

## Enhancing Economic Sustainability through Green Innovation: A Focus on Multinational Companies in South-West Nigeria

**Nkemjika Bernardine Nwagu**  
Entrepreneurship Department  
Faculty of Management Science  
University of Benin  
[bernadin.nwagu@uniben.edu](mailto:bernadin.nwagu@uniben.edu)

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### **Abstract**

*Enhancing economic sustainability through green innovation involves developing waste management skills, leveraging waste as inputs for other businesses, and gathering customer feedback for enhanced loyalty. This study sheds light on how multinational companies can improve their environmental footprint and resource efficiency through sustainable practices and innovation. A self-designed questionnaire derived from a comprehensive body of literature was used to gather data from 370 individuals working for multinational corporations in south-western Nigeria. The study employed correlational design methodologies to investigate the correlation between the economic sustainability of the chosen firm and green innovation, which encompasses product, process, marketing, and organisational innovation. Regression analysis was used in addition to descriptive statistics (frequency, percentages, mean, and standard deviation) to analyse the data. Findings from the study revealed that Green Product, Process, Marketing, and Organizational Innovations collectively accounted for 57% of variations in Economic Sustainability among fast-moving consumer goods firms, with a significant F-value of 75.582. Green Product Innovation positively impacted Economic Sustainability ( $\beta = 0.372$ ), while Green Process Innovation had a negative effect ( $\beta = -0.310$ ). Green Marketing Innovation positively influenced Economic Sustainability ( $\beta = 0.204$ ), while Organizational Innovation had a negative impact ( $\beta = -0.471$ ). These results highlight the complex interplay between different types of innovation and economic sustainability in this sector. The study recommended for multinational companies to prioritize waste management skills to bolster economic sustainability, while also raising awareness about the potential of waste as inputs for other businesses. Moreover, leveraging customer feedback can enhance loyalty and competitive positioning.*

**Key words:** *Product innovation, Process innovation, marketing innovation. Organisation innovation, Economic sustainability.*

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## Introduction

In recent years, the global discourse on sustainable development has increasingly emphasized the importance of integrating environmental considerations into economic activities. This shift towards sustainability is particularly pertinent in regions like South-West Nigeria, where rapid industrialization and urbanization have placed significant pressure on natural resources and ecosystems. Against this backdrop, the role of multinational companies (MNCs) becomes crucial, as they often wield substantial influence over the socio-economic landscape of the regions in which they operate.

Nigeria, as Africa's most populous nation and one of its largest economies, faces numerous environmental challenges stemming from industrial growth and urban expansion. The South-West region, encompassing states such as Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti, serves as a focal point for economic activities, housing a considerable number of MNCs across various sectors including manufacturing, energy, and telecommunications. While these companies contribute significantly to the region's economic development through job creation, infrastructure investment, and revenue generation, their operations also have environmental implications such as pollution, resource depletion, and habitat degradation.

Recognizing the urgent need to balance economic growth with environmental protection, there is a growing interest in promoting green innovation among MNCs operating in South-West Nigeria. Green innovation refers to the development and adoption of technologies, practices, and business models that reduce environmental impact while simultaneously enhancing competitiveness and profitability. By integrating principles of sustainability into their operations, MNCs can not only mitigate negative environmental externalities but also unlock new opportunities for growth and differentiation in the market.

Multinational corporations (MNCs) firms frequently cross borders to grow into other countries, with their headquarters in one country and branches in other countries, to compete in their respective business industries (Hsu, Hu, Wei & Huang., 2014). MNCs have a significant economic impact since they are the engines of global economic expansion, technology transfer, and expanding globalisation (Hsu et al., 2014). These business organisations confront greater multipoint or hyper rivalry as they extend beyond geographical and economic borders to exploit arbitrages and discover and profit from variations in dynamic location (Hottenrott, Rexhauser, & Veugelers, 2016). They are multinationals because they have expanded inside their local corporate structure and by establishing new subsidiaries and purchasing branches through mergers and acquisitions. This has been made possible by technical innovation, rapid globalisation, deregulation, and the removal of limitations, all of which have resulted in enormous structural changes worldwide (Hottenrott et al., 2016).

In most cases, MNCs are required to enhance the quality of their products and services faster than their competitors to remain in today's competitive business climate. Organisational sustainability is critical in this environment for continuous improvement in the quality of products and services (Kaman, Ibrahim, Othman, & Andalib, 2016). In other words, organisational sustainability is a significant determinant of an organisation's profitability. In essence, sustainability is a critical component of every organisation whose mission is to optimise resource use.

The sustainability of an organisation is concerned with the most efficient use of resources consumed to complete a job or create goods and services (Marra, Antonelli, & Pozzi, 2017). It focuses on the procedures, rules, and strategies necessary to ensure that finite resources are used efficiently through ongoing cost reduction. Developing sustainability advantages through cost management improves an organisation's sustainability (Jovita, Chibuzor, & Onyemachi, 2019). For several decades, green and environmentally friendly practices have been regarded as a well-established method for organisational sustainability, particularly in terms of cost-efficiency associated with manufacturing operations (Yousaf, *et al*, 2022).

Green practices stem from a growing awareness of environmental issues, which include the use of fossil fuels, improper waste disposal from paper, nylon products, and chemicals, the depletion of natural resources and deterioration of environmental quality as a result of pollution, and mismanagement of human, material, and financial resources (Mittlefehldt, 2018). The term "green" in corporate operations dates to the late twentieth century in response to growing public concern about the sustainability of economic development. Its modern origins date back to the middle of the 1960s when business/managers saw the need to adapt to "greening" trends and incorporate them into their philosophy and practices, coining the phrase "green management" in the process (Yousaf, *et al*, 2022). It incorporates innovative operational processes, product and material sourcing, labour practices, shipping techniques, and the use of renewable resources and accountability for the human resource component of their activities.

In today's highly competitive world, economic success increasingly rests on one's capacity to innovate and create. As a result of the emergence of a global information economy, innovation became a critical component of business sustainability (Radu, 2016). There are several sorts of innovation, but this research is particularly interested in green innovation. Green innovation is a subcategory of general innovation that enhances environmental quality or the most efficient use of natural resources inside a business (Kosimov, Alimbekova, Aruväli, & Kongi., 2021). According to Kosimov *et al.* (2021), the notion of "green innovation" is a strategy that enables businesses to rearrange their operations by incorporating green principles into their business processes (Ritala, Huotari, Bocken, Albareda, & Puumalainen., 2018). Green innovation is the subset of innovation that emphasises environmental stewardship.

The research on enhancing economic sustainability through green innovation within multinational companies (MNCs) operating in South-West Nigeria faces several key problems warranting investigation. Firstly, there is a lack of comprehensive understanding regarding the current level of green innovation adoption among MNCs in the region. This includes an assessment of the extent to which MNCs are integrating environmentally sustainable practices into their operations, as well as the factors influencing their decision-making processes.

Secondly, there is a need to identify the specific challenges and barriers hindering the widespread adoption of green innovation within MNCs in South-West Nigeria. These barriers may include regulatory constraints, financial considerations, technological limitations, organizational culture, and market dynamics. Understanding these impediments is essential for devising effective strategies to overcome them and promote a culture of sustainability within MNCs.

Additionally, there is a dearth of empirical research examining the tangible economic benefits and returns associated with green innovation initiatives among MNCs in the region. Assessing the economic viability and performance implications of such initiatives is crucial for convincing

MNCs of the business case for sustainability and encouraging greater investment in green innovation. Overall, addressing these research problems will contribute to advancing knowledge on the intersection of economic sustainability, green innovation, and multinational corporate practices in the context of South-West Nigeria. This study aims to explore the current landscape of green innovation practices among MNCs in South-West Nigeria and assess their impact on economic sustainability.

### **Aim of the study**

The study aim is to examine how green innovation affect multinational firms' economic sustainability in South-West Nigeria.

### **Objectives of the study**

The study objectives are to examine

- i. How green product contribute economic sustainability
- ii. The relationship between green process and economic sustainability
- iii. The impact of green marketing on economic sustainability
- iv. The impact of organisational innovation on economic sustainability

### **Hypothesis**

Ho : There is no significant relationship between green product, green process, green marketing and organisation innovation on economic sustainability of multinational firms'

### **Theoretical perspective**

Environmental sustainability is about protecting the environment and natural resources for future generations. This includes things like reducing pollution, conserving energy, and protecting biodiversity. Products or services that are environmentally friendly may lead to green or eco-innovation (Mushtaq and Rupasinghe, 2021). Green innovation is becoming increasingly important to the strategic decision-making and commercial management of companies in this era of environmental preservation (Bibri, 2020). It can be defined as the development of new technology for pollution prevention, waste management and recycling as well as energy conservation and green practices in the workplace (Dillard, Dujon, and King, 2008).

It's becoming increasingly important for businesses to focus on environmental sustainability while developing new green products and services designed to meet customer needs (Choi and Ng, 2011). Organizational environmental strategies that have a good influence on the environment, increase green innovation practices, and also give firms with an added competitive edge are becoming increasingly important to scholars (Toniolo et al., 2020).

Both commercial and economic benefits accrue to companies when they use environmentally friendly solutions (Toniolo et al., 2019). Profits can be gained by making environmentally friendly products, but they can also be gained through competitive advantage (Dillard, Dujon, and King, 2008). A growing number of societies are putting pressure on businesses to use sustainable practices in order to reduce their impact on the environment (Kim, 2018). Environmental concerns are also growing as a result of dwindling natural resources and rising global temperatures, which means that companies are able to gain a competitive advantage by adopting environmentally friendly production processes at their facilities (Mushtaq and Rupasinghe, 2021).

Medium-sized companies outperform small ones when it comes to green practices, according to (Choi and Ng, 2011). However, huge companies are the pioneers that are driving the eco sustainability goals. Due to government and societal pressure, companies begin adopting environmentally friendly practices, which they eventually include into their strategic planning in order to gain competitive advantage (Bibri, 2020).

The study identifies two theories which are relevant to the study. Schumpeterian theory and the Continuous improvement theory is the anchor of the study

a. Continuous Improvement Theory

The study revolves around the principle of continuous improvement, which posits that businesses consistently seek innovative solutions to challenges. This perpetual pursuit of better practices fosters the evolution of goods, services, and organizational processes, enhancing competitiveness and productivity over time. Originally applied to production to minimize waste, the concept now extends to knowledge-based systems, aiming to streamline processes and optimize intangible resources. Collaboration, for instance, stands out as a potent tool for enhancing the quality and efficiency of end products.

The authors refrain from quantifying reductions or articulating the economic benefits associated with each continuous improvement strategy. However, they underscore the potential benefits that these strategies offer. As Adams (2008) notes, these methods have been in use since the 1950s and have the capacity to facilitate incremental yet impactful changes that enhance profitability, efficiency, and societal impact. Arndt (200) emphasizes the practicality of these methods, highlighting their ability to leverage empirical data for analyzing challenges and boosting business efficiency. Hall (1993) views continuous improvement strategies as a systematic approach for enhancing business efficiency even with limited resources. Labanowski (1997) exemplifies how manufacturing processes have utilized these strategies to enhance production efficiency, reduce waste and inventory levels, and enhance overall operational capacity.

van Vuuren, et al. (2015) delved into the challenges faced by an enterprise grappling with prolonged delivery times, influenced by various factors. Meanwhile, Schiele and McCue (2011) champion the adoption of continuous improvement strategies to elevate business efficiency, presenting avenues for enhancing customer loyalty, cost savings, and fostering collaborative teamwork. Echoing this sentiment, Irajpour et al. (2014) also advocate for the transformative potential of these strategies.

Enterprises neglecting to embrace continuous improvement strategies forego the manifold benefits they offer. As highlighted by Arvelo (1995), continuous improvement serves as a systematic approach for discerning value-added processes and eliminating non-value-added operations, ultimately bolstering a company's productivity.

Carpinetti et al. (2003) underscore that continuous improvement strategies are geared towards consistently meeting consumer expectations in terms of quality, distribution, and service. Meanwhile, Holtskog (2013) posits that continuous improvement serves as enduring strategy that, when integrated into improvement plans, sustains the competitiveness of supply chains. Similarly, Jonsdottir (2023) examines how companies leveraging continuous improvement strategies

effectively address consumer needs and satisfaction, thereby enhancing their reputation among consumers and competitors alike.

It's noteworthy that the implementation of most continuous improvement strategies primarily demands labor and time investments rather than substantial financial resources.

This study embraced the model because it elucidates the pivotal role of green innovation in shaping firms' operational dynamics and competitive edge. The theory delineates the imperative for innovations across product, process, organizational, and marketing realms to bolster enterprise efficiency while continuously elevating supply chain competitiveness and meeting heightened customer expectations in distribution, quality, and service.

#### b. Schumpeterian Theory of Innovation and Entrepreneurship

The theory is part of Joseph Schumpeter's innovation-based endogenous growth models, a well-known twentieth-century economist (Azar and Ciabuschi, 2017). Entrepreneurship and innovation play an important role in economic progress, according to the notion. The theory holds that economies and markets are in a constant state of flux. The entrepreneur is the embodiment of change and growth in today's fast-moving economic climate. To summarize, Schumpeter says entrepreneurs are innovators and change makers (Schumpeter, 1911) cited in Haberler, (1951). Innovation and entrepreneurship are critical for economic success in a dynamic environment (Śledzik, 2013). When it comes to innovation, entrepreneurship is all about bringing together new elements of production in order to create discontinuous and radical change, which is the foundation of economic growth.

Schumpeter elucidates that innovation encompasses various facets, including the introduction of novel products or enhancements to existing ones, the adoption of fresh manufacturing methodologies, the exploration of untapped market segments, the utilization of alternative sources for supply or raw materials, and the emergence of new industry structures (Salter and McKelvey, 2016). When it comes to the process of industrial transformation, he sees innovation as a "creative destruction," which is the process by which innovation transforms the structure of the economy. Entrepreneurs, according to the belief, are the ones that invent new products and services, which in turn lead to economic growth. Entrepreneurs are in charge of repurposing already-existing assets and devising novel ways to put them to use. Entrepreneurship, according to Schumpeter, is one of the unique aspects that contribute to economic transformation. To put it another way, restructuring a sector or opening up a new supply of raw materials or a market for finished goods is how entrepreneurs alter the mode of production (Sweezy, 1943).

To generate income, the "creative destruction" process involves the introduction of new products or services that cause existing businesses to shift their resources to new market structures, while simultaneously allowing new businesses to arise (Dodgson, 2011). Entrepreneurs utilize innovation as a specific technique to develop new opportunities for a new product or service. Innovation, according to this view, is a means of gaining an advantage over one's competitors through developing new products and methods.

Innovation is the primary driver of company growth in terms of both earnings and capital. According to Schumpeter, innovation extends beyond the realm of new products and services. He

contends that innovation encompasses the development of novel methods or processes, the integration of existing methods to create innovative products and services, the repurposing of available resources or materials to generate new products, and the adaptation to emerging technologies (Sweezy, 1943). Entrepreneurial innovation, according to Schumpeter, is necessary for profit-seeking organizations. It was his belief that innovation was a key driver of business success and economic growth (Dodgson, 2011).

According to Schumpeter's theory, entrepreneurship and innovation are crucial to competitiveness, which in turn leads to economic growth. Entrepreneurs who innovate and lead to the process of creative destruction that creates value are essential for economic development. Research into various sorts of value-creating innovation is also aided by this notion (Dodgson, 2011). Innovativeness is the foundation of competitiveness and long-term economic growth, according to Schumpeterian theory.

### **Methodology**

The study adopted a correlational design. Correlational design is a research method used to examine the relationship between two or more variables. It focuses on measuring the degree to which changes in one variable correspond to changes in another (Creswell, 2017). This design helps identify patterns and associations but does not imply causation between variables. The study covered employees of multinational companies in Lagos, Nigeria. According to the Nigerian exchange group (NGX) (March 2023), there are currently 156 multinational companies among which are 21 consumer goods companies operating in South-West Nigeria.

The total sample size, calculated using the Raosoft sample size estimator with an anticipated 5% margin of error and 95% confidence level, is 370. Employing a simple random sampling technique, the distribution of research instruments to respondents from each chosen firm was determined. The researcher utilized this method to statistically gauge a subset of individuals randomly selected from a larger population, aiming to derive insights representative of the entire group .

Meanwhile, the research instruments were distributed to respondents using the simple proportionate sample technique. The questionnaire underwent meticulous design informed by an extensive literature review. It comprised two sections: Section A gathered respondents' personal information, while Section B assessed their perceptions regarding green innovation (including green product, process, marketing, and organizational innovation) and economic sustainability. A 5-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree" was employed. To ensure validity and reliability, a pilot test involving twenty respondents from private manufacturing firms in Lagos State was conducted. The instrument's reliability was assessed using the Alpha-Cronbach test, yielding an overall reliability coefficient of 0.76, with a mean of 3.50 achieved. Thus, the instruments were deemed reliable. Data analysis was conducted using IBM-SPSS 23, presenting descriptive statistics such as frequency counts, percentages, mean, and standard deviation, alongside inferential statistics including linear regression analysis. Hypotheses were tested at a 5% significance level.

### **Results**

Demographic characteristics of the participants

Among the 345 total workers, 193 are male (55.9%) and 152 are female (44.1%), reflecting a balanced gender distribution with a slight male majority. In the top management cadre, 42 workers (12.1%) hold key decision-making roles. Middle management includes 193 workers (55.9%), and low management comprises 110 workers (31.8%).

In the age group 20-30, there are 38 workers (11%), indicating a youthful workforce. Age group 31-40 has 134 workers (38.8%), suggesting a significant mid-career presence. The 41-50 age group comprises 143 workers (41.4%), showcasing experienced individuals. Those aged 51 and above are 30 workers (8.7%), likely senior employees nearing retirement.

Regarding work experience, 36 workers (10.4%) have 1-5 years, indicating early career stages. The largest group, with 141 workers (40.8%), has 6-10 years of experience, showing moderate expertise. 11-20 years' experience includes 133 workers (38.5%), signifying a mature career stage. Lastly, 35 workers (10.1%) have 21+ years of experience.

#### Hypothesis testing

This examine the effect of green innovations (green product innovation, green process innovation, green marketing innovation and organizational innovation) on the Multinational Firm's Economic Sustainability. The data collected was empirically analyzed using regression.

**Table 1 - Model Summary**

Model	R Square	Adjusted Square	Std. Error of the Estimate	ANOVA Sig
1	.583	.573	.37242	.000

**Table 2 - ANOVA**

Model	Sum of Squares	DF	Mean Square	F	Sig
Regression	73.536	4	17.384	75.582	.000 <sup>a</sup>
Residual	78.603	341	.230		
Total	<b>152.139</b>	345			

**a. Predictors: (constant), Green product, Green process, Green marketing, Org Innovation.**

**b. Dependent Variable: Economic Sustainability.**

**Table 3 - Multiple Regression Analysis**

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
<b>(Constant)</b>	4.050	.268		15.092	.000
<b>Green Products</b>	-.579	.083	.372	7.004	.000
<b>Green Processing</b>	-.404	.102	-.310	-3.956	.000
<b>Green Marketing</b>	.440	.127	.204	3.469	.001
<b>Org. Innovation</b>	-.700	.122	-.471	-5.754	.000

Predictors: (Constant), Green Products, Green Processing, Green Marketing, Org. Innovation



### Dependent Variable: Economic Sustainability

The analysis revealed that Green Product Innovation, Green Process Innovation, Green Marketing Innovation, and Organizational Innovation collectively explained 57% of the variations in the Economic Sustainability drive of fast-moving consumer goods firms. The model demonstrated significant explanatory power with an F-value of 75.582, significant at a 5% level.

Green Product Innovation positively influenced Economic Sustainability ( $\beta = 0.372$ ,  $t = 7.004$ ), while Green Process Innovation had a negative impact ( $\beta = -0.310$ ,  $t = -3.956$ ), indicating a decrease in Economic Sustainability with each unit of Green Process Innovation.

Conversely, Green Marketing Innovation positively affected Economic Sustainability ( $\beta = 0.204$ ,  $t = 3.469$ ), whereas Organizational Innovation showed a negative impact ( $\beta = -0.471$ ,  $t = -5.754$ ), signifying a decrease in Economic Sustainability with its implementation.

Thus, the null hypothesis suggesting no effect of green innovation on economic sustainability of multinational firms is rejected, affirming the influence of these innovations on Economic Sustainability.

### Discussion

The study reveals a favorable impact of Green Product innovation and Green Marketing Innovation on Economic sustainability. This observation resonates with the findings of Lin, Tan, and Geng (2013), whose study similarly highlighted a positive association between product innovation and firm economic performance. The present research extends this understanding, affirming that product innovation positively contributes to the economic sustainability of multinational firms.

The positive effect of green product innovation is as a result of the creation of products friendly to the ecosystem and biodiversity in general. The waste derived from the production of products were properly preserved to be harmless to human health and fit to serve as input for other business. And this supports local retailers that needs these inputs for their own business thereby reducing cost of raw materials and as well promote jobs opportunities for the youths in their environment. Properly preserved waste can withstand the test of time, while some chemicals used in preservation may compromise the quality derived from the inputs. Furthermore, the manner in which the waste is stored avoids environmental hazards. As a result, these companies are perceived as active contributors to the economic growth of local businesses in the environment. The inhabitants of the area are encouraged by the company's efforts, leading to increased community trust and loyalty. This, in turn, supports business growth through their innovative green initiatives. The positive effect of these companies' market initiatives contributes to green marketing innovation.

However, the negative influence of Green Process Innovation and Organizational Innovation. Green process innovation may have short-term benefits for the company but does not contribute to long-term economic sustainability for the environment. The result also aligns with other studies like Danjelico, Pujari, and Pontrandolfo (2017), they examined the impact of green product innovation in manufacturing firms on the economic sustainability-oriented dynamic capability of the company. Their findings revealed a negative effect, which contradicts the results of the present study. Nonetheless, the negative influence of Green Process Innovation and Organizational Innovation on the Economic sustainability of fast-moving consumable companies is consistent with the findings of Mentas, (2023) their research indicated that as companies accumulate years

of operation in a science and technology park, the relationship between process innovation and environmental/economic sustainability engagement becomes negative.

Regarding Green Product innovation, the positive influence on Economic sustainability can be attributed to the company's expertise and competencies in waste management. This is in line with Marco-Lajara, Úbeda-García, Zaragoza-Sáez, and Manresa-Marhuenda, (2023) who found a positive relationship between green innovation and the economic performance of multinational corporations (MNCs) in Africa. They argue that green innovation practices, such as sustainable product development, eco-efficiency measures, and renewable energy adoption, positively impact the profitability, market share, and overall financial performance of MNCs in the African context. This outcome benefits both the company and the host environment, resulting in a symbiotic relationship.

In the case of green process innovation, although it has a negative effect on economic sustainability, it may have a short-term positive impact on the company due to increased sales volume resulting from the production of multiple products. However, this does not translate to long-term economic sustainability for the environment, despite the company enjoying the benefits of producing multiple products through this process. In contrast to these results, the study titled "Green process innovation, green product innovation, and its economic performance improvement paths: A survey and structural model" by Mingyue Wang, Yingming Li, Junqiang Li, and Zitong Wang (2021) revealed that both green process innovation and green product innovation can significantly improve the economic performance of enterprises. However, their findings diverge from the conclusions drawn in the current research specifically concerning green process innovation.

## **Conclusion and Recommendation**

The study conclusively found that green product innovations and green market innovations positively influence the economic sustainability of fast-moving consumer goods companies. Conversely, green process innovations and organizational innovations have a detrimental effect on the economic sustainability of these companies.

The study recommends that multinational companies should focus on developing capabilities in waste management skills that supports Economic sustainability. In the same vein, they should create awareness on the usefulness of their waste that serves as input for other business. Companies should leverage on the feedback and reasonable insights from their customers as this will help to boost the loyalty of the customers and position the company well in today's competitive environment. The contribution to knowledge in this study titled "Green Innovation and the Sustainability of MNCs" refers to the new insights, understanding, or advancements that the research brings to the field of study.

More so, the study has provided evidence of how MNCs' efforts towards green innovation have influenced their environmental footprint, resource efficiency, and overall sustainability. As the world continues to grapple with pressing environmental challenges, the role of multinational companies (MNCs) in driving sustainable practices and green innovation has become increasingly significant. However, there is still much to explore and understand regarding the intersection of green innovation and the sustainability efforts of MNCs.

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