progress. *Journal of Land Use & Environmental Law*, 19(2), 491–502.
- Kibert, C. J., & Grosskopf, K. (2007). Envisioning next-generation green buildings. *Journal Of Land Use & Environmental Law*, 23(1), 145–160.
- Klassen, R. D., & McLaughlin, C. P. (1993). TQM and environmental excellence in manufacturing. *Industrial Management & Data Systems*, 93(6), 14–22.
- Knippers, J., & Speck, T. (2012). Design and construction principles in nature and architecture. *Bioinspiration & Biomimetics*, 7(1), 1–11.
- Kovacs, G. (2008). Corporate environmental responsibility in the supply chain. *Journal of Cleaner Production*, 16(15), 1571–1578.
- Lachman, B. E., Schaefer, A. G., Kalra, N., Hassell, S., Hall, K. C., Curtright, A. E., & Mosher, D. E. (2013). Buildings and energy trends. In B. E. Lachman, A. G. Schaefer, N. Kalra, S. Hassell, K. C. Hall, A. E. Curtright, & D. E. Mosher (Eds), *Key trends that will shape army installations of tomorrow* (pp. 111–170). Santa Monica, CA: RAND Corporation.
- Mejías, A. M., Paz, E., & Pardo, J. E. (2016). Efficiency and sustainability through the best practices in the Logistics Social Responsibility framework. *International Journal of Operations & Production Management*, 36(2), 164–199.
- Mottaki, Z., & Amini, I. (2013). Cultural sustainability pattern in vernacular architecture: A case study of Gilan, Iran. *GSTF Journal of Engineering Technology*, 2(1), 106–112.
- Predişcan, M., & Braduţanu, D. (2012). Change agent – A force generating resistance to change within an organization? *Acta Universitatis Danubius. OEconomica*, 6(6), 5–12.
- Rohracher, H., & Ornetzeder, M. (2002). Green buildings in context: Improving social learning processes between users and producers. *Built Environment*, 28(1), 73–84.
- Sarkis, J., & Rasheed, A. (1995). Greening the manufacturing function. *Business Horizons*, 38(5), 17–27.
- Seuring, S., & Muller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699–1710.
- Tolan Jr., P. E. (2012). Going-going-green: Strategies for fostering sustainable new federal buildings. *Public Contract Law Journal*, 41(2), 233–295.
- Varey, R. J. (1995). Internal marketing: a review and some interdisciplinary research challenges. *International Journal of Service Industry Management*, 40–63.
- Vellinga, M. (2005). Anthropology and the Challenges of Sustainable Architecture. *Anthropology Today*, 3–7.

- Weber, M. R., Finley, D. A., Crawford, A., & Rivera Jr, D. (2009). An Exploratory Study Identifying Soft Skill Competencies In Entry Level Managers. *Tourism and Hospitality Research*, 353–361.
- Wright, J. (2003). Introducing Sustainability into the Architecture Curriculum in the United States. *International Journal of Sustainability in Higher Education*, 100–105.
- Zari, M. P. (1995). Biomimetic Approaches To Architectural Design For Increased Sustainability.