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Research paper

Transformational leadership and performance in the renewable energy sector: analysis essay

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ABSTRACT

This paper investigates the crucial importance that transformational leadership plays in driving performance within the sector of renewable energy. Based on an in-depth analysis, it explores how this dynamic leadership style can inspire innovation, mobilise teams, and create a favourable conditions for sustainable forms of energy to be implemented. It demonstrates how transformational leadership can contribute to operational efficiency, product or service quality, and stakeholder satisfaction within these organisations.

Introduction

The rapid evolution of the global energy landscape has led to a growing interest in companies operating in the renewable energy sector. At the heart of their success, leadership plays an essential role, particularly transformational leadership, which has emerged as a key factor in achieving their goals.In the Kingdom of Morocco, a quiet revolution is underway, one that is transforming its energy landscape, diversifying its energy supply and working towards a more sustainable future. This revolution has a name: the National Renewable Energy Strategy.Since its ambitious launch a few years ago, this Moroccan initiative has attracted worldwide interest for its commitment to clean, renewable energy. At the heart of this energy transformation, Morocco has led the way in governance, innovation and collaboration to deliver major renewable energy projects. These initiatives go beyond simply building solar or wind farms, but have profoundly impacted the way energy sector organisations operate and thrive. Moroccan leaders have adopted a transformational leadership approach, guiding their organisations towards more sustainable energy horizons conducive to growth.In the specific context of renewable energy companies, this leadership style takes on particular significance. It's not just about leading a company to profitability, but also about guiding a fundamental transition to cleaner, more sustainable energy sources, by aligning organisational efforts with principles of environmental responsibility and a vision for the future.The purpose of this report is to conduct a thorough analysis of the National Renewable Energy Strategy in Morocco and to explore how transformational leadership has influenced the performance of the organisations involved in implementing this strategy.

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I. Key concepts

1. Transformational leadership

According to Bass (1999), transformational leadership not only recognises the needs and desires of subordinates, but attempts to develop their needs from low to high maturity. Transformational leadership requires individuals to follow a clear and compelling vision [1].According to Burns (1978) [2] , transformational leadership arises when leaders and subordinates forge productive relationships that boost performance, commitment and morality of both parties (leader and subordinates). This allows subordinates to look beyond self-interest to the collective well-being, and to focus on their ability to foster personal growth and use new intellectual capacities to improve themselves in order to develop anticipation and problem solving. Scientific research on this construct confirms that transformational leadership is associated with positive effects, namely improved organisational performance, commitment, subordinate motivation and organisational innovation (Howell & Avolio, 1993).In this respect, the transformational leader treats and shows each member of his team special attention by using coaching, positive and constructive feedback to increase their self-confidence, commitment and effective involvement at work (individual consideration), the latter being a primordial construct in the leader-subordinate relationship (Bass, 1985).

2. Organisational Performance

Organisational Performance can be defined as the outcome of the organisation in relation to the achievement of goals [3]. According to Kaplan & Norton (1992)[4],Organisational Performance corresponds to the financial and non-financial indicators used to measure the level of achievement of objectives. Ricardo (2001) [5] emphasised that organisational performance is a broader and wider state that could include productivity, coherence, effectiveness and efficiency.These definitions clearly show two important aspects of performance. The first aspect is effectiveness. This aspect is linked to the achievement of objectives. Both long-term and short-term objectives. The more objectives are achieved, the more effective the organisation. The second aspect is efficiency. This aspect is linked to the ratio between the use of resources and the level of achievement of objectives. The lower the ratio, the more effective the organisation.It was therefore decided to interpret the term "organisational performance" as being a mix between the following elements organisational effectiveness and efficiency [6].

3. The practice of leadership transformational and the performance in organisations

As defined by bass and Avolio (1994), Transformational leadership happens when leaders broaden and increase the scope of their subordinates' concerns. Bass and Avolio (1994) have argued that performing the role of transformational leader is the most successful form of leadership. Such leaders encourage their followers to consider perspectives beyond their own limited views, and motivate them to act in ways that transcend their personal aspirations. They possess a range of strengths, such as charm, the capacity to motivate others, the ability to meet individuals' emotional requirements, and the ability to involve them in mental endeavours (Bass & Avolio, 1994). According to Xu and Wang (2008) [7], performance is the outcome of abilities, skills, perceptions and motivation adopted to prescribed actions. The idealised, behavioural charisma of transformational leaders motivates followers to identify with the leader [8]. Sofi and Devanadhen (2015) [9] stated that transformational leadership has a significant impact on organisational performance.The personalised relationship established by a transformational leader develops an environment in which employees feel happy and, as a result, their overall performance improves. It can therefore be said that transformational leadership and organisational performance are positively associated [8].

4. Renewable energies

4.1. Definition

Renewable energies are forms of energy that come from a renewable source, i.e. a source that renews itself quickly enough so that current use has no impact on future availability. They are flow energies because they are permanently regenerated (solar flows, wind, etc.). Renewable energy is often confused with clean energy. However, even if an energy can be both renewable and clean, not all Renewable Energies are necessarily clean. But they generally have little negative impact on the environment. Before the 1990s, Renewable Energies were mainly used to power isolated sites such as mountains, desert and island areas, etc. Following the signing of the Kyoto Protocol, Renewable Energies were conceived as a means of combating global warming.Renewable energy technologies are increasingly being taken into consideration as a means of achieving sustainable development. In Europe and the United States, they are attracting considerable interest, offering economic, social and environmental benefits. The primary sources of sustainable energy are solar power, wind power, hydroelectricity, biomass, and geothermal energy.

4.2. Renewable sources of Energy

The utilization of various renewable energy sources plays a pivotal role in the global transition to sustainable and environmentally friendly energy systems. In this context, solar energy emerges as a prominent source, driven by the sun's profound impact on our planet's climate and energy resources. Solar energy is harnessed through passive techniques, such as using large windows or heat-storing walls, which create optimally thermal efficient passive solar houses. Alternatively, it can be captured and converted into either heat or electricity through photovoltaic (PV) solar energy, low-temperature solar thermal energy used for solar water heaters (SWH), or high-temperature solar thermal energy (CSP technology) for large-scale electricity production. Factors like sunshine duration, direct normal irradiation (DNI), latitude, altitude, and cloud cover are critical considerations when implementing solar systems [10].Wind energy, with a historical background in windmills, has transitioned into a robust electricity generation source. It encompasses low-power domestic wind turbines for individual electricity needs and high-power turbines connected to national grids. Its cost-effectiveness, especially in well-winded sites, is increasingly competitive with fossil fuels, influenced by blade characteristics, generator efficiency, and average wind speeds [10] .Hydropower, akin to wind power, converts natural forces into electrical energy. Instead of wind, it's falling water that drives a turbine connected to an alternator. The primary factors governing electricity generation are the height of the waterfall and the flow rate of water. Hydropower stands as a major contributor to global electricity generation, boasting durability and cost-efficiency compared to more intricate technologies [10].Geothermal energy, with its roots in harnessing Earth's natural heat, provides a consistent source of electricity and heating. Geothermal deposits offer a long lifespan, and geothermal energy facilities produce minimal atmospheric pollution. Furthermore, cogeneration enhances its appeal by simultaneously generating electricity and heat [10]. Biomass is a renewable energy source, provided sustainable woodland management practices are followed. Three main applications of biomass include wood energy, biogas, and biofuels, each offering unique benefits and possibilities for energy generation [10].

5. The place of Solar Energy in Morocco's National Energy Strategy.

In this paper, our analysis will focus on assessing the significance of solar energy in Morocco National Energy Strategy. This thorough analysis will provide us with a greater understanding of the impact of solar energy on Morocco's energy transition , its impact on sustainability, energy security and national independence, as well as the opportunities and challenges that arise in this context. In 2009, Morocco adopted a National Energy Strategy for the transition to a low-carbon energy system, reconciling socio-economic development and environmental objectives. The energy strategy sets five fundamental objectives and is based on five "strategic orientations" [11,12]. The fundamental objectives of this strategy, as expressed in the National Determined

Contribution to the United Nations Framework Convention on Climate Change (UNFCCC), have been interpreted as follows at COP22 in Marrakech [13]:

- Achieve over 50% of installed electrical capacity from renewable sources by 2025, incorporating 20% from solar power, 20% from wind power and 12% from hydroelectricity ;
- To attain a 15% reduction in energy consumption by the year 2030, in comparison to the current trend;
- To reduce by 12% the consumption of energy in the buildings, the industry and the transport sector by 2020 and 15% by 2030.

In terms of mitigation, Morocco's absolute mitigation objective for 2030 is a reduction of 17% in greenhouse gas emissions relative to a business as usual situation . Subject to further funding from the international community, this target could be raised to 42% by 2030. In order to achieve its 2030 targets, Morocco has set up a series of programmes [14] aimed at exploiting its domestic renewable resources, in particular wind and solar energy. Despite high overall solar irradiation of almost 5.6 kWh/m2/day, solar energy has only been exploited as part of the rural electrification programme (photovoltaic kits) to supply remote villages with electricity. From the launch of the rural electrification programme (PERG) in 1996 to the end of 2020 [15] , the PERG has increased the electrification rate to over 99%. The continued success of this project and the full integration of solar energy into the national energy strategy depend largely on strong and visionary transformational leadership. Turning now to the issue of transformational leadership, we will explore how this style of leadership serves as an essential catalyst for the progress and performance of development projects within the country.

6 . Transformational leadership's direct impact on the success of projects

Managerial and human factors are becoming more important than ever in explaining project success. However, scant research has been conducted regarding project managers' conduct (especially their leadership styles) as factors that could potentially enhance project triumph and efficacy (Charbonnier-Voirin & Akremi, 2016). The transformational leadership style has garnered a lot of attention in the scientific community recently [16] . This style is deemed well-suited for the project context [17]. Research has shown that the influence of certain behaviours associated with this type of leadership on project performance (Aga et al., 2016). In addition, there is limited literature addressing third World managers, particularly project coordinators engaged in African development projects (Muriithi & Crawford, 2003). Of the three styles of leadership, namely transformational, transactional and laissez-faire, which together comprise the "full range of leadership theory" [18], transformational leadership remains the most widely used (Yammarino et al., 2005) and is said to produce positive influences. Numerous studies on Leadership suggests that transformational leadership produces the most positive results. Previous research has highlighted its positive effect on performance variables [17]. Essentially, transformational leaders are recognised for their ability to strengthen collective awareness within a team and encourage the achievement of collective goals (García-Morales et al., 2012). Development projects would therefore have a better chance of passing the performance test if they were led by these leaders.

Conclusion

In conclusion, the future of solar energy in Morocco undoubtedly lies in strong, visionary transformational leadership. The advancements achieved so far in the realm of sustainable energy, especially solar energy, provide ample evidence for the claim. The notable progress achieved in the renewable energy sector, notably in solar power, emphasises the critical significance of this leadership style in guaranteeing the triumph of large-scale initiatives. Transformational leadership is characterised by its ability to instil a clear and inspiring vision for the sustainable development of solar energy. It mobilises stakeholders, encouraging them to believe in and commit to the energy transition.So, to realise the full potential of solar energy in Morocco, it is essential to implement transformational leadership in a balanced way, promoting both inspiration and collaboration. This approach will ensure the continued success of solar energy projects, while consolidating Morocco's position as a leader in the global energy transition. Ultimately, this analysis suggests that transformational leadership can play a crucial role in improving the performance of renewable energy

companies, both economically and environmentally. However, to maximise this impact, it is essential to combine transformational leadership with other strategies and to recognise that the external context also plays an important role. The transition to renewable energy is a major global challenge, and transformational leadership can be a powerful tool in addressing it.

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