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Will Sustainability Suffer the Same Fate as Quality Management?

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Abstract

This research compares the cycle of quality as a strategic imperative to what has been going on with sustainability. As a proxy for quality, TQM grew quickly as a way to differentiate a company within an industry, but declined almost as fast. A strategy based on sustainability has grown at nearly the same rate. Does sustainability show any aging as a differentiator and what would be the signs that it did? Data are derived from annual reports, specifically the CEO'S voice in the letter to shareholders, to estimate the popularity of these two recent strategic shifts. It is too early to conclude sustainability as a strategy has peaked but signs similar to the TQM demise are readily evident.

Keywords: Total Quality Management, Sustainability, Strategy.

1. Introduction

The Malcolm Baldrige National Quality Award recognizes a US company's achievement in the pursuit of performance excellence. No large manufacturing company has applied for the Baldrige award since 2012. Does that mean that the field of quality management is dead in US companies? More likely it means that US companies have moved their investment, goals, and strategic directions into other areas.

As a way for a company to create competitive advantage, quality management made its entrance in the United States in about 1980. With the guidance of individuals like Deming and Juran, companies sought quality as a way to differentiate from their US competitors, many of whom suffered from poor reputations for quality. The 1980s saw corporate investment in quality programs grow exponentially, resulting in significant employment opportunities. In academia, textbook revisions reflected the trend, courses were added, and new programs ensued. The quality bandwagon gained steam until the early 1990s, coinciding with the initial Baldrige awards. But soon after, corporate America moved on to something different. Some may refer to this as a fad, others would just say it's the life cycle of a strategic trend, but it's safe to say that making “quality job 1” is nowhere near the strategic force it once was.

The starting point isn't clear, but for some time US companies have been making a green evolution, as in sustainable environmental priorities while guiding an organization. Certainly, sustainability can be as much a strategic direction for a company as quality. The investment is there, employment opportunities are growing, and textbooks are changing while universities advance new academic programs. Does that mean eventually sustainability faces the same demise as quality?

The purpose of this research is to look back at the quality evolution, gauge its life cycle, and propose why American companies moved on. Then we will approach the same analysis for sustainability. Where are we in the life cycle of sustainability as a differentiator? What aspects of sustainability may have already peaked? What would cause sustainability to lose appeal with business leaders?

It's easy to identify that a trend is over well after the peak. As hot as sustainability is right now, the authors aren't predicting its demise. And even a peak in the popularity of sustainability as a business strategy in no way indicates sustainability is no longer important, or that companies have stopped being environmentally conscious. A peak simply indicates some companies are taking their strategies in different directions.

2. Definitions

There are three clear elements of this research that require a strong clarification: competitive strategy, quality, and sustainability. Competitive strategy, referred to as only strategy going forward, is defined as “how we compete in business” (Hambrick, 1980, p. 567). Think of this as how marketing differentiates products or services, and how a company gains competitive advantage within its industry. Generally, strategies don't change too often, as evidenced by the long run quality had.

Strategies are not documented in a public space. Within a firm, the literature is clear that strategies are created by the leaders of the organization and must be communicated to the employees of the organization. Strategies influence investment and decide how the corporation's performance is internally measured. Strategies may change with a change in executive leadership, with organizations failure to execute on a given strategy, or with changes in the marketplace driven by customers, competitors, or technology.

For decades following World War II, American companies commonly strove to achieve price leadership within their industries by driving down costs, typically by driving up volume (economies of scale). Eventually, international trade gave customers more non price-based choices, including the option to pay more for high quality. Those choices took share from American companies, eventually leading some to invest in quality management, initially on the factory floor but quickly growing into all areas of the organization. Those changes commonly became referred to as Total Quality Management (TQM).

It's important to understand the difference between tools and strategies. When companies tried quality circles, Motorola's version of Six Sigma, or quality function deployment, these tactics didn't necessarily change the company's direction. For quality to be a strategy, almost the entire company needs to be directed and measured on achieving quality in all aspects of business. The discussion needs to start at the highest levels of the organization. We will show that quality eventually became less important in business but that doesn't mean it disappears. Excellent quality in products and services is still a common way for a company to differentiate itself from competitors.

Sustainability can be a strategy as well. We can look at the same automobile manufacturers who jumped on quality in the early 1980s and see clear evidence of their move to electronic vehicles right now. As a movement, sustainability has been gaining popularity given the growing concern about a range of challenges facing society. These concerns include consumption pressures arising from population growth and urbanization on food and clean water supplies, natural resource consumption, climate change, growing levels of pollution, and the loss of natural habitats. In theory, the concept of sustainability is increasingly seen as offering a potential solution to these problems. The terms sustainability and sustainable development began to receive much more widespread attention following the publication of the World Conservation Strategy (International Union for Conservation of Nature and Natural Resources, 1980).

However, sustainability is difficult to define as the concept evolves. Similar to other concepts like democracy and globalization, sustainability is one of the most ubiquitous, contested and indispensable concepts of our time (Tavanti, 2010). The most common definition of sustainability is one from the area of sustainable development provided by the World Commission on Environment and Development, also known as the Brundtland Report (United Nations, 1987) that states:

"Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (p. 43)

The concept of sustainability has gained corporate acceptance over recent times given the fact that companies are increasingly acknowledging sustainability as one of the emerging drivers of competition and as a source of opportunity for long term competitive advantage. Given the increase in corporate attention to sustainability, there has been a growing volume of business and management research. While much of the early work had a strong environmental emphasis, more recent work addresses corporate strategy, supply chain management, marketing, leadership, human resource management, and management information systems.

3. Research Methodology

An exact method to quantify the number of companies executing a particular strategy doesn't exist. Strategies are not reported to the government, recorded in some third-party data source, or commonly communicated on the company's webpage. We know that companies who strictly follow a strategy outperform those who don't, and we know companies need to internally communicate the strategy in order to achieve objectives. Similar to others (Bowman, 1984, Nadkarni & Barr, 2008, Duta, 2018), our process assumes the statements made and written by CEOs and other executive leaders reflect the company's strategy.

The Letter to Shareholders (LTS) comes from the CEO or other executive leader of the company and precedes the yearly audited 10-K financial statements, made available to shareholders. Not all CEO's take the effort to create the letter, but larger companies with wide ownership usually do. Bartlett & Chandler (1997) found that the letter is the most read portion on the annual report and Gohr (2002) found the LTS to be the primary means for CEO's to communicate with stakeholders. The style and contents of the LTS vary by company and executive leadership, with some reports including both the letter and very graphic, colourful, and visual addendums. If present in the annual report, we included such addendums in the analysis, as they embody the leader's message.

How does the LTS measure strategic intent? Diffenbach & Higgins (1987) found a link between annual reports and company strategy. Another way used to assess strategy was through direct CEO interviews, yet Nadkarni & Narayanan (2007) "found significant convergence in senior executives' responses and frequency of concepts" (p.253) between the letter and interviews. As the LTS changed from year to year, Namenworth & Weber (1990) identified a change in topics in the letter suggested a change in focus (strategy) for the company. Letters also indicated past and present investment (Lee & Tweedie, 1981), which directly correlates with strategy.

With the LTS, we employed a historiometric method, analysing the content on a wide range of company annual reports over a prolonged period of time. The objective was to find how popular (through frequency) either TQM or sustainability strategies were, estimating an adoption curve. Similar to the processes developed by Bettman & Weitz (1983), Kohut & Segars (1992), and McClelland et al. (2010), we assumed a count of finding related phrases to either TQM or sustainability from a large collection of annual reports to represent their use as a strategy. Between the years 1980 and 2000, ProQuest has 7,658 annual reports representing at least 500 US companies. We assume the phrase Total Quality Management in the LTS means the company differentiated within its industry based on higher-quality. As was done by Matinez-Lorente et al. (1998), the similar phrases "total quality" and "quality management" were included as wildcards of TQM. Our use of the database revealed a search for the word "quality" led to many connotations not dealing with strategy. As an extremely popular quality program, TQM reflects a company-wide effort as opposed to a department-wide initiative. Using TQM as opposed to quality has also been the practice in several academic literature reviews of the field (Osayawe & McAndrew, 2005 and Ponzi & Koenig, 2002).

4. TQM

Feigenbaum first forwarded the idea of total quality through the company in the third edition of Total Quality Control (Feigenbaum, 1961). The concept was simple, for a company to truly be effective at achieving quality in the eyes of the customers, the quality improvements must come from all functions of the company, with a total emphasis on customer satisfaction. Often companies making the move to improve quality limited their focus to operations, only for customers' experience to be tainted by sales, engineering, marketing or any other area in the company dropping the ball.

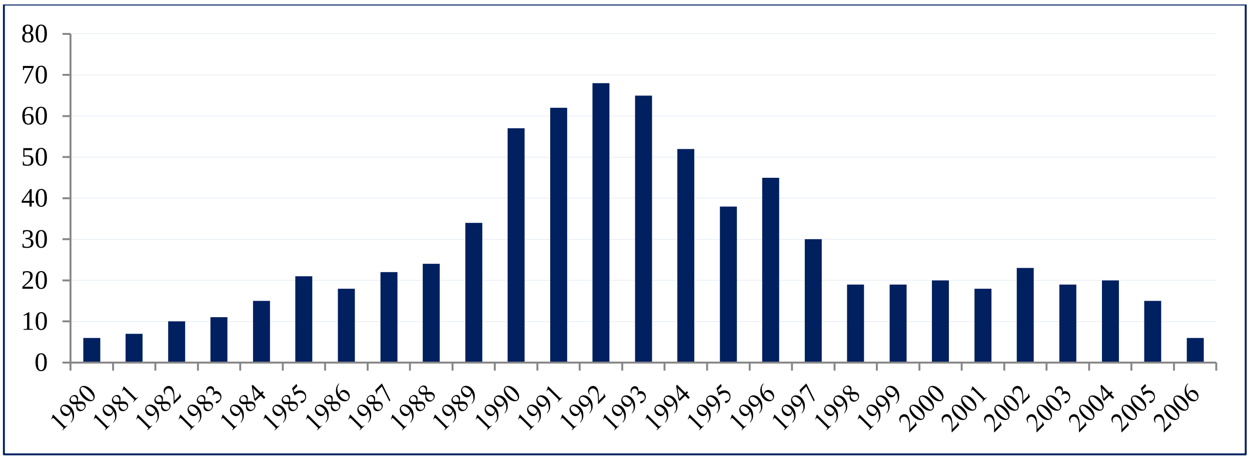

Figure 1. Use of TQM Terms in LTS

Figure 1 shows the number of US companies who mentioned TQM in their letter to shareholders between years 1980 and 2006. US companies dominated ProQuest entries, so the very small portion of other annual reports were excluded to improve validity. Mentions before 1980 or after 2006 were negligible and inconsistent. The bell-shaped curve, slightly skewed to the right, coincides with what might be viewed as the popularity of any fad, although quite long. The peak occurs in 1992, about the same time as Baldrige applications peak, in 1991. The rapid growth early is modelled in the Discussion section.

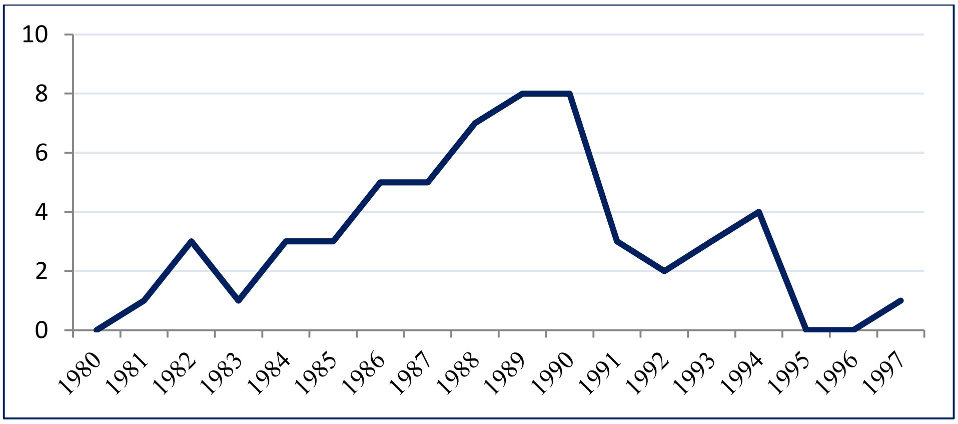

Figure 2. GM LTS Mentions of Quality

To assess the content of LTS as related to TQM, we studied the annual reports of one company greatly impacted by the quality movement, General Motors. GM was late to quality, significantly lagging Japanese automotive manufacturers and even their major domestic competitor Ford. Yet General Motors' Cadillac division applied for and won a Baldrige award in 1990, an indication that quality was important to its leaders. The LTS were examined for any reference to quality, not just the phrase total quality management. As can be seen in Figure 2, the references grew in number until a peak in 1989 and 1990. As you read through the letters in those early years, the first mention of anything related to quality moved from about halfway through the letter in 1981, to the first paragraph by 1983, and pushed to the last paragraph in 1997. This occurred while GM changed CEOs three times. While quality became less important in GM's LTS, there is subsequent evidence that GM neglected quality (Graham, 2018). As an example, they suffered tremendously from ignition problems on cars made between 2000 and 2004, first discovered in 2005 but concealed and not recalled until 2014. Their resolution process was anything but what quality leaders would have recommended.

Why did US companies lose interest in TQM? There are no definitive answers but many possible explanations (Dory & Schier, 2002). W. Edwards Deming died in 1993, and with that the scion of Quality across many countries left the movement. Deming was survived by many Deming masters of his principles, but none carried the same respect. US companies had trouble extending quality practices beyond the factory floor (Leonard, 1988), a guiding principle of TQM. Late adopters of TQM didn't experience the magnitude of improvements early adopters achieved (Jacob, 1993) and existing TQM companies realized diminishing returns in their quality investment (Cole, 1998).

A recession in 1990-91 had significant impacts on the manufacturing industry, a heavy adopter of TQM (Gardner, 1994). As cost-cutting took hold in manufacturing companies post-recession, continued investment in quality management may have suffered. Broad TQM programs and even small quality enhancements improved productivity and lowered manufacturing costs in the 1980's, so most of the quick quality fixes were achieved by the time of the recession. Manufacturing companies began looking toward supply chains as that next opportunity to cut costs.

The mid 1990s saw generational changes in business opportunities. The China market opened as both a customer and supplier. Companies began to sell through the Internet, which required significant resources to develop that channel. As part of that investment, we moved from mainframe based computing to client/server, requiring massive purchases of personal computers and the software to use them. Along with that came expensive wholesale software transitions from legacy MRP systems to ERP. Based on data from the U.S. Bureau of Economic Analysis (Gardner, 1994), investment expenditures for these technology-related areas accounted for over one third of total business fixed investment. Thus, in a cash-strapped time for companies, TQM lost out to other opportunities.

Of course, something better could've come along. At some point in time, industries like autos became saturated with companies playing the same quality game. To Porter & Millar (1985), the concept of differentiation didn't mean the strategic advantage was commoditized by many companies in the same industry, and no form of differentiation is sustainable (D'Aveni, 1995). Certainly improved quality may have been accomplished by so many companies that it became an order qualifier instead of an order winner (Hill, 2000).

Search term usage could limit these findings. As TQM matured, other quality programs arrived. Many would associate Business Process Reengineering, Six Sigma, and Continuous Improvement with the quality movement, but we considered these tactics, not strategies. It's certainly possible these phrases found their way into LTS but we believed including every quality tool in the search process would confound results.

5. Sustainability

We define a sustainability strategy as differentiating products or services or processes to minimize the negative impacts of its operations on the environment. Tom's of Maine would be an early example of a company that pursued this approach. Tom's only uses ingredients that are natural and whose production does not damage the environment. The founders of Tom's made this their intent since 1970 and it has been maintained even after Colgate-Palmolive's purchase of Tom's in 2006. Starbucks and Patagonia are current examples where differentiation on dimensions of sustainability also drives strategy.

sustainable manufacturing	green manufacturing
carbon footprint	life cycle analysis
sustainable product*	green products*
triple bottom line	environmentally friendly
green strategy	sustainable* strategy
green supply chain*	sustainable supply chain*
sustainable* drivers	green drivers
Leadership in Energy and Environmental	Carbon offset*

Table 1. Search Terms for Sustainability Strategies

The word sustainability can have many business uses. To find references in the LTS that indicated the use of environmental or sustainable strategies, we borrowed search words from Seuring and Muller (2008) and Bocken et.al. (2014). These can be found in Table 1 and include wildcard variations. To ensure a major search word wasn't missed, we read three dozen LTS from six companies, with the requirement that these expressions describe a strategic action or accomplishment. That resulted in no additional search terms. Following the search method for measuring a TQM strategy, the ProQuest database for annual reports provided the primary source of information.

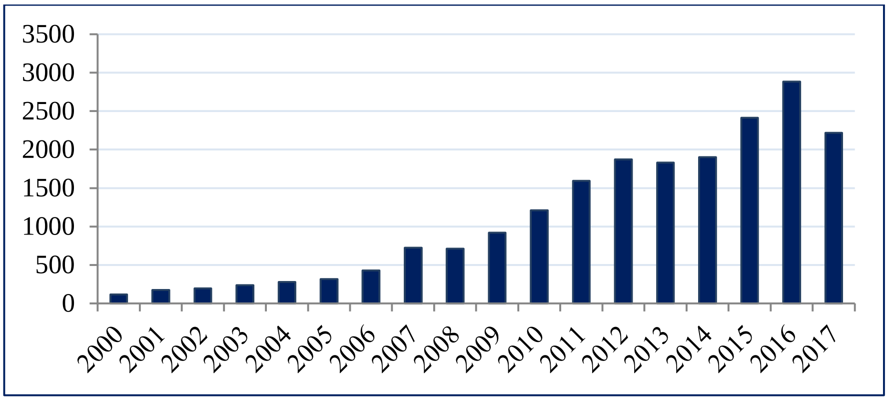

Figure 3. Use of Sustainability Terms in LTS

Figure 3 captures our understanding of the popularity from 2000 – 2017. This database also has annual reports in 2018, but the sample to choose from is significantly smaller than 2017. Not having a sufficiency of data from 2018-2020 made finding a peak very difficult, so the 2016 peak evidence in our histogram cannot be fully verified. Clearly the frequency of observations varied from the TQM study to the sustainability study because the sample size of annual reports in the 1980s was much smaller than those most currently available. The adoption rates of TQM and sustainability are shown in Figure 5.

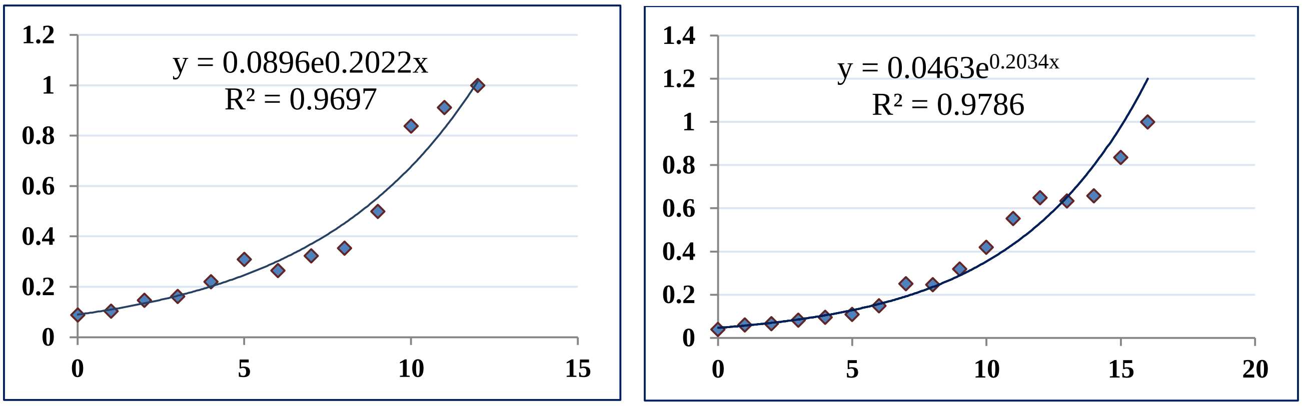

Figure 5. Exponential Growth in TQM and Sustainability

To assess what might be happening in the last three years, Colgate-Palmolive, known for sustainability efforts, was explored in more detail. For example, Figure 4 displays the number of statements relating to strategies of

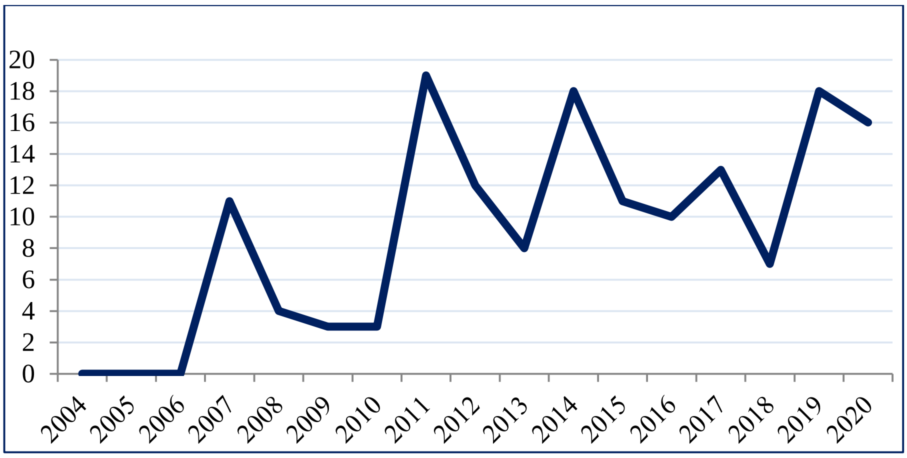

Figure 4. Colgate LTS Mentions of Sustainability

sustainability for Colgate-Palmolive over the last 18 years. This was conducted in the same way as the General Motors analysis of quality. Not coincidentally, references to sustainability began this period near the end of the CEOs letter, peaked in 2011 while moving up in the letter, and have remained high since then. Also of interest, phraseology changed in the letters, for example "sustainability" appeared frequently since 2011 as "environment" almost disappeared, until this past year. The CEO role changed twice during this timeframe, but the LTS varied little with the changes.

6. Discussion

Has Sustainability peaked as a competitive strategy? The evidence is certainly not conclusive but we can draw parallels to what happened with TQM. Similar to 1991, we had a quick but deep recession last year, but this time services we far more impacted than manufacturing. With this strong recovery, we may not see the cost-cutting phase of past recessions. In fact, heavy government stimulus has backstopped corporate losses and limited bankruptcies normally associated with recessions. One year past the economic bottom, expected annual gross domestic product growth in the US is forecasted to exceed any period since 1984. There should be no shortage of corporate funds to invest in sustainability objectives.

Anecdotally, several 2020 LTS reflect an increased emphasis on employee safety, workplace diversity, and digital transformation. Through April 27, 2021, EDGAR (SEC.gov) shows annual increases of 323% in the use of "employee safety", 71% in the use of "diversity", and 60% in the use of "digital transformation" in annual reports. This was not an equivalent approach to the study of LTS done for quality and sustainability terms prior, as EDGAR searches only the audited statements of the 10-K and includes all US companies. None of these three new terms are indicative of a competitive strategy, but the current trends could reflect a change in direction for US corporations.

Like every major US auto manufacturer improved their quality during the TQM movement, nearly every manufacturer has invested in electrification of future models, with ten worldwide automakers promising to go all electric in the coming years. Competing by creating sustainable products is not the same as creating a sustainable operation, but customers see the product not the process. If plans are followed through, certainly a challenge in the history of automotive production, we could soon see a saturation of sustainability strategies in this industry.

And finally we found the shift in terminology created the decline of TQM as a competitive weapon. The terms most commonly seen as the contemporary replacements of sustainability are Corporate Social Responsibility (CSR) and Environmental, Social, and Governance (ESG). CSR is aimed at corporate efforts toward being more socially responsible to stakeholders, and ultimately being a better corporate citizen. ESG was developed in a 2004 report by 20 financial institutions in response to a call from Kofi Anon, Secretary-General of the United Nations. As it implies, ESG refers to how corporations and investors integrate environmental, social and governance concerns into their business models.

One difference between the two terms is that ESG includes governance explicitly and CSR includes governance issues indirectly as they relate to environmental and social considerations. Thus, ESG tends to be a more expansive terminology than CSR (Gillan et al., 2021). Another view states that CSR was a motto for sustainable business practices that, over time, became outdated and ended up as a marketing tool allowing businesses to make symbolic gestures. However, ESG contains three categories that enable businesses to measure the sustainable and societal impact of their outputs (Matyjaszek, 2020).

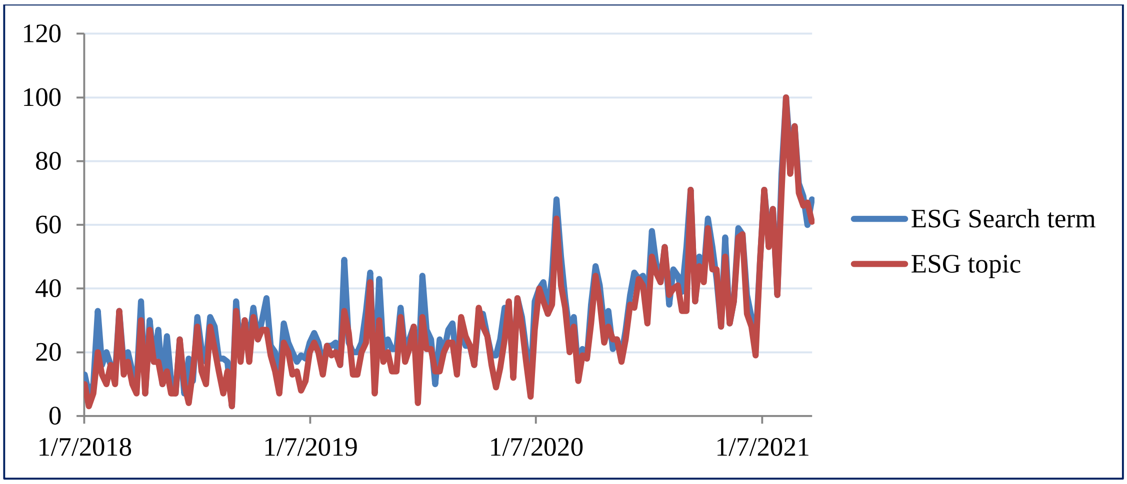

Figure 6. Google Trends for ESG 2018-2021

ESG appears to be gaining in popularity as a challenge to the term sustainability. Figure 6 displays the growth of ESG using Google Trends over the last three years, both for the term and the topic. Google Trends calculates an index which relates how popular a search is in the universe of searches over time. Strategies reflect a focus, a way to differentiate your company within an industry. Whether ESG can be considered a strategy is a debate for future research, but the assessment of ESG performance within companies lacks consistency. As Dimson et al. (2020)

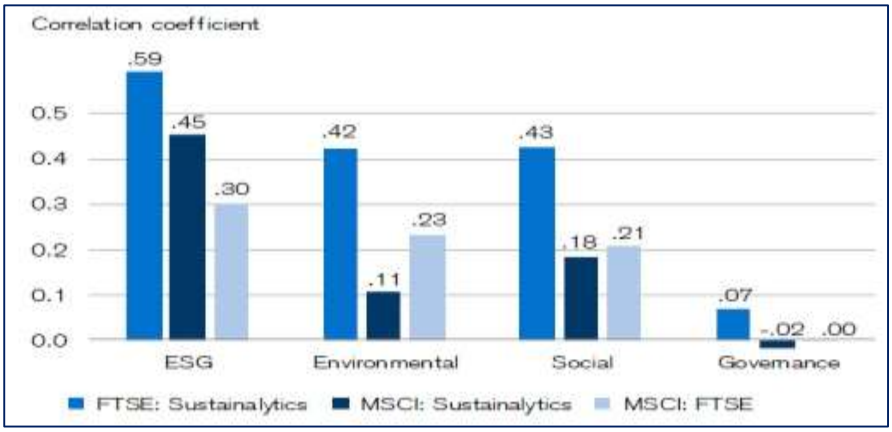

Figure 7. ESG Correlations Between Ratings

demonstrate in Figure 7, three leading rating companies (MSCI, FTSE Russell, and Sustainalytics) provide very low pairwise correlations of ESG measures. If detailed analyses by experts lead to confusion, ESG's use as a strategy is likely to be unsuccessful as well.

7. Conclusion

Is sustainability a sustainable competitive advantage? Even sustainable competitive advantages come to an end. Even though we have not found enough evidence to conclude that its end is near, there are signs the peak has arrived. Early signs of less executive discussion in the LTS, other distractions surfacing in the most recent round of annual reports, rampant imitation of sustainability strategies with industries, and alternative terminology appearing to water down the core concept all threaten the momentum of differentiating on sustainability.

The movement away from quality as a primary differentiator may have precipitated some destructive events attributed to poor manufacturing and design processes. Companies moving away from an emphasis on sustainability could portend something much worse.

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