Strategic Sustainable Development for a Prosperous Human Existence through Applied Technological Innovations

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Abstract: In today"s fast and dynamic 21st century global business environment, the practical application as opposed to conceptualisation of engineering, scientific and decision-making technologies is a critical prerequisite for achieving sustainability and a prosperous human existence through sustainable development initiatives. While some countries continue to successfully apply practical competencies and dynamic capabilities to develop their societies in a more sustainable way, the same cannot be said for some countries in Sub-Sahara Africa and Asia-Pacific regions. This paper first critiques the applicability of technologies by arguing that 'sustainable development' is best understood as a multi-faceted concept rooted in 'sustainability' as a societal goal of achieving a future desired state of human-ecosystem equilibrium, environmental concerns, economic and social development. Second, it proposes a holistic framework based on the experiences of European Food Retailers in the Asia-Pacific countries - which identifies three key areas for sustainable development: (1) Community regeneration in terms of 'job creation', (2) Responsible trading in terms of 'labour standards', and (3) Applied technological innovations in 'waste recycling'. The findings make it imperative for strategists to critically debate the impact of applied technologies, responsible trading and community regeneration on corporate profitability, national wealth, and sustainability of a prosperous human existence.

1 INTRODUCTION

The adage 'a good name is better than many riches' partially explains why many developed and some developing nations spend a lot of money enhancing their country's good name or reputation to attract more foreign direct investments (FDIs). In the global food retail industry food retailers attract shoppers by using the tangible attributes like attractive logos, appropriate infrastructure, and positive financial results; and some intangible attributes including, regenerating the community, trading responsibly, and innovating using appropriate technologies (Tesco, 2017; Carrefour, 2017). The challenge for both countries and multinational corporations (MNCs) is how to promote or advertise themselves in a way that would positively attract FDIs and the patronage intentions of tourists, customers and the public. How well a country or MNC promotes itself depends on the vision of the country and a firm's 'raison d'étre' i.e. 'reason for existence', which for most countries is a prosperous existence of their citizens, and for private-sector retailers like Tesco, Carrefour and Metro is more about profitability than social responsibility, sustainable development and sustainability.

A critical review of extant literature and prior works since the 6th Asia-Pacific Retail Conference in 2011 in Malaysia provides credible evidence that suggests some MNCs sometimes act irresponsibly in their legitimate pursuit of profitability in emerging Asia- Pacific and Sub-Sahara Africa economies e.g. Taiwan, China, Ghana, Nigeria, India, and Kenya (APRC, 2011; Osseo-Asare and Lin, 2011). In most developing economies working conditions do not meet the minimum requirements set by the International Labour Organization's (ILO) Standards for people to work under conditions of freedom, dignity and security (ILO, 2018). Some MNCs are tacitly encouraged by the fact that there is variability in interpretation of international labour standards and similarly in enforcement of local business regulations (ILO, 2018). This raises two critical and related questions. First, to what extent should a profit maximising MNC be allowed to engage in socially responsible activities, without undermining

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its obligations to investors and tax payers? Second, to what extent should a country be allowed to adopt protectionist measures against the wishes of the international or regional communities? To answer these questions, strategists in MNCs or policy-makers in government, need a deeper understanding of the industry pressures for profitability in the context of growing demand for good corporate governance, socially responsible investment and sustainability (Cheah, Jamali, Johnson and Sung, 2011) – which are critical for sustaining a prosperous human existence.

In today's global business environment there is a gradual shift from unitaristic outcomes measured in terms of profitability or individual wealth to pluralistic outcomes including societal or collectivist goals, in part due to the growing power and influence of stakeholders - evident in anti-capitalist protests all around the world (De Wit, 2017; Carroll and Shabana, 2010; Johnson, Whittington, Regnér, Scholes, and Angwin, 2017). This trend suggests that both academics and practitioners need to conceptualise sustainability as having multiple dimensions: politico-legal, socio-cultural, economic, ecological, and technological. Sustaining a prosperous human existence sits at the interface of these dimensions in both individualist and collectivist cultures, representing the strategic challenge that nations and MNCs must face to ensure growth in long-term corporate profitability, societal wellbeing and national wealth (Cheah et al., 2011; Galbreath, 2009). Indeed, there has been a steady rise in research interest in 'sustainability and innovation' since the 6th Asia-Pacific Retail Conference (APRC, 2011). For example, in many growing cities including Kuala Lumpur, Malaysia, Accra, Ghana, Cape Town, South Africa, retail activities go on briskly, amid construction work to regenerate deprived parts of the cities (The Retail Digest, 2012). There is increasing pressure on corporate decision-makers to develop business models based on sustainability and sustainable development, even though some CEOs and policy-makers in government still have serious reservations both about how sustainability goals can be achieved (Guillen-Royo, 2018). Those with environmental agenda continue to paint a doomsday scenario of what the world will be like if organisations and countries continue to use natural resources as if 'there is a lot more where these things came from'. Classicists on the other hand are more concerned about the capability of organisations and countries to maintain profitability as the world population continues to grow above 7.4 billion (Cheah et al., 2011; Johnson et al., 2017). Central to understanding these challenges is the constant need to efficiently and effectively manage the paradox of profitability and social responsibility, in the context of the seemingly conflicting demands for globalisation and localisation; by coming up with innovative products and services through applied technologies which will result in growth in corporate profits, societal and national wealth at the same time.

In this paper the word 'applied' is used to describe the practical purpose or use - as opposed to theoretical or conceptualisation - of a subject area of study e.g. engineering, mathematics, sciences, technologies, and management. The unimaginable levels of poverty and deprivation in most developing countries suggests that, the practical application as opposed to conceptualisation of engineering, scientific and decision-making technologies is a critical prerequisite for achieving sustainability and a prosperous human existence through sustainable development initiatives (Sachs, 2015; McWilliams and Siegel, 2001). While some countries continue to successfully apply practical competencies and dynamic capabilities to develop their societies in a more sustainable and prosperous way, the same cannot be said for some countries in Sub-Sahara Africa and Asia-Pacific regions.

This is partially attributable to two key unresolved paradoxes prevailing in most societies across the world: first, the pressures for theorization and application of technologies; coupled with the demands for progressive economic development and preserving natural resources and ecosystems (Guillen-Royo, 2018). The seemingly conflicting nature of these demands, raises three fundamental questions: How can a future state be achieved where living conditions and resource usage continue to meet human needs without undermining the integrity and stability of the natural system? How can the needs of the present be met without compromising the ability of future generations? How can the demand to fulfil climate change commitments and other sustainability measures - vis-a-vis the demand for socio- economic development - be turned and leveraged into market opportunities?

To answer these questions, this paper first critiques the applicability or practicality of technologies by arguing that 'sustainable development' is best understood as a multi- faceted concept rooted in 'sustainability' as a societal goal of achieving a future desired state of human-ecosystem equilibrium, environmental concerns, economic and social development (Montiel, 2008; Waddock and Graves, 1997).

In addition, the paper proposes a holistic framework - based on empirical research at the doctoral level on the operations of European Food Retailers in the Asia-Pacific countries - which identifies three key areas for sustainable development: (1) Community regeneration in terms of 'job creation', (2) Responsible trading in terms of 'labour standards', and (3) Applied technological innovations. In 'waste recycling'. The framework makes it imperative for strategists to critically debate the impact of applied technologies, responsible trading and community regeneration on corporate profitability, national wealth, and sustainability of a prosperous human existence.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The Today, many countries and some MNCs are developing strategies for implementing the United Nation's 2030 Agenda for Sustainable Development which provides a global blueprint for prosperity for nations, organisations and the planet, now and in the future (UN, 2018). According to António Guterres, the Secretary-General of the United Nations (UN), although some progress towards achieving the goals of sustainable development:

"…in some areas, progress is insufficient to meet the Agenda's goals and targets by 2030…Youth are three times more likely to be unemployed than adults. Less than half of all children and adolescents meet minimum standards in reading and mathematics…2.3 billion people still lacked even a basic level of sanitation service and 892 million people continued to practise open defecation. Close to 1 billion mostly rural people still lack electricity. In sub-Saharan Africa, the HIV incidence among women of reproductive age is 10 times the global average. Nine out of 10 people living in cities breathe polluted air. And, while some forms of discrimination against women and girls are declining, gender inequality continues to hold women back and deprives them of basic rights and opportunities". (Guterres, 2018, p. 5) In this context, this section first critiques the applicability or practicality of technologies for sustainable development by arguing that 'sustainable development' is best understood as a multi-faceted concept rooted in 'sustainability' as a societal goal of achieving a prosperous human existence defined in terms of a future desired state of human-ecosystem equilibrium, environmental concerns, economic and social development (Sachs, 2015; Guillen-Royo, 2018).

We begin by acknowledging that the simplest form of applied technology is the development and practical use of basic tools during prehistoric times to make and control fire, the later Neolithic Revolution methods for increasing the available sources of food, the invention of the wheel to travel in, and ways of controlling the environment (Arthur, 2009).

Today, with less physical barriers, humans interact and communicate freely on a global scale via the internet and the world-wide-web (De Wit, 2017). Societies across the world are moving away from basic or exploratory technologies or know-how specifically aimed at survival to adopting cutting-edge applied technologies with the goal of solving societal problems in a more significant way – although the rate of adoption of new technologies differ from country to country mainly because of differences in socio-cultural settings (Arthur, 2009; Guillen-Royo, 2018).

This means applied technology and applied management, have practical uses, rather than being concerned only with understanding the theoretical underpinnings of technology or management. Whilst the educational systems of some countries are driven by interest or curiosity in the theoretical relationships between multiple variables as akin to conducting pure research, other countries focus more on economic profitability, through breakthroughs in applied technological innovations – as such the theoretical underpinnings of technology overlaps with the practical application of the technology in question (Arthur, 2009). This suggests that understanding the theory-practice interface is critical to sustaining the benefits of applied technologies in the fields of engineering, medicine, pharmaceutical sciences and management. What most developing and developed countries need now are people with in depth understanding of the theories underpinning applied technologies when solving specific, practical problems of individuals or groups in a wide number of fields, including medicine, education, agriculture and engineering. For example, determining what types of plastic contaminants are making their way into the oceans, and understanding the attitudes of MNCs toward achieving carbon emission targets to determine the effectiveness of various government interventions.

Applied Technology comprises a collection of scientific, engineering and mathematical techniques, methods or processes of doing things that benefit

societies. Despite its benefits, many technologies produce unwanted by-products known e.g. pollution and depletion of natural resources – thus raising critical ethical questions about the extent to which technology improves the human condition or worsens it (Arthur, 2009; Sachs, 2015). Indeed, some find modern communication and transportation technologies pervasive, arguing that they harm the environment, alienate people, and change culture, by lessening the barriers to human interaction and spawning new subcultures (Arthur, 2009).

The Industrial Revolution in the UK in the 18th century witnessed the discovery of applied technologies in the areas of agriculture, manufacturing, mining, metallurgy, and transportation, driven by steam power, followed later by the harnessing of electricity to create the electric motor, light bulb, etc. (Arthur, 2009).

The late 19th, 20th and early 21st centuries saw a revolution in transportation, and information and communication technologies, subsequently leading to the creation of the Internet or Information Age and exploration of space with communication satellites (Angell and Heslop, 1994; De Wit, 2017). Therefore, the moral justification for application of technology is to overcome barriers to human development. However, sceptics see technology as inherently flawed in the sense that it will inevitably make us more dependent on it at the cost of freedom and may even harm our cultural practices, values, and world-views (Leonhard, 2016; Arthur, 2009).

For example, because of recent technological advances, an increasing number of workers are losing their jobs. Indeed, automation threatens repetitive jobs, but higher-end jobs are still necessary because they complement technology and manual jobs that requires flexibility judgment and common sense remain hard to replace with machines. Also, for people who use both the Internet and mobile devices in excessive quantities it is likely for them to experience fatigue and over exhaustion because of disruptions in their sleeping patterns, and the use of mobile phones whilst driving has increased the occurrence of road accidents (Leonhard, 2016).

In this context, mass media and technology have a negative impact on people, on both their mental and physical health. Some have predicted that the future of applied technology would mainly consist of an overlapping "GNR Revolution" of genetics, nanotechnology and robotics, with robotics being the most important of the three, but as with all predictions of the future, however, technology's is uncertain (Leonhard, 2016; Brynjolfsson and Mcafee, 2016).

3 HYPOTHESES DEVELOPMENT- KEY AREAS FOR SUSTAINABLE DEVELOPMENT AND APPLIED TECHNOLOGIES IN FOOD RETAIL INTERNATIONALISATION

The Table 1 below provides a synthesis of the key findings from extant literature and prior studies highlighting a growing consensus that foreign retailers in Asia Pacific and Sub-Sahara African countries should be perceived both as 'profit makers' and 'social responsibility-takers'.

However, this comes with the caveat there is accountability and transparency - in the way profits are made, whilst responsibilities should be taken without any intention, deliberate or otherwise, to avoid taxation, or to exploit the weak regulatory environment for business in some of these countries (Osseo-Asare, 2012; Sachs, 2015).

The expectation therefore is that at a strategic level, companies such as Tesco, Carrefour and Metro can agree to set aside a proportion of their retained earnings, enabling them to go beyond mere compliance with social responsibility or sustainability requirements in developing countries. This is an important source of competitive advantage in emerging economies.

Prior studies have invested the role of applied technologies in explaining the demand for sustainable development (Sachs, 2015; Guillen-Royo, 2018). In addition, clear links between applied technologies and sustainability have been established (Guillen-Royo, 2018). However, no previous literature or studies explicitly links and compares the attitudes of European Food Retailers in the Asia-Pacific countries (The Retail Digest, 2012). Osseo-Asare and Lin (2011) suggest that this is an important gap in knowledge. The aim of this paper is therefore to fill this gap. To achieve this, we begin this section by examining the role of applied technologies with respect three key themes in the sustainable development debate, and specifically to explore issues relating to application of food retail technologies across- borders.

Table 1: Main themes and findings from recent studies on retailing in Europe, Asia-Pacific and Sub Sahara African countries

Europe & Asia-Pacific	Main themes	Key findings/ contributions
UK	Food Security	Food waste reduction can contribute to sustainability
Thailand	Retail formats: enclosed versus open-aired Malls Information and patronage intentions	Openraired malls have become very popular; shoppers' motive is to socialize There are no significant differences between heavy and light spenders using internet sources
Malaysia	Environment	Increased awareness of environment / green issues
	Foreign and Local	Perception gaps exist in terms of value and quality Brands
	Green Buying	Value is a key determinant for Malaysian consumers
	Behaviour	wishing to engage in Green Buying
	Traditional stores	Supermarkets affected small groceries more than Hans Peter Holst and hypermarkets in Malaysia
	Crossevergence	Islamic business practices e.g. halal and haram could Raja Nerina Raja Yusof; Andre' subsidiary culture become sources of competitive advantage,
Singapore	Shopping Malls	Increase in shopping experience and returns
India	Ethical Consumerism	Increased willingness to pay a premium
Japan	Natural disasters	Robust supply chain strategies for disruptive recovery
Iran	Supplier selection	Attempts to find solution to supplier selection problems using genetic Algorithms
China	Historical forces	Guanxi practices enhance social status and benefits
	Gender and Job	Traditional values and family role expectations
	Satisfaction	Impact Chinese female employees job satisfaction
South Africa	Shopping Malls	Consolidation or experience and returns
Ghana	Shopping Malls	Steady increase – market development
Nigeria	Shopping Malls	Consolidation in urban areas and steady rise in sub-urban
Malawi	Shopping Malls	Steady increase – market development in urban areas less so in rural areas
Kenya	Shopping Malls	Consolidation in urbans and steady rise in sub-urban areas

Source: Adapted from Osseo-Asare (2012); APRC, 14-15 September 2011, Kuala Lumpur, Malaysia.

(1) Community regeneration in terms of 'job creation'.

Prior studies have shown that community regeneration, applied technologies and job recreation are linked (Erhardt, Werbel and Shrader, 2003; Nielsen and Huse, 2010). Cheah et al. (2011) define, corporate social responsibility (CSR) as: "the philosophy and practice of voluntarily integrating social and environmental concerns into companies' operations…and mobilising companies' resources to benefit society beyond basic economic and legal concerns…(suggesting) that companies' objectives should include the pursuit of financial well-being and the satisfaction of stakeholders' non-financial aspirations, beyond mere compliance with legal requirements" (Cheah et al., 2011, pp. 305-306).

This definition suggests that CSR includes activities such as community regeneration. According to the efficient market hypothesis CSR activities may lead to improved corporate profitability, if information regarding a change in a food retailer's attitude towards community regeneration instantaneously alter share prices. Consequently, efforts to increase the use of applied technologies in community regeneration and to create more jobs, is likely to improve the food retailer's CSR ratings, and potentially have a positive impact on shareholders' wealth (Erhardt et al., 2003; Nielsen and Huse, 2010). Similarly, the cost of not adopting applied technologies may have a detrimental effect on shareholders' value and achievement of sustainability goals in the food retail sector. Consequently, we expect that European food retailers' preference for adopting a appropriate food retail technology in different socio-cultural setting to affect their views concerning community

regeneration and job creation. To explore this view, we test the following null hypothesis.

H1: The preference of European food retailers for applied technologies does not affect their efforts at community regeneration and job creation efforts in Asia-Pacific region.

(2) Responsible trading in terms of 'labour standards'
Several prior studies have shown that some multinational firms act responsibly in their home-base where compliance to labour standards is enforced, and less responsibly in host countries where compliance is relaxed (ILO, 2018; De Wit, 2017). This clearly suggests a link between the pressures to comply with home-base requirements for responsible trading and the attitudes of European food retailers to replicate their home-base responsible trading practices in Asia-Pacific host countries through application of appropriate technologies to ensure sustainable development (The Retail Digest, 2012; Osseo-Asare, 2012). We suspect that well-established food retailers may be more reluctant to replicate their home-base responsible trading practices in host countries where labour standards are concerned. We therefore suspect that a link may exist between the age or number of years of experience of European food retailers in pursuit of low-cost leadership and their willingness to replicate their responsible trading practices in host countries in Asia-Pacific region. To explore this view, we test the following null hypothesis.

H2a: The level of experience of European food retailers in pursuit of low-cost leadership does not affect their willingness to replicate their responsible trading practices in host countries in the Asia-Pacific region in terms of compliance with labour standards.

(3) Applied technological innovations in 'waste recycling'
Many European food retailers have been found to adopt applied technologies relating to waste recycling in their home-base but less so in their host countries (Tesco, 2017; Carrefour, 2017; Metro, 2017). Even though the objective of maximising expected corporate profitability remains an essential requirement for many European food retailers, these firms are willing to trade off this objective with goals of promoting the sustainable development (Waddock and Graves, 1997). In other words, some European food retailers, particularly the top-ranking food retailers, may be more willing to tolerate an 'ethical penalty' (McLachlan and Garner, 2004; Williams, 2007). We therefore suspect that the level of corporate profitability may influence their waste recycling efforts, as far as the adoption of applied technologies for sustainable development is concerned. To explore this view, we test the following null hypothesis.

H2b: The expected level of corporate profitability of European food retailers does not affect their willingness to adopt applied technological innovations in waste recycling in host countries in the Asia-Pacific region.

4 DATA AND METHODS

4.1 Data Sample, Measures and Variables

We employed an Exploratory questionnaire survey which generated a quantitative data set based on the responses concerning a wide range of individual attitudes towards community regeneration, responsible trading and waste recycling from a total of 2,026 customers from European and Asia-Pacific countries: a total of 631 customers in the UK, France and Germany, and a total of 1,395 customers from six Asia Pacific countries. The scales employed in our study for measuring the strength of individual attitudes involve the use of a five-point Likert scale, where 1 is strongly agree, 2 is agree, 3 is neither agree nor disagree, 4 is disagree, and 5 is strongly disagree. These individual attitudes are employed as the dependent variables. The perceptions of respondents regarding 'preference for applied technologies' (metric: low, medium, and high), 'level of experience' (metric: low, medium, and high), and 'expected level of corporate profitability' (metric: low, medium low, medium, medium high, and high), were assigned as independent variables.

The questionnaire responses were analysed using IBM SPSS factor analysis and standard multiple regression procedures. The survey was designed to explore the factors that affect respondents' perceptions about 'applied technologies' and 'level of corporate profitability'. It explores the impact of respondents' perceptions of 'applied technologies' on their levels of 'perceived corporate profitability and/or corporate social responsibility'. The literature in this area suggests that if people feel that the application of appropriate technologies would advance the cause of corporate social responsibility, they are likely to agree that a firm's expected levels of corporate profitability will increase. In the

questionnaire, there are two different measures of perceived preference for adoption of applied technologies.

First, Total believe in applied technologies (tatec), which measures the degree to which people feel that application of technologies will help achieve sustainable development goals. This relates to the null hypothesis (H1) which proposes that, the preference of European food retailers for applied technologies does not affect their efforts or actions taken in relation to community regeneration and job creation efforts in Asia-Pacific region. Second, Total believe that issues of sustainable development cannot be controlled and should be left alone (tsdunc) which measures the degree to which people feel they should be proactive in response to issues relating to sustainable development (waste recycling, labour standards and responsible trading). This is related to the null hypotheses (H2a and H2b). Hypothesis H2a, proposes that, the level of experience of European food retailers in pursuit of low cost leadership does not affect their willingness to replicate their responsible trading practices in host countries in the Asia-Pacific region in terms of compliance with labour standards; Hypothesis H2b, proposes that the expected level of corporate profitability of European food retailers does not affect their willingness to adopt applied technological innovations in waste recycling in host countries in the Asia-Pacific region. In this paper we explore how well the 'preference for applied technologies' (H1) and 'perceived nature of sustainable development' (H2a, H2b) are able to predict scores on a measure of 'total perceived action on issues of sustainable development' (tpact).

Three questions are addressed using IBM SPSS standard multiple regression procedures which requires all the independent variables to be entered into the model at once: (1) How well do the two perception measures (tatec, tsdunc) predict total perceived action on sustainable development (tpact)? (2) How much variance in tpact scores can be explained by scores on the two scales (tatec and tsdunc)? (3) Which is the best predictor of total perceived action on sustainable development (tpact): tatec or tsdunc?

Follow-up semi-structured focus group interviews with customers and interviews with academic experts and managers were carried out to validate the results from the questionnaire survey.

4.2 Empirical Results

Selected output generated from the IBM SPSS procedure is presented in Table 2. In other words both of the two scales (tatec and tsdunc) correlate substantially with the dependent variable (tpact) (-.631 and -.590 respectively). Also, the correlation between each of the independent variable is not too high (i.e. .7 or more). The Tolerance value for each independent variable is .735, which is not less than .10; therefore, we have not violated the multicollinearity assumption. This is also supported by the VIF value, which is 1.562, which is well below the cut-off of 10 (Tabachnick and Fidell, 2013). These results are not surprising, given that the Pearson correlation coefficient between the two independent variables was only .523.

The r square value of .483 tells us how much of the variance in the dependent variable (tpact) is explained by the model, comprising of two independent variables: 'tatec' and 'tsdunc'. expressed in percentages, the results mean that the model explains 48.3% of the variance in the dependent variable.

In brief our model, which includes 'tatec' and 'tsdunc', explains 48.3% of the variance in 'tatec'. Of the two independent variables, 'tatec' makes the largest unique contribution (Beta = -,498, Sig. .000), although 'tsdunc' also made a statistically significant contribution (Beta = -.430, Sig. .000).

Table 2: Correlations

		Total perceived action on sustainable development (tpact)	Total believe in applied technologies (tatec)	Total perceived nature of sustainable development (tsdunc)
	tpact	1.000	-.631	-.590
	tatec	-.631	1.000	.523
	tsdunc	-.590	.523	1.000
Sig. (1-tailed)	tpact		.000	.000
	tatec	.000		.000
	tsdunc	.000	.000	
N	tpact	2026	2026	2026
	tatec	2026	2026	2026
	tsdunc	2026	2026	2026

To assess the statistical significance of the result, the ANOVA table reveals that the model reaches statistical significance (Sig. = .000, p < .005). To identify which of the independent variable included in the model contributed to the prediction of the dependent variable, we look at the results in the Coefficients Table 5.

To compare the contributions of the two different independent variables we use the absolute standardised Beta values, which show that 'tatec' has the largest Beta value of .498, which means it makes the strongest unique contribution to explaining the dependent variable, when the variance explained by the second independent variable is controlled for.

The Beta value for 'tsdunc' is only slightly lower (.430), indicating that it made less of a unique contribution. Since the Sig. values for the two independent variables are less than .05, both variables make significant unique contributions to the prediction of the dependent variable (Tabachnick and Fiddell, 2013).

Table 3: Model summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.695[a]	.483	.466	4.27

a. Predictors: (Constant), Total believe in applied technologies (tatec); Total perceived nature of sustainable development (tsdunc)
b. dependent variable: total perceived action on sustainable development (tpact);

Table 4: Anova[b]

Model 1	Sum of Squares	Df	Mean Square	F	Sig.
Regression	6911.828	2	3403.364	189.789	.000[a]
Residual	7833.556	2024	19.674		
Total	14745.384	2026			

a.Predictors: (Constant), Total believe in applied technologies (tatec); Total perceived nature of sustainable development (tsdunc)
b. Dependent Variable: Total perceived action on sustainable development (tpact);

Table 5: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95% Confidence Interval for B		Correlations		
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero order	Partial	Part
1	50.862	1.355		40.123	.000	48.422	53.674			
(Constant)	-.663	.061	-.498	-10.012	.000	-.711	-.595	-.610	-.465	-.376
tatec	-.197	.026	-.430	-8.960	.000	-.210	-.162	-.576	-.391	-.351

a. Predictors: (Constant), Total believe in applied technologies (tatec); Total perceived nature of sustainable development (tsdunc)
b. Dependent Variable: Total perceived action on sustainable development (tpact);

Note: Collinearity Statistics: Tolerance = .735; VIF = 1.562, both values are greater than .10 and less than 10 respectively suggesting there are no problems with multicollinearity

Using the unstandardized B-values, the regression equation for the model is:

Ytatec = 50.862 -0.663Xtatec -0.195Xtsdunc + error

Where:
Ytatec = dependent variable, Total perceived action on sustainable development (tpact); Xtatec = independent variable, Total believe in applied technologies (tatec); Xtsdunc = independent variable, Total perceived nature of sustainable development (tsdunc)

From the regression equation, we can see that the coefficient of the independent variable 'Total believe in applied technologies (tatec)' is 'negative', suggesting that the degree to which European food retailers feel that application of technologies will help achieve sustainable development goals in both the home and host countries, does not affect their efforts or actions taken in relation to community regeneration and job creation efforts in Asia-Pacific region. We therefore accept the null hypothesis (H1).

Similarly, we can see that the coefficient of the independent variable 'Total believe that issues of sustainable development cannot be controlled and should be left alone (tsdunc)' is 'negative', also suggesting that the degree to which European food retailers operating in Asia-Pacific countries feel they should be proactive in response to issues relating to sustainable development (waste recycling, labour

standards and responsible trading), does not affect their willingness to replicate their responsible trading practices in these countries in terms of compliance with labour standards (Hypothesis H2a). In addition, it does not affect their willingness to adopt applied technological innovations in waste recycling in host countries in the Asia-Pacific region (Hypothesis H2b). In brief we accept the null Hypotheses (H2a and H2b).

4.3 Empirical Findings

The follow-up semi-structured focus group interviews with customers and interviews with academic experts and managers validate the results from the questionnaire survey. The key empirical findings include the fact that a significant perception gap exists between European and Asia Pacific customers' perceptions of how Tesco, Carrefour and Metro deal with three key thematic areas of sustainability: community regeneration; responsible trading; and technological innovation. For example, the European customers in the study perceived there is strong positive association between the efforts being made by Tesco, Carrefour and Metro to assist in regenerating communities and to trade responsibly in Europe.

In contrast, Asia-Pacific customers thought these three European retailers were making more effort to regenerate communities in Asia-Pacific countries through technological innovation. This perception gap may be explained by cross-cultural differences in the way European and Asia Pacific customers perceive the relative importance of sustainable development or corporate social responsibility issues vis-à-vis the pursuit of corporate profitability goals.

Figure 1 below presents a holistic framework, based on the empirical findings from the survey and interviews. It identifies three key areas for sustainable development for achieving the sustainability goals in food retail internationalisation:

1. Communityregeneration in terms of ‘job creation’,
2. Responsible trading in terms of ‘labour standards’, and
3. Applied technological innovations in ‘waste recycling’.

The framework suggests that National Wealth and Corporate Image of European food retailers operating in Asia Pacific countries can be based on the central theme of pursuing the goals of Sustainable development while simultaneously pursuing corporate profitability across borders.

For example, some countries and some European food retailers like Tesco, Carrefour and Metro are seeking to create a mental picture that springs up in the minds of tourists, customers, investors and the public, whenever the country’s or retailer’s name is mentioned in connection with its products, services or corporate behaviour or national achievements in science, engineering or sports (Tesco, 2017; Carrefour, 2017; Metro, 2017). More specifically, the sub-themes emanating from the interviews are presented in Figure 2.

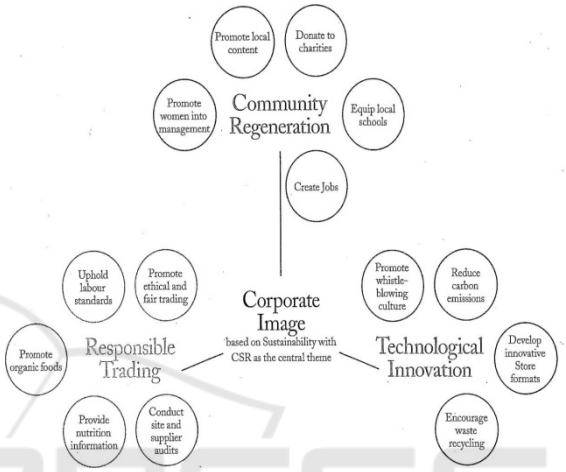

Figure 1: A holistic framework for sustainable development in food retail internationalization

Figure 2: Sub-themes emanating from interviews – evidence of applied food retail technologies

The thematic findings reveal that top European food retailers operating in countries in the Asia Pacific region continue to adopt a two-pronged approach to building their corporate image: first, by ensuring they remain profitable to attract potential investors and retain existing ones; second, by been seen to be at the forefront of the sustainable

development agenda in both their home and host countries.

This suggests that the strategic positioning of a nation's or retailer's corporate image in the minds of customers and other stakeholders might regularly shift along the corporate profitability and social responsibility continuum, depending on their corporate behaviour or national characteristics. For specifically, Figure 3 reveals additional evidence of use of applied technologies in job creation.

Figure 3: Evidence of use of applied technologies in Job Creation

The framework in this paper makes it imperative for strategists to critically debate the impact of applied technologies, responsible trading and community regeneration on corporate profitability, national wealth, and sustainability for a prosperous human existence. The findings however raise two fundamental questions: Why should a country' Sustainable development agenda by driven by the efforts of foreign food retail giants like Tesco, Carrefour and Metro? Why should the execution of the Sustainability agenda be based on 'Community Regeneration', 'Responsible Trading' and 'Technological Innovation'?

5 CONCLUSIONS

What this paper reinforces is the notion that applied technologies remains central to achieving the key goal of strategic sustainable development i.e. the prosperity of human existence. There is therefore increasing recognition by European food retailers operating in the Asia-Pacific region the importance of 'community regeneration', 'responsible trading' and 'use of applied technologies' to society.

These findings however, raise further questions about the extent to which European food retailers can replicate their preference and use of applied technologies in food retailing in Europe in Asia-Pacific countries, using sustainability issues as the basis for competitive and cooperative behaviour.

Despite numerous prior studies exploring CSR and Sustainable development, there has been relatively few studies on food retail internationalisation which directly links applied food retail technologies to community regeneration and responsible trading – focusing on the top European food retailers like Tesco (UK), Metro (Germany) and Carrefour (France).

As such, the findings attempt to fill this research gap by demonstrating the increasing emphasis on sustainability as a basis for competitive and cooperative behaviour in the Asia-Pacific emerging markets of China, Taiwan, India, Indonesia, Malaysia, and Thailand. The expectation is that increased investment in the use of applied technologies to achieve the goals of sustainable development would ensure that both corporate profitability and corporate social responsibility objectives/targets are achieved simultaneously.

There are three important implications of the findings in this paper. First, the adoption of applied food retail technologies is critical to successful implementation of the goals of sustainable development in both the home and host countries of European food retailers, irrespective of the ethical penalty (reduce profit) they may incur by engaging proactively in sustainable development initiatives. Second, there is a need to explore the interdisciplinary factors impacting on the construct of sustainability, and how they relate to corporate image and profitability. Third, for practitioners, the implications are mainly in the ways CSR and sustainability issues are managed in their home and host countries. Practitioners need to recognise that the dual pursuit of corporate profitability and corporate social responsibility objectives creates a paradoxical situation that needs to be strategically thought through and reconciled.

In brief, the findings presented in this paper demonstrates the growing interest in sustainability as a strategic tool for achieving responsible profits in domestic and international markets. Although the framework is based on customer perception in the food retail market, retail strategists could also use it to encourage critical debate about the impact of community regeneration, responsible trading and technological innovation on corporate profitability in

the non-food retail and other sectors of the national economy.

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