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ORIGINAL RESEARCH

Evaluation of the evolution of green management with a Kuhnian perspective

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Abstract The purpose of this study is to examine the evolutionary development of green management. To do this, first, Kuhn's "paradigm" concept has been operationalized and the development stages of a movement of thought were determined. The green management is then scrutinized within the framework of each of these stages and the impacts of environmentalism in management research and practice are examined. It is concluded that the crises in normal science, existence of a scientific community, the presence of common beliefs, values and norms, and the increasing anomalousness are strengths of the green management. However, the core position of profit orientation in business strategies weakens the green management.

Keywords Green · Environment · Management · Paradigm · Profit · Kuhn

1 Introduction

In the past few decades, environmental problems, occurring on a global scale, have shifted people's attention towards these problems and their causes. In this time span, governmental and non-governmental environmentalist organizations have gained momentum. Governments have taken precautions and consumer awareness groups and companies attempting to answer these issues have been created. In addition to these, scientific communities have also started paying attention to the environmental issues. Books about the environment, environmentalism, and environmental problems (such as Leopold 1949; Carson 1962; Boulding 1966; Hardin 1968; Ponting 2007), as well as articles and other scientific publications on the causes of

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environmental problems, and scientific journals aiming to resolve the incompatibility between economic systems and nature have increased. Conferences focusing on environmental sustainability have also been organized. Many examples can be given to show the revision of the relationship between humans and the environment in recent times. This revision was reverberated to business literature as "green management".

Green management has led to questioning the profit-oriented structure of the existing management research traditions and highlighted the cost of economic growth. With the participation of environmental risks into the research agenda, green management has brought different perspectives to management research. Today, it has attracted increasing attention among management scholars and business practitioners (Srivastava 2007). Many books have been published to criticize the anti-environmental practices of companies and suggested methods to be more environmental (Mishan 1967; Schumacher 1973; Hawken et al. 1999; Martinez-Alier 2002; Esty and Winston 2006; Werbach 2009; Hollender and Breen 2010; Cramer and Karabell 2010). In addition, an increasing number of journals, that subjected the green management, are proof of academic interest. Today, there are a total of 417 journals that are indexed in Scopus and ISI indexes that have subjected various aspects of environmental issues. Forty four of them are specialized in environmental management, economics, and policy issues. Besides academic interest, many surveys conducted to managers in different industries show that green management has gained importance over the past decades and has become an essential part of a firm's agenda to be and stay competitive (Porter 1991; Porter and Van der Linde 1995a, b; Delmas and Toffel 2008; Riddleberger and Hittner 2009; Haanaes et al. 2012; AlixPartners 2013).

In this study, the evolutionary development of green management approach (GMA) against the traditional management approach (TMA) in business literature is examined. This investigation is important, because it would put forward the impacts of environmentalism on the traditional management research. Moreover, it will also allow us to assess the strengths and weaknesses of GMA. To do this investigation, Kuhn's "paradigm" concept will be taken as reference for the examination and the development stages of the green management will be investigated with a Kuhnian perspective. The Kuhnian perspective is a useful method for this investigation, because while Kuhn examines the "paradigm" concept for analyzing the history of science, he indirectly puts forward the necessities of being a scientific discipline (Barca 2005).

The main contributions and findings of this study are summarized below. First, the development stages of a movement of thought are determined with a Kuhnian perspective. Second, evolutionary process of GMA is investigated under these stages and the impacts of environmentalism in management research are examined. This methodology can also be used to assess the scientific progress of other emerging paradigms in management research. And, finally, an integrative approach is proposed for businesses that adopts the basic principles of GMA into business strategies.

The rest of the paper is organized as follows. Section 2 addressed the definition and the comparison of TMA and GMA. Section 3 reviews the earlier discussions on

the transition from TMA to GMA in business literature. In Sect. 4, the development stages of a movement of thought are determined with a Kuhnian perspective. The evolutionary process of GMA is investigated in Sect. 5. The concluding remarks are presented in Sect. 6.

2 Traditional versus green management approach

> "Conserving our natural resources by withdrawing them from use is not a service to the community. That is holding to the old theory that a thing is more important than a man. Our natural resources are ample for all our present needs. We do not have to bother about them as resources. What we do have to bother about is the waste of human labor."
>
> Henry Ford (1926)

The TMA, which is the dominant management paradigm in business literature (Gladwin et al. 1995), reflects the characteristics of an anthropocentric dominant Western worldview (Purser et al. 1995). This anthropocentric and anti-environmentalist view has been referred to as the dominant social paradigm (DSP) (Dunlap and Van Liere 1978; Dunlap et al. 2000). DSP emphasizes on free enterprise, liberty, private property rights, and unlimited economic growth (Shafer 2006). This paradigm, which assumes that nature exists foremostly for human use, has solidified in recent years through scientific and technological advancements (Konak 2010). Cotgrove (1982) identifies three core values of the dominant social paradigm in modern Western societies: economic growth, nature valued primarily as a resource for humans, and domination over nature. In addition, Catton and Dunlap (1980) state the characteristics of this worldview more widely as follows;

- Humans are essentially different from all other creatures on the earth and have dominated them.
- The earth is very rich in resources and has infinite possibilities for humans.
- The history of humanity is the history of progress. Every (environmental) problem has a solution (science) and this progress is unstoppable.
- Humans are masters of their destiny. They can choose their goals and learn methods to achieve them.

The word "technocentric" coined by Gladwin et al. (1995) composes the background of the TMA explained in this study. Gladwin et al. (1995) use the "technocentric" concept to describe a worldview in which the world is viewed as stationary and passive, thus exploitable, and people are distinct and dominant over other creatures. According to this worldview, the economy is a closed linear system isolated from nature, which aims to allocate resources effectively.

This view, which reflects the classical economy, assumes that human requests and needs are infinite. To meet these infinite requests and needs, limited resources of nature should be used to their maximum potentials. This view will blatantly cause environmental problems. The TMA supports unlimited growth, while defending that science and technology can solve any environmental problems related with the

blatant growth (Haden et al. 2009), and it relies on the assumption that ecological factors should be ignored in organizational decision-making processes (Shrivastava 1995). Boulding (1966) described this view as "cowboy economy", which assumes unlimited resources and supports consumption. As a result, the success of this system is measured by the amount of production and consumption.

Since TMA reflects the characteristics of an anthropocentric worldview, revealing the background of anthropocentrism in the modern world would provide a better understanding of TMA. The anthropocentric basis of TMA finds its roots partly in religious beliefs. Darwinism suggests that the human race is organically related to what is conceptually referred to as nature (Purser et al. 1995). However, contrary to evolutionists, religions suggest that human beings are not the "child" of the natural environment (Izetbegovic 1984). Monotheistic religions, which believe in creation, believe that human beings had not developed spontaneously in nature. Accordingly, human beings were "thrown" into nature, where they do not belong, after it was created. As a result of this, humans cannot be compatible with nature and must struggle with it to survive. In this situation, humans must use the resources of nature as much as possible to stay alive.

When the histories of religions are examined, it can be seen that human beings are generally sublimated against nature. As a matter of fact, inscriptions from the book of Genesis (1:28) state that human beings should rule and control the earth; "And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth".

Similarly, according to the creation legend in the Old Testament, God created day, night earth, water, animals, and plants in the first 5 days. On the sixth day, he created humans (Adam and Eve) and commanded them to utilize everything he created. When Classic Christian thought is examined closely, it can be seen that it is thought that God created everything for human usage.

The situation in Islam is similar. In the Quran, there are verses elevating humans against nature; "… O Children of Israel! Remember My favor which I have bestowed upon you and that I preferred you over the worlds (Bakara 122)", "He is the one who makes the Earth submit to you (Mulk 15)", "And he subjected for you the sun and the moon, continuous [in orbit], and subjected for you the night and the day (Ibrahim 33)", and "It is a favor that We have honored the Children of Adam, and blessed them with conveyances on land and sea, and provided them with good and pure things, and exalted them above many of Our other creatures (Isra 70)".

In modern times, the motivation for profit maximization can be traced back to Calvinism. In the nineteenth and early twentieth century, with the impact of Calvinistic philosophy, profit maximization was viewed as a social responsibility. Since this philosophy puts hard work and accumulation of wealth as a way of salvation, and hollowed profit and materials as signs of God's favor, maximized profits were the evidence of businessman's godliness (Weber 1905; Hay and Gray 1974). Thus, a religious belief, Calvinism, played a key role in the creation of capitalism (Weber 1905), which puts profit (the short-term benefits) into the center of corporate decision-making and ignores environmental problems (Ponting 2007). Consequently, these religious beliefs and economic systems constitute a business

environment, which prioritize profitability and unlimited economic growth and force companies and managers to be more profitable regardless of their environmental impacts.

At this point, a criticism should be made. The fact that, religions are human centered and sublimates mankind against nature and allows people to take advantage of the natural resources, should not be considered as permission to exploit the environment, but should be considered just as a license. This is because any religion could allow its followers to waste God-given resources loutishly. In fact, in the Quran, the verses "… And the heaven He raised and imposed the balance that you not transgress within the balance. And establish weight in justice and do not make deficient the balance (Rahman 7–9)", show that although the Earth was created for mankind, humans also have the responsibility and burden of protecting it. The verses "Corruption has appeared throughout the land and sea by [reason of] what the hands of people have earned so He may let them taste part of [the consequence of] what they have done that perhaps they will return [to righteousness] (Rum 41)", state that the ecosystem may get harmed if human beings transgress this balance. Furthermore, verses "… And the earth, He has assigned it to all living creatures (Rahman 10)" and "There is not an animal (that lives) on the earth, nor a being that flies on its wings, but (forms part of) communities like you. Nothing have we omitted from the Book, and they (all) shall be gathered to their Lord in the end (En'am 38)", remind humans that wildlife is a part of the world and that its living elements have a right to live too.

Using this background, the TMA can be defined as: "a profit-based anthropocentric management paradigm, which is based on the rule of mankind's superiority to nature as foreseen by modernity, aims unlimited economic growth and progress without taking environmental impacts and risks into consideration".

Contrary to the TMA, which supports unlimited growth, the GMA states that the social and environmental costs of growth will outweigh the benefits of growth (Gladwin et al. 1995). The GMA considers humankind as a part of nature. Therefore, humans have the responsibility of protecting the environment, which they are a part of and can develop only as much as nature permits. Boulding (1966) described this view as "spaceman economy" (as an alternative to cowboy economy). Spaceman economy suggests the minimization of production and consumption rather than maximization. Thus, the success of spaceman economy measured by nature, extent, quality, and complexity of the total capital stock, including the state of the human body, and mind is included in the system.

Green management is a "shared worldview" consisting of the beliefs, assumptions, and values of a particular group regarding the relationship of its activities to the natural environment (Halme 1996). Haden et al. (2009) defined green management as; "the organization-wide process of applying innovation to achieve sustainability, waste reduction, social responsibility, and competitive advantage via continued learning and development, and by embracing environmental goals and strategies that are fully integrated with the goals and strategies of the organization". However, several perspectives on green management which vary from the biocentric to anthropocentric worldviews (Lackey 1998) make it difficult to limit its definition.

Gladwin et al. (1995) proposed three environmental paradigms: technocentrism, ecocentrism, and sustaincentrism. Based on this classification, technocentrism and ecocentrism represent the extreme points. While the technocentric paradigm accepts the superiority of human beings over nature and supports unlimited growth, the ecocentric paradigm rejects human domination over nature and emphasizes harmony in nature. The sustaincentric paradigm is a synthesis of the two and suggests an economy which aims to provide a higher standard of living to humans, while maintaining the variety and integrity of nature. Colby (1991) suggested a more detailed classification and mentions five different GMAs; frontier economics, deep ecology, environmental protection, resource management, and eco-development. Colby's highly specified five-category typology is the most significant departure from the pattern of dichotomous assessments (Johnson and Macy 2001). While the frontier economics supports unlimited economic growth, deep ecology is against development and promotes blending with the environment. While the environmental protection paradigm emphasizes the need to protect nature in the essence of economic development, the resource management paradigm supports sustainable green development. On the other hand, the eco-development paradigm suggests that human-nature relations should be reorganized for the benefit of both sides.

In the light of these explanations, we will define the GMA as: "the inclusion of environmental risks and sustainability concerns into core organizational culture and decision-making processes, not because of external pressures but because of an internal organizational social responsibility policy, and making this the main criteria in all corporate decisions and practices." The distinct characteristics of each paradigm are given in Table 1.

3 Earlier discussions on transition from TMA to GMA

TMA is the dominant management paradigm in business literature (Gladwin et al. 1995). However, it receives criticism from some societies and scientific groups. As Shrivastava (1995) mentioned that while organizations pay attention to their social, political, and economic environments, they virtually ignore the natural environment. According to him, the environment has been described as a packaged source to be used by organizations. Another limitation of the TMA is that it only takes financial risks into account and it does not care about the effects of organization's technology usage on the environment. Another important limitation is the anthropocentricity of the TMA. This anthropocentric ideology gives the human race a separation, uniqueness, priority, and supremacy against nature (Shrivastava 1995).

Despite the domination of TMA, now, there is a great deal of evidence that shows the GMA as significantly flourishing. Stakeholders, such as customers, employees, suppliers, or society in general, force companies to adopt sustainable practices in their business (Müller and Pfleger 2014). As a result, green management is becoming more important for business strategies and with increasing frequency, environmental issues are emerging as strategic problems for a growing number of industries with an increased emphasis on the natural environment (Roarty 1997;

Table 1 Traditional versus green management approach

Traditional management approach	Green management approach
Profit oriented	Natural environment oriented
Nature is a free source for production	Nature must be protected
Cost decreasing is a vital business activity	Prevention of negative effects are vital
Short-term profit maximization	Long term sustainability
Firms' operations must be profitable	Firms' operations must be compliant with environment
Environmental issues are not priority for firms	Environmental issues must be integrated into business processes
Human centered	Nature centered
Humankind is superior to the nature	Humankind is a part of the nature
Mechanistic view	Feministic view
A product of the civilization	A product of the culture
Depends on high consumption of resources (energy, raw materials, etc.)	Defends the low consumption of resources (less energy, less raw materials, etc.)
Low pressure on firms to be green	High pressure on firms to be green
Linear supply chains	Closed loop supply chains
Science is able to compensate for damage to the environment	Science is unable to compensate for damage to the environment
Nature is a competitor to be struggling to survive	Nature is a friend to be in harmony to survive

Sarkis 1998; Quazi 2001). A increasing number of academic studies about designing green consumer products, green purchasing, green suppliers, green manufacturing, green logistics that includes transportation, warehousing, packaging et al., green marketing, green supply chain management, and green or sustainable economy demonstrate the increasing attention to green management philosophy and practices in business literature.

The issues of the evolution of GMA and the transition from TMA to GMA have been discussed in literature frequently and examined in many ways by different researchers. Cotgrove (1982) argued that the TMA is no longer sustainable because of its faith on unlimited economic growth and domination over nature. Colby (1991) mentioned that defensive agenda of TMA is breaking down and ecocentric agenda has begun to flourish. Gladwin et al. (1995) put forward to a need for transition to GMA and asserted that transforming the management theory and practice from profit orientation to sustainable development is the greatest challenge facing the management theorists and scholars. Purser et al. (1995) argued that although the ecocentric theory could not achieve a sufficient level of legitimacy, coherence, and maturity, yet the TMA is no longer sustainable in the long run in spite of its' well-structured anthropocentric roots. Authors also claimed that new approaches and new organizational-environment configurations must be developed and applied in business literature. Shrivastava (1995) criticized the TMA because of its' anthropocentric view and claimed that it is inadequate to meet the requirements

of risk societies. Garrod and Chadwick (1996) reported that firms have been increasingly adopted the main tools of environmental management, but they tend to integrate these within the existing TMA rather than shifting GMA. Similarly, Crane (2000) suggested that organizations tend to integrate environmental programs into their existing organizational structure rather than adopting a new environmental paradigm. In her study, Halme (1996) examined the GMA shift in two Finnish companies and concluded that although profitability is more important for these firms, they tend to shift from TMA to GMA.

4 Kuhn's perspective on scientific development

Contrary to the linear cumulative normal science idea, which suggests that science develops by the addition of new truths or the correction of past errors, Kuhn asserted that scientific development is not always straightforward (Bird 2000:20). He argued that new theories replace old ones revolutionizing the foundations rather than building on them (Sterman and Wittenberg 1999). Therefore, he defined "normal" and "revolutionary" phases in the development process of science.

Kuhn used the "paradigm" concept for analyzing the "normal" and "revolutionary" phases of science. "Paradigm" refers to the common intellectual framework, which reflects the shared values, beliefs, and commitments, and provides examples of problems and solutions for a scientific community. As Kuhn noted in the postscript to the second edition of his book, paradigm concept is the most novel and the least understood aspect of the first edition (Kuhn 1970). In his 1962 paper, Kuhn defined paradigm as "universally accepted scientific successes which provide a model (examples of problems and solutions) for a scientific community". However, Kuhn used the paradigm concept in various senses without being fully aware that he was doing so (Hoyningen-Huene 1993:140). Indeed, Masterman (1970) found that Kuhn uses "paradigm" concept in at least 21 meanings in his original paper. To clarify the "paradigm" concept, Kuhn introduced "disciplinary matrix" and "exemplar" terms in the enlarged and revised edition of his book in 1970. In a broader sense, "disciplinary matrix" refers to the shared commitments of any scientific community that constitute the basic assumptions of the discipline, including symbolic generalizations, models, techniques, patents, values, and shared examples (Kuhn 1970). More restrictively, "exemplar" refers to the "concrete problem solutions that students encounter from the start of their scientific education, whether in laboratories, or examinations, or at the ends of chapters in science text" (Kuhn 1970). Exemplar is the crucial and most central meaning of paradigm for Kuhn, and he continued to use the "paradigm" concept in his later studies in a narrower sense of "exemplar" (Kuhn 1974; Eckberg and Hill 1979; Barnes 1982; Hoyningen-Huene 1993:142).

Paradigms are based on different values, beliefs, and worldviews, and they guide scientists to understand the nature in certain ways. Moreover, paradigms (or exemplars) provide a way for scientists to see the subject matter on a concrete level and allow normal science to advance (Eckberg and Hill 1979). Therefore, paradigms govern the normal science by defining problems, solutions, criteria of judgements,

and providing instruments, techniques, and examples. As Bird (2000:24) noted, normal science "consists in the search for solutions to problems set by the paradigm within a framework laid down by that paradigm". Kuhn (1962) describes this process as puzzle solving. This is because, as in the puzzle solution, paradigm that governs the normal science assures that there is a solution and sets the rules for scientists determining the acceptable solution (Kuhn 1962). Therefore, puzzle solutions are expected to increase cumulatively in normal science phase (Bird 2013).

Kuhn (1962) mentioned that normal science progresses as long as the problem solution continues successfully and it continues until a crisis arises. When the existing paradigm ceases to function properly and becomes powerless and hopeless against problems created by itself, an increasing number of scientists begin to alienate it from scientific discipline and begin to behave anomalously. Most of these anomalies are assimilated by normal science; however, some persistent anomalies accumulated over time (Barnes 1982; Sterman and Wittenberg 1999). When these anomalies reach sufficient magnitude, the scientific discipline falls into a state of crisis that cannot be worked out with current instruments and means (Kuhn 1962). During this crisis period, new ideas are tried and the movement of thought gains its own followers. These followers, or the scientific community, support and promote the new movement of thought with the increasing number of experiments, instruments, articles, and books which result in strengthening the persuasive arguments in its favor. In this process, As Barnes (1982:11) noted, "concepts, theories, and procedures are changed; problems are changed; criteria of judgement are changed, including criteria of what is to count as a problem and what as a solution to a problem". Eventually, the successive transition from one movement of thought to another via revolution is called a scientific revolution or a paradigm shift (Kuhn 1962). The transition from geocentric astronomy to heliocentric astronomy is a good example for this kind of a scientific development process. These scientific revolutions or paradigm shifts separate the new phase and normal science, and involve a revision to existing scientific belief or practice (Hoyningen-Huene 1993). It is important to note that this process is cyclical, and the adoption of a new paradigm via scientific revolution initiates a new period of normal science (Bird 2000:25).

Therefore, based on this background, five stages are identified for considering a shift from a movement of thought to another: insufficiency and anomalousness, crises in normal science, existence of a scientific community, integrity of values, beliefs and norms, and changing platform of thought. The cyclical structure of this process is presented in Fig. 1.

5 Evolution of green management approach

In this section, the evolution of green management will be examined with a Kuhnian perspective during the shift from a traditional human centered approach to the new environmental approach.

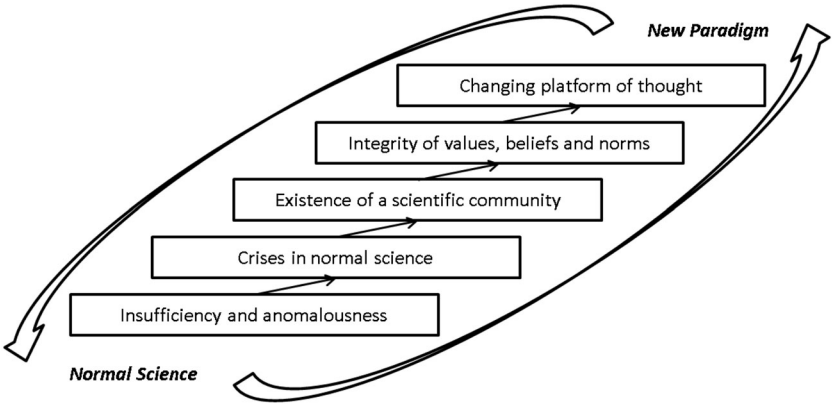

Fig. 1 Stages of the scientific development

5.1 Insufficiency and anomalousness

Kuhn (1962) likens scientific revolutions to political revolutions, and believes that their reasons for happening are the same. Political revolutions usually occur when government agencies become powerless and hopeless against problems, which they cause themselves. Similarly, today's global environmental problems and disasters are mostly the fault of TMA-based current economic systems and normal science is inadequate to solve these global environmental problems.

The era has been dominated by industrialization to legitimize earning money regardless of environmental costs (Carson 1962). The roots of the environmental pollution within modern societies are reflections of the ecological destruction of industrialization. Modernization, in seeking economic growth, inadvertently but systematically unleashes risks and hazards (Shrivastava 1995). However, industry, the source of these problems, is insufficient in providing solutions for important global environmental problems like melting glaciers and holes in the ozone layer. The likes of these problems, along with insufficient solutions, threaten the future of humanity. Kuhn (1962) indicated that an increasing number of individuals (or groups) will begin to alienate from political life (economic system) and people will begin to behave more and more irregularly in this environment.

The increasing number of environmental organizations is a good indicator for insufficiency and anomalousness. As Utting (2005) mentioned that several environmental disasters, linked to large companies or specific industries, became high-profile international issues around which activists and non-governmental organizations mobilized. Numerous international (WNO,[1] WWF,[2] PETA,[3] Greenpeace, etc.), regional (EEA,[4] PEMSEA,[5] etc.) and national (Birds Australia—

[1] World Nature Organization.

[2] World Wide Fund for Nature.

[3] People for Ethical Treatment of Animals.

[4] European Environment Agency.

[5] Partnerships in Environmental Management for the Seas of East Asia.

Australia, Toronto Environmental Alliance—Canada, etc.), governmental, intergovernmental, or non-governmental organizations were established to control or protest companies because of their harmful operations. These organizations engaging in both legal and illegal activities, civilians protesting world leaders at G8 summits because of environmental issues, and even models going naked for animal rights! (PETA), can all be given as examples of anomalous behaviors. Furthermore, an increasing number of scientists criticizing companies for their harmful effects on the environment and journals focused on environmental issues are evidence of anomalous behaviors in business literature. When all of these anomalies are evaluated together, it can be foreseen that in today's society, it is possible to find many individuals and groups engaging in anomalous activities and people adopting the nature centered paradigm and abandoning the human centered one.

5.2 Crisis in normal science

Science that is governed by a paradigm called normal science (Bird 2000:24). Kuhn (1962) stated that paradigmatic shifts occur as a result of a crisis period in normal science. The cause of the crisis would, briefly, be an element of the previous paradigm not working as expected. Research done as a part of the dominant profit-centered paradigm generally aids companies in making profits. In this sense, it is not possible to talk about a shortcoming of normal science. However, the economic system foreseen in this paradigm depletes vital resources, like water, air, and soil, while increasing profits. This extensive use of natural resources and the increase in the negative effects of environmental pollution have caused the current system to enter a crisis situation and receive criticism from societies and scientific groups. Ravetz (2004) argued that the private sector is dominant to normal science and drives it to be profit oriented without considering the environmental issues. Thus, normal science became one of the most important sources of global environmental problems.

Traditionalists believe that science and technology are able to compensate the environmental problems, which the TMA causes (Shafer 2006). But today, as we experienced, science cannot solve the ecological crises and these crises pose a threat to future generations. Cotgrove (1982) mentions that the roots of these ecological crises are to be found in the basics of TMA, which supports the unlimited growth and the domination of nature. The insufficiency of the current system in solving problems it causes, like holes in the ozone layer and global warming, puts the future of the human race at risk. These environmental crises have seriously weakened the comfortable assumptions about normal science and have led to the loss of the scientific certainty of old belief (Ravetz 2004). In this context, Funtowicz and Ravetz (1992, 1994) criticized normal science due to its nature that ignores environmental values and they propounded ecological economics as a post-normal science, which brings ecological issues into the center of business operations.

This faultiness of normal science has also weakened the assumption of "there is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the

game" which was proposed by Friedman (1962) and led to search for new management approaches that will alternate the technocentric view of the human–environment relationship and assign social responsibilities to firms. These attempts that address moral and ethical issues among firms and its environment is called corporate social responsibility (CSR), and include a wide range of social issues including environmental protection, relations with stakeholders, worker health, and safety (Branco and Rodriguez 2006; Baron 2010). Thus, CSR approach suggested that financial performance is not only the relevant measure of corporate performance but environmental and social performances must also be considered (Baron 2010).

Another distinguishing approach that weakened the TMA is the stakeholder approach. Although this concept can be traced back to 1963 (Polonsky 1995), it was systematically introduced to strategic management literature by Freeman (1984). In his study, he defined stakeholders as "any group or individual that can affect or is affected by the achievement of a corporation's purpose" and argued that firms should not only focus on the benefits of shareholders (who concerns with profit maximization) but must take into consideration the effect of their actions on stakeholders and stakeholder's potential effects on firms to be and stay competitive (Freeman 2004). Indeed, stakeholders have strong potential to influence corporate decision-making processes in favor of environmentalism by educating the public and raising the political profile of environmental issues (Roarty 1997).

GMA has much benefited from these alternative management theories and thus, ecology and economic dilemma falling into the bailiwick of strategic managers and they need to broaden their perceptions to make interconnections between their firms and the natural environment (Stead and Stead 1996). Briefly, inadequacy of normal science on preventing environmental problems brought it to a crisis and this situation brought the TMA to a crisis, as well.

5.3 The existence of a scientific community

Kuhn (1962) attributes paradigms to certain scientific communities. According to him, to be able to talk about a new paradigm, it has to be accepted and supported by a scientific community, which consists of a practitioner of a scientific specialty (Kuhn 1974). This scientific community should have similar educational background, similar professional initiations, focused on the same technical literature and take the same lessons from it (Hoyningen-Huene 1993). Furthermore, this community should see themselves and are seen by others responsible for providing support to existing paradigm (Kuhn 1974). Barca (2005) noted that the formation of the scientific community is a prerequisite for a tradition of thought and research, which produces common, systematic, and homogenous knowledge. Therefore, he listed three criteria for the formation of a scientific community: (1) academic employment and career opportunities, (2) periodicals, and (3) organizations/associations.

Currently, there are many periodicals that are published by different scientific organizations or associations on specific environment related topics like environmentalism, green management, green technology, etc. Today, there are totally 417

journals that are indexed in Scopus and ISI indexes that subjected the various aspects of environment and 44 of them specialize in environmental management, economics, and/or policy issues.

Universities are also opening more departments and fields of study relating to the environment. In various universities, the departments of "environmental engineering", "environmental protection", "environmental quality", "environmental health", "environmental sciences", "environmental management", etc employ many academicians, which show the increasing career opportunities in the field of environmental studies. Therefore, it is clear that there is a scientific community doing research on green management, who has similar educational background and focused on the same literature.

5.4 Integrity of values, beliefs, and norms

Every paradigm and social movement has its own set of integration of values and beliefs (Kuhn 1962). This integration produces and activates a paradigm's (and social movement's) norms, which are the guiding principles in life that creates feeling of obligation (Stern et al. 1995, 1999). These norms affect the behavior of individuals (and also organizations) and motivate them to act in ways that support social movement goals (Schwartz 1977; Stern et al. 1999).

Values, beliefs, and norms are very important for addressing the environmental issues (Cotgrove 1982; Lundmark 2007). As a global social movement, environmentalism has own set of values, beliefs, and assumptions with regard to relationship between human actions and environment (Halme 1996; Stern et al. 1999). These values are based primarily on the belief that human beings are part of the nature and humans have the responsibility of protecting the biophysical environment. In their Value–Belief–Norm (VBN) theory, Stern et al. (1999) demonstrated the decisive influence of personal values (altruistic, biospheric, and egoistic) on following the environmental beliefs, which are borrowed from Schwartz (1977) and Dunlap and Van Liere (1978): human action adversely affecting the nature, deterioration of the nature will harm humankind and nonhuman species in the long term, and necessary precautions should be taken to avoid harmful actions.

The effects of the environmental movement can be traced both at the individual and the organizational level. At the individual level, for instance, a person who uses a sports car with high fuel consumption has a different mainstay from a person who uses a fuel-efficient small car because of his or her environmental worries. The person, who prefers the fuel inefficient sport car, represents egoistic personal values and most likely prioritizes private benefits such as speed, comfort, and prestige. These kind of egoistic values have been negatively correlated with environmental indicators (Stern et al. 1999; Stern 2000). On the other side, the person who drives the eco-friendly small green car, considering they do so out of concern for the environment, represents biospheric and altruistic personal values and prioritizes environmental protection. Contrary to the egoistic values, biospheric and altruistic values have been positively correlated with environmental indicators (Stern et al. 1999; Stern 2000). Both of these cars serve the same purpose; however, they appeal to consumers with different values, beliefs, and norms. Indeed, many studies have

demonstrated the impacts of values, beliefs, and norms on various environmental behaviors (Stern and Dietz 1994; Stern et al. 1999; Stern 2000; Nilsson et al. 2004; Nordlund and Garvill 2002; Schultz et al. 2005; Aguilar-Luzon et al. 2012).

At the organizational level, these norms affect the decision-making processes and organizational strategies. TMA and GMA include different sets of assumptions on how the world works, and they guide organizations in making decisions and taking actions through these assumptions (Halme 2002). TMA is dominated by an anthropocentric view, which assumes that human beings are separated from nature and they are more worthy than other organisms (Lundmark 2007). Today, many of the modern organizations operate within a system of assumptions, values, and belief that prioritize profitability and unlimited economic growth (Shrivastava 1994). As a result, the main belief of supporters of the TMA is that the prosperity of mankind will be achieved through the maximization of profits. Accordingly, TMA provides a set of values, beliefs, assumptions, and means (strategies, tactics, etc.) which aid organizations for maximizing their profits and ensuring economic growth.

Contrarily, the roots of GMA are taken from the environmental movement. Despite the anthropocentric basis of TMA, GMA considers humankind as a part of the nature. Therefore, organizations have the responsibility of protecting the environment and a harmonious relationship should be established. This value and belief system affects both academia and the business world. Increasing number of periodicals and scientists that are worried about the future of the human race, criticizes the effects of industrialization, and pressuring on governments and firms to be green, shows that this community has common values, beliefs, and norms. Furthermore, many studies empirically demonstrated that the values, beliefs, and moral obligations behind environmental movement affect the practical implications and motivate managers to adopt green management strategies to their companies (Drumwright 1994; Carter et al. 1998; Tzschentke et al. 2008; Babiak and Trendafilova 2011; Wu and Wu 2014). Therefore, we can suggest that GMA has a well-grounded set of metaphysical values, beliefs, assumptions, and norms, which differentiate it from TMA.

5.5 The changing platform of thought

All scientific revolutions and paradigm shifts involve a change of worldview (Kuhn 1962). Despite the profit-oriented understanding of the TMA, GMA directs attention to the global environmental crises, which threatens the world and recommends companies to modify their plans and structures to harmonize with nature while pursuing their own goals. Therefore, while classical business research platforms are based on “profit”, green management research platforms are based on the “natural environment”. In this section, the shift from profit orientation to environment orientation in business literature is questioned.

In business literature, many researchers have increasingly talked about the necessity of integrating the basic principles of environmental management into business strategies. Lee (2009) noted that economic and financial results alone are not sufficient and they need to be accompanied by ecological achievements. This means firms need to leave their traditional way of pure profit and benefit orient and

shift to a new understanding that advocates business ethics, social responsibility and green management (Molina-Azorin et al. 2009). As Azzone and Bertele (1994) noted, the traditional approach, which ignores environmental issues, gives way to a more proactive green approach in businesses. Similarly, Shrivastava (1995) suggests that managers must shift from a profit-centered paradigm to an environmental-risk paradigm. According to him, although managers are only focused on the optimization of profit, productivity, work, and growth, they have also started focusing on the environmental damages of their products, pollution, waste resources, technological dangers, and worker-public health. In addition, many researchers define green management as a win–win strategy for business and environment (Porter 1991; Porter and Van der Linde 1995a, b; Van Hoek 1999; Grant 2007; Zsolnai 2002; Dwyer 2009). Therefore, some clues of a shift from the classical profit-based approach to an environment-based approach can be mentioned.

Despite these developments favoring environmental management, some researchers argued that environmental efforts may increase the cost burden, reduce the competitiveness of companies, and result in a decrease in productivity growth (Christainsen 1981; Walley and Whitehead 1994; Palmer et al. 1995). However, today's market conditions bring GMA's basic principles as an important part of profit maximization and competitive advantage (Porter 1991; Porter and Van der Linde 1995a, b). In other words, corporate environmentalism has become one of the tools of profitability and companies need to be green at least to be competitive. Indeed, in practice, firms have been increasingly adopted the basic principles of green management in their existing profit-based structure rather than shifting GMA (Garrod and Chadwick 1996; Halme 1996; Crane 2000). As Garrod and Chadwick (1996) claimed that although firms have been adopting a number of green management tools, customers and profitability were identified as the most decisive factors affecting business strategies.

Consequently, as it can be observed in business literature and practice, economic, and environmental sustainability are discussed together, and "profit" centrism still exists. The only difference is that companies seek to minimize their environmental impacts for maximizing their profits. Since "profit" centrism still exists in business literature and practice, a sharp transition from profit orientation to environment orientation cannot exactly be mentioned. However, when the TMA, which does not take environmental effects into account, is regarded, it is obvious that there is some sort of environmental advancement.

6 Concluding remarks

The TMA was developed for industrial societies and it is inadequate to meet the requirements of (environmental) risk societies (Shrivastava 1995). Increasing environmental risks began to attract the attention to the profit-oriented business approach and this trend provides further support to GMA in the managerial sense. Today, green management, which considers environmental issues, has become an accepted part of business life (Brown and Karagozlu 1998).

When reviewed in a Kuhnian perspective, GMA seems to have many strengths. Existence of a scientific community with university departments, periodicals, and academicians makes it possible to find solutions to contradict between profit and environment orientations and facilitating the adoption of environmental strategies into business decision-making processes. In addition, the presence of common beliefs, values, and assumptions renders the constitution of GMAs' norms, which motivates academicians and practitioners to support and implement the principles of environmental management. Furthermore, increasing environmental problems which TMA causes and the insufficiency of normal science coping with the global environmental problems cause crises and results with anomalousness. This fact also led to emergence of governmental, intergovernmental, or non-governmental environmental organizations, which compel companies to go green. These mentioned factors empower the GMA.

On the other hand, due to the nature of business, the "profit and benefit" orientation still maintains its importance despite all environmental objections and profit still conserves its core role in business decision-making processes. The only difference is that companies seek to minimize their environmental impacts while maximizing their profits. As a result, the central role of profit strengthens the TMA while weakening the GMA.

At this point, Kuhn's incommensurability thesis should be discussed. In his incommensurability thesis, Kuhn asserted that the paradigm shift is not limited with the revision of an individual theory, but requires some structural differences. Since each paradigm is based on completely new worldviews, there can be no mediation between them and it is not possible to prove or disprove competing paradigms by the rules of the other. As Barnes (1982:65) noted to favor that one paradigm to another is a preference for one form of life to another. That means, researchers (and organizations) have to make a decision whether to base their work on profit maximization (TMA) or on environmental risk and social responsibility (GMA).

However, today's market conditions bring GMA's basic principles as an important part of profit maximization and competitive advantage (Porter 1991; Taylor 1992; Porter and Van der Linde 1995a; McWilliams and Siegel 2001; Srivastava 2007). Therefore, from a business perspective, pure profit orientation is inadequate for gaining competitive advantage and basic principles of GMA should be integrated into business strategies. Today, firms need to adopt corporate social responsibility policies for rewards in the marketplace or responding to the market and nonmarket mechanisms (Baron 1995, 2001). Consequently, businesses have to care about environment at least to be competitive and an integrative approach is necessary which adopts the basic principles of GMA into business strategy. It is clear that this integrative approach is still profit oriented despite all environmental efforts. In connection with the strengthening of GMA's instruments, it is expected that business strategies would be evolved through ecocentric paradigm that promotes blending with the environment.

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