International Journal of Advance and Applied Research
www.ijaar.co.in
ISSN – 2347-7075 Impact Factor – 7.328
Peer Reviewed Bi-Monthly
Vol.10 No.1 Sept – Oct 2022

GREEN INNOVATION STRATEGIES, ORGANIZATIONAL COMPETENCIES AND FIRMS PERFORMANCE IN THE CONTEXT OF MANUFACTURING SECTOR

Narender Chinthamu
MIT (Massachusetts Institute of Technology) CTO Candidate,
Enterprise Architect, Dallas, Texas, USA,
Corresponding Author : ***Narender Chinthamu***
Email: - narender.chinthamu@gmail.com

DOI- 10.5281/zenodo.7580303

Abstract:
Businesses are increasingly offering eco-friendly goods and services. In the traditional view of how innovations are accepted, current research has highlighted the barriers and motivations behind this consumer choice. According to this research the adoption of green innovations should be seen as a consistent acceptance of interconnected green consumer behaviors. These behaviors are more than just a decision maker, they require a change in habits and routines and occur over time. We will consider adopting green consumer habits with our Zero Waste Buying (ZW) case study. We found barriers and drivers in undertaking Green Innovation, as well as a set of consumer habits, in three pilot studies — two qualitative studies and a consumer field survey. Our research contributes to a better understanding of green consumer habits in consumer goods markets, as well as the barriers and factors that come with them.

Keywords: *Consumer behaviour; Innovation; Practices; Sustainability*

Introduction

As people become more aware of environmental issues, companies are increasingly incorporating sustainability considerations into their plans and business models. Companies improve their social and environmental footprint by incorporating sustainability innovations in the way we create, manufacture, distribute and market goods and services. This is especially true for companies that produce large quantities of single-use plastics

and other packaging, such as FMCG companies. According to Greenpeace (2018), "Forty percent of all plastics produced in 2015 were used in packaging, the largest market for plastics." As a result, consumer product companies are rapidly innovating in the design and delivery of products and services to reduce their environmental impact. In particular, such changes in product preparation and delivery often require large changes in customer behaviour and habits. According to learning theory (Warda, 2005), exercises are defined as a general behavioural style. Companies need to make it easier for customers to accept new solutions (such as goods, services or delivery methods) when they launch them. Scientists have already discussed the inability of current adoption models to consistently assess green consumption behaviours (Pereira, Agar, & Klein, 2018). In this paper, we will look at how consumers adopt Zero-Waste (ZW) purchasing behaviours. Such shopping involves packaging-free options, which require customers to refill and ship the goods in reusable bags and containers. Adopting such practices often requires large adjustments in personal and family purchasing practices in the store and at home. According to ZW (Zaman 2015, p. 2), "Its goal is to educate people on modifying their lives and habits to reflect the sustainable natural cycles. ZW's shopping and lifestyle is a significant departure from traditional retail and consumer behaviour. For starters, this requires major daily behavioural adjustments, such as changing habits and often the need for self-control and willpower (e.g., Verplanken and Wood 2006)., Changes in daily habits and routines can have an impact on other players in consumers' micro-ecosystems. All members may apply for recycling or composting procedures (Groh, 2006). As a result, the adoption problem is often not limited to one client. According to the Ecosystem Approach (Jackson, 2005, p. 18), "Consumer motivations are generally rooted in a set of everyday, systematic and habitual behaviours that are well influenced by social

norms and practices and regulated by organizational constraints." Since buying a ZW is a lifestyle choice, the goal of adoption is not an abstract concept (i.e., a sustainable lifestyle), but a direct commodity (store or product). ZW Shopping involves new approaches and approaches inside and outside the home that combine to create the ZW Shopping Practice. Adoption should be considered a temporary process rather than an isolated choice made at a specific time because consumers will gradually acquire such activities over time. However, it may be questioned whether the current adoption models are adequate to understand the acceptance of new behaviors (Pereira et al., 2018). The concept of adoption is a product, service, or technology (e.g., theory of planned behavior and theory of technical acceptance) in traditional adoption models, although consumer habits such as ZW are not defined in the same way and should be understood as more complex adoption. Processes. As a result, we suggest that current views on innovation adoption need to be revised to reflect the complex nature of the goal of adopting new green practices. We believe that utility includes the actions and habits inherent in the networks of everyday activities in this article (Phipps and Ozanne, 2017). As a result, it is crucial to investigate how consumer behavior has changed in response to companies 'creative solutions to environmental problems. As a result, the company's offering (such as a ZW store or non - packaging-free product) is considered a feature that triggers a series of actions rather than an adoption goal. When looking to adopt the green buying habits of ZW Shopping Solutions, we must consider the full range of behaviors that customers must change or acquire. We have identified four different areas of ZW practice based on two qualitative research and three field surveys: 1) CollectionHabits and 2) housekeeping habits and 3) social activities. 4) Environmental behaviors in general. This study examines these activities between current users of ZW Solutions (initial adapters), future users of ZW Solutions (transition adapters) and

non-users. The format of this paper is as follows: First, we present key results from traditional adoption research and current research such as literature on green products, services and practice adoption. Second, we discuss the methodology and results of our three investigations, which include two qualitative studies and a field survey. Finally, we examine our results and explore the theoretical and practical implications of our research.

Green Innovation (GI)

Digestion is often classified into two types based on the kind of work it does. Both Gluch et al. (2009) and the second study define GI in terms of a company's environmental activities (Gluch et al., 2009). (2008); (Lin and Hu, 2009; Hu and colleagues, 2010). Regulations define GI as a "innovation in hardware or software related to green products or processes" (Song and Yu, 2018). It is proposed that the GI incorporate management practises and technological developments that improve environmental and organisational performance (OP) and provide a competitive advantage to the business (Runnings, 2000). According to various research, the GI contains particular or evolving systems, processes, products, and behaviours that improve the environment and support the organization's long-term existence (Xia et al., 2019).

Based on the latest study, GIs are "new or modified products and processes" that contribute to environmental sustainability "through technical, managerial, and organisational innovations" (Livesay and Prahok, 2018). The "creative organisation that reduces negative environmental repercussions or offers environmental benefits while producing economic value" may also be referred to as GI (Chen et al., 2006). Both "Green Product Innovations," which provide new green elements to customers, and "Green Process Innovations," according to Tang et al. (2018), are GI categories (Green Company Approaches). In addition, increased consumer concerns about environmental protection have made environmental management an

essential component of many company strategies and strategic plans (Chio et al., 2011; Khan et al., 2019). Regulations on the environment may result in a "win-win scenario" (Chan et al., 2018) For this reason, it is suggested that the geographical indicator be explicitly labelled as a fr designation (Commer, 2009). GI patterns are inextricably related to both internal and external environmental developments, according to Feng et al. Manufacturing enterprises in China are the focus in 2018. Using GI practises both within and outside the organisation is essential to attaining both economic and environmental objectives (Khan and Qianli, 2017; Saeed et al., 2018). Shareholder and regulatory pressure, as well as societal expectations, were identified by Lee et al. (2018) to be important drivers of GI practises and corporate environmental responsibility (Shahzad F. et al., 2020). A study by Fernando et al. (2019) indicated that a company's long-term success may be influenced by a variety of factors including regional forecasts, legislation, supplier intervention, and technology. Famie et al. (2018) research shows that environmental management systems have both direct and indirect benefits on environmental performance, which promotes environmentally friendly policies. Researchers employed Green Product Innovation (GPI) to connect Green Process Innovation (OP) to GPI, however the study did not provide any positive findings.

Proposed Framework

Three components of shareholder attitudes (such as competitive pressure, government pressure, and employee conduct) are employed as independent variables in this study. Organizational performance and environmental conditions serve as dependent factors. Green Product and Green Process, for example, may serve as mediators and a trend organiser for creative ideas (IO). It has been reported that six possibilities have been put up and discussed in below Figure 1.

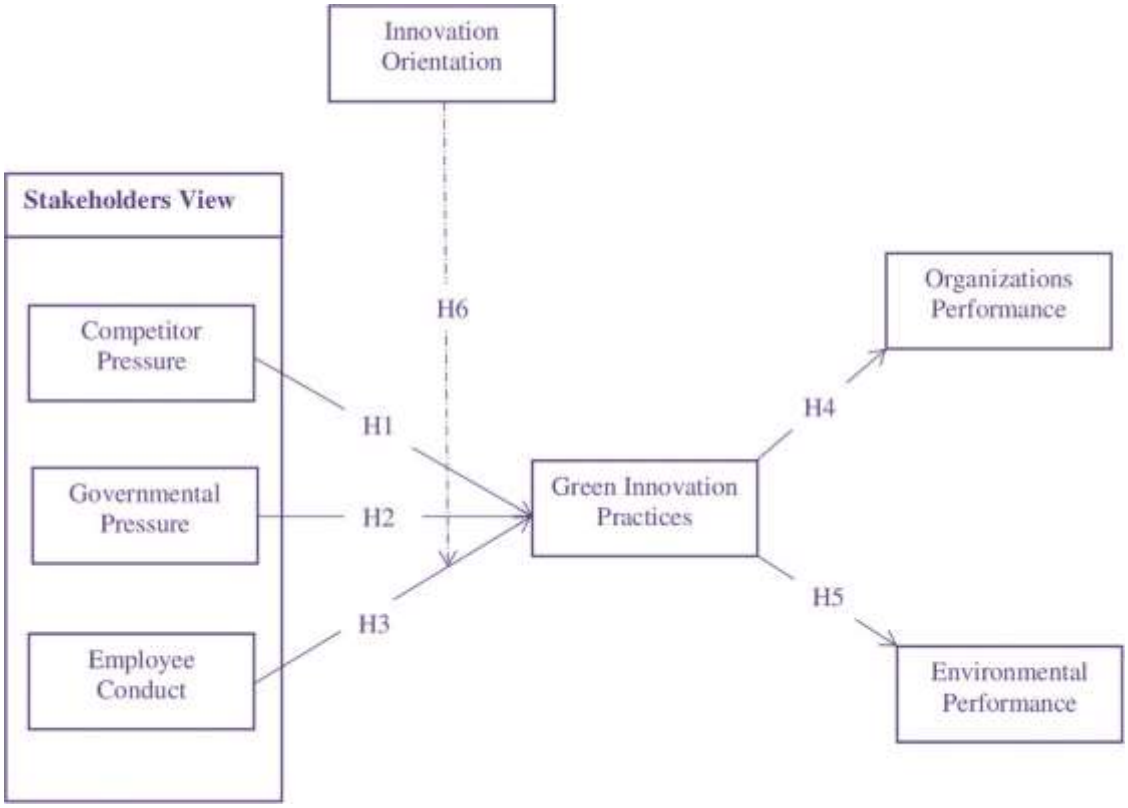

Fig 1: Green Innovation Practices

Hypothesis Development

Used Freeman Stackholder Framework (Freeman, 2010). We consider governments and competitors as external shareholders and consider the behavior of workers as internal shareholders using three shareholder perspectives. However, additional factors such as consumer, community and supplier pressure need to be considered. This research considers two aspects of shareholder perspectives as factors that put pressure on companies and motivate them to improve their environmental policies. As businesses face "internal and external forces / pressures from environmental organizations, government regulations, shareholders, competitors, consumers and workers", it is even more important to define eco-friendly business how-to guides (Wang and Song, 2014). Shareholder attitudes (including government pressure, rivals, customers, society and suppliers) have a favourable effect on glycemic index practises, according to Singh and Kassar (2018).

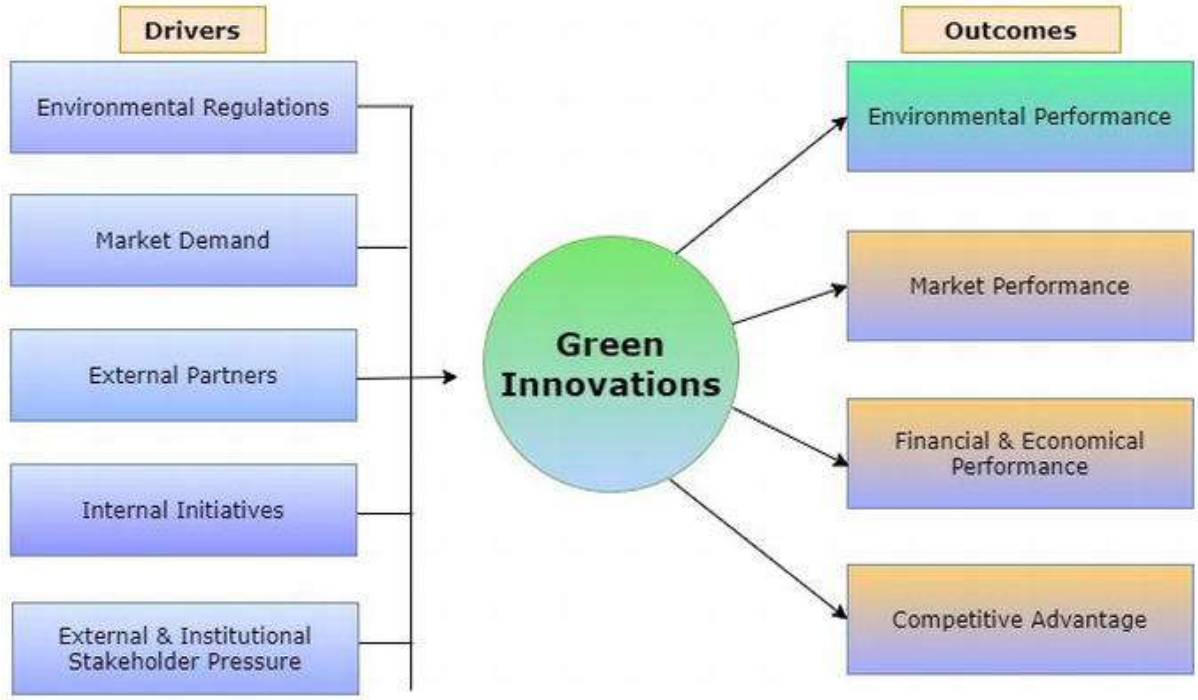

Fig.2: Green Innovations Drivers & Outcome

Competitors Pressure (CP)

In general, companies react quickly to what their rivals and the rest of the industry are doing. Environmental measures adopted by rivals put companies in the same sector under pressure (Durand and Georgallis, 2018). In a nutshell, organisations need to pay attention to their rivals' goods and services, as well as to industry norms and legislation, so that their innovative abilities may be compared to those of their peers. It's imperative that businesses stay up to date on the latest in energy conservation, trash recycling, and pollution avoidance, to name just a few areas that need attention. In order to stay ahead of the competition, they must keep an eye on how their rivals are cutting energy costs while restructuring operations and rearranging industrial facilities. As a result, firms must imitate the environmental policies and activities of their rivals, particularly industry leaders, in order to remain competitive (Abrahamson and Rosenkoff, 1993). There was a connection found between GI practises and shareholder attitudes in Singh and Kassar's (2018) study. The research also found that 442 Chinese enterprises are more likely to put pressure on their competitors

to adopt GI practises (Cai and Li, 2018). Another study (U, 2019) indicated that environmental regulations and pressures, both official and informal, may have a considerable influence on food sector businesses' glycemic index activities. Hypothesis 1 is thus proven.

H1: Competitor's pressure has a significant impact on GI practices.

Environmental Performance

A company's performance was broken down into two categories: environmental factors and regulatory factors. Defining environmental performance based on an organization's "environmental effect on the natural environment" (Klaassen and Weybark, 1999). There are several financial and non-financial factors included in the OP, including as market share, brand name recognition, sales volume, and shareholder happiness (Venkatraman and Ramanujam, 1986).Decreased pollution, reduced carbon emissions at the source, and waste and energy conservation, resource efficiency, and the use of ecologically damaging compounds are all examples of environmental performance (Zhu et al., 2010). When it comes to long-term environmental implications, "End of Pipeline Solutions" (Circus and Cordero, 2001; de Giovanni, 2012; Khan et al., 2019) are outperformed by organisational systems, processes, and practises such pollution control, resource utilisation, and waste reduction. Improved environmental performance may be possible via process optimization and higher efficiency, according to previous scholarly findings (Montabon et al., 2007). Glycemic index approaches have also been proven to considerably improve environmental performance in industrial enterprises by Seaman et al. (2019). As a consequence, Hypothesis 4 is born:

H4: GI practices have a significant impact on environmental performance.

Organizational Performance

Measurement of a company's "financial and non-financial" performance may be done (Gonaris et al., 2003). Environmental expenses are managed and output is increased via the application of GI practises by

businesses (de Burgos-Jiménez et al, 2013). Similarly, businesses may expand their reach and get a larger portion of the market by implementing environmental policies and procedures (Berry & Rondinelli, 1998; Baron et al., 2017). Increasing current and new customer loyalty and strengthening the company's image and reputation are long-term business goals that reflect progress in non-monetary performance (Blazewick & Levens, 2004). According to Chen (2008a), the "first mover advantage" that GI inventors enjoy includes a stronger corporate image, higher product pricing, competitive advantages and new market possibilities. OP benefits from glycemic index practises, according to Tang et al. 83 New Zealand businesses were studied by Zhang and Walton (2017) and found that GI had a beneficial impact on their financial performance. Thus, hypothesis 5 is born:

Hypothesis 5: GI practices have a significant impact on OP.

It was decided that the IO would serve as the mediator for this study. EC and GI approaches have been studied in connection to characteristics linked with corporate policy settings and culture, which are commonly associated with corporate employees.

Sustainable Development Goals

Micro, small and medium enterprises (MSMEs) play an important role in all sectors of the global economy. In Poland, the MSME sector accounts for 99.7 percent of the total number of companies (according to 2013 data from the Central Statistical Office). In recent years, the concept of sustainable development has played an important role in the management of businesses, with the goal of ensuring higher environmental, economic, social and cultural standards for all people within the borders of the earth and for future generations.Natural ability, to use the principle of justice between and within generations. As a result of rising environmental standards, companies are increasingly thinking about environmental management from a social and environmental perspective, implementing the concept of corporate social

responsibility (CSR). The main objective of this study is to analyse the various environmental management efforts in the field of MSME in terms of corporate social responsibility. Furthermore, using statistical methods, research demonstrates the interrelationships between environmental management measures and the competitiveness of MSMEs.

Fig.3: Sustainable Performance

The Iraqi government has committed to a number of key actions to address the environmental and socioeconomic risks and gaps highlighted in the ESSA, albeit the programme and process will mostly consist of:

Strategy to Strengthen Environment and Social Management: Despite the fact that national and state governments have well-developed environmental and social standards, the implementation framework set up to meet the challenges of environmental and social inclusion has to be enhanced. To address this, a strategy document named "Strengthening the Environmental and Social Management Strategy" is recommended, which describes the risk screening and management mechanism, as well as communication planning and capacity development for environmental and security concerns. MSME operations at the

federal and state levels are linked. The strategy document also contains actionable suggestions for include occupational health and safety (OHS) problems in health insurance systems. Prior to project negotiations with the Ministry of Finance, Government of India, a draught strategy paper will be created, which will be reinforced by stakeholder conversations during the first year of project execution.

Innovation Orientation

Organizational innovation is hindered by the strategic approach known as "innovation orientation," which acts as a compass for strategic planning and execution aimed at fostering a more innovative work environment (Chen et al., 2011; Stock and Zacharias, 2011). Organizational openness, as well as a knowledge-sharing system that incorporates a learning perspective, strategic guidelines and crossfunctionality, is defined under this model (Zhou et al., 2005). The flexibility to change course, when necessary, may promote creative thinking and new ideas (Sigwa et al., 2006). An organization's capacity to adopt new goods, services, systems, and procedures is greatly enhanced through IO (Oke, 2007). Having a fresh innovative atmosphere and management encourages employees to participate in creative activity (Ramus, 2018). Based on the findings in Hypothesis 6, we think that IO will aid in developing an understanding of the relationship between EC and GI practises

H6: IO significantly moderates EC on GI practices.

Measurement of Model

An at least partial square technique was used to assess the various structures' dependability and validity. In order to gauge the constructions' internal dependability, "Cronbach's Alpha (CA) and composite reliability" was used. If Gefen et a recommendation's is followed, CAs should be at least 0.7. & Hair et al. (2000) (2013) In addition, Hinton (2014) categorised the CA into four subgroups. To begin, a rating of 0.9 suggests a high level of trustworthiness. Second, a value of 0.7 to 0.9 indicates high dependability. Third, a value of 0.5

to 0.7 is considered moderate. It's also rated lower than 0.5 out of five. CP = 0.851; GP = 0.829; EC = 0.851; IO=0.764; GIP=0.829; EP = 0.799; and O = 0.892 are all outstanding reliability values (e.g., To determine convergent validity, the Mean Extracted Variation (AVE) is utilised. This number should be more than 0.5 according to Furnell and Larcker (81), and Bagozzi and Yi (1988) studies. Every single structural value in the table is in compliance with the toe rule: 0.691, 0.654, 0.627-9.0, 0.585, 0.598, 0.651, and 0.650-0.91. Due to the dependability of the fixtures, Chin (1998) recommends a load larger than 0.5. The Omrani et al. group. The item's value may range from 0.4 to 0.7 based on the purpose of the value (2018) Consequently, there is a range of loading values from 0.47 to 0.89 4. Teachers, owing to this, find that all values match their academic criteria.

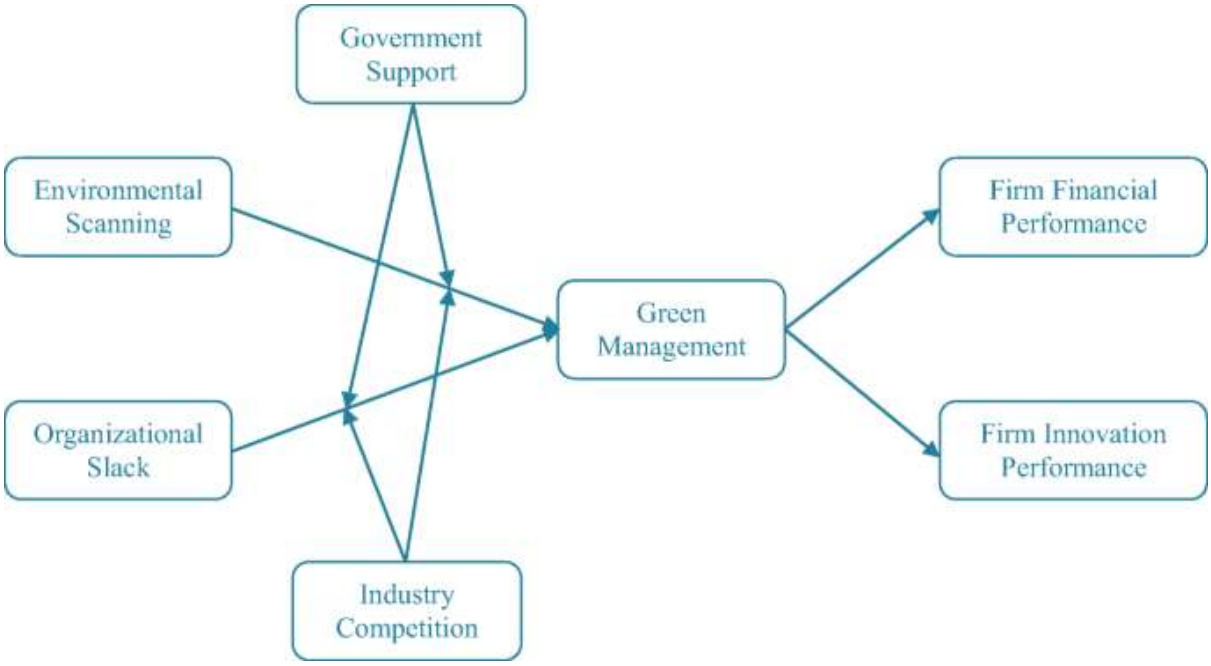

Fig 4: Green Management Elements

Analysis and Discussion

Competitive pressure, government pressure, EC practises, and GI are all influenced by environmental and organisational factors. Over 70% of the country's GDP comes from its manufacturing and service sectors, which are under examination. According to theoretical study, shareholder measures affect GI

learning in a positive and substantial way, and this has positive and important ramifications for the environment and operation as a whole.

For this study, a total of six hypotheses were formulated. A moderating effect was seen in one of these theories. Glycemic index approaches are affected by competitive stress, as indicated in Figure 2. A positive and substantial correlation between the glycaemic index methods and the coefficient 0.27, the t-value of 5.543, and the significance level of 0.000 0.05 is found in the data. Research by Kesar and Singh was found to support the hypothesis' outcomes (2019). In addition, we examined if H2 government pressure had an effect on GI behaviour. It is clear from the data that political pressure may have a positive and considerable impact on the way glycaemic index approaches are used. According to the findings of earlier investigations by Sezen and Ankaya (2013) and Fernando and Wah (2012), the second direct hypothesis, H2, garnered the most votes (2013). (2017) H3 EC and GI behaviours are the subject of our third hypothesis. An EC coefficient of 0.185, a t-value of 4.368> 2 and a p-value of 0.0.00005 were shown to be favourable to digestive habits. In line with the findings of Gholami et al. (2013) as well as Soewarno et al. (2013), the Yen and Yen (2012) results were confirmed to be reliable (2019).

Conclusion

Go Green is a global programme that encourages businesses to consistently enhance their green skills, adopt GI ways to minimise environmental deterioration, and improve overall organisational performance. Therefore, the purpose of this study is to identify relevant factors that determine GI practises and their effect on OP from the viewpoint of stakeholders. Glycemic index practises are positively influenced by competitive pressure (Abrahamson & Rosenkoff, 1993; Kai & Li, 2018; Durand and Jorgallis, 2018; Singh and El-Kasser, 2018; U, 2019) and the government, according to the findings of the study. According to Abrahamson and

Rosenkoff (1993; Kai and Li (2018); Durand & Jorgallis (2018); Singh and El-Kasser (2018), Stress affects Gastrointestinal Practice in a Favorable Way (Lindell and Karagoz, 2001; Bernoure 20 et al., 2011). Famie and others, 2018, Tirabeni et al. 2019, Zhang and others, 2019, and Huang and others, 2016 (Reinhardt, 1999; Daily and Huang, 2001; Xu et al., 2008; yen and yen, 2012; Ghulam et al., 2013; Cao & Chen, 2018; Tang et al., 2018, Soverno et al., 2019), De Bournegoz et al. 2019, Chen, 2008a, 2008b; Blazewick & Livens 2004; Chen 2008a; de Bournegoz et al. 2019, Chen 2008b; Chang and Walton 2017; Tang et al. (2018; Tang et al. 2018)) Significant and beneficial impact of glycemic index approaches on OP Indicate. Environmental performance seems to be positively associated with glycemic index dietary practises, according to the findings of this study. Despite the negative coefficient value, the statistics show that IO moderation has a considerable impact. For managers and policymakers, research has crucial ramifications.

Reference

1. Abrahamson, E., and Rosenkopf, L. (1993). Institutional and competitive bandwagons: using mathematical modeling as a tool to explore innovation diffusion. Acad. Manage. Rev. 18, 487–517. doi: 10.5465/amr.1993.9309035148
2. Afridi, S. A., Afsar, B., Shahjehan, A., Khan, W., Rehman, Z. U., and Khan, M. A. S. (2020). Impact of corporate social responsibility attributions on employee's extra role behaviors: moderating role of ethical corporate identity and interpersonal trust. Corpor. Soc. Responsib. Environ. Manage. 2020, 1–14.
3. Albort-Morant, G., Leal-Millán, A., Cepeda-Carrion, G., and Henseler, J. (2018). Developing green innovation performance by fostering of organizational knowledge and coopetitive relations. Rev. Manage. Sci. 12, 499–517. doi: 10.1007/s11846-017-0270-z
4. Alrowwad, A. A., Obeidat, B. Y., Tarhini, A., and Aqqad, N. (2017). The impact of transformational leadership on organizational performance via the mediating role of corporate social responsibility: a

structural equation modeling approach. Int. Bus. Res. 10, 199–221. doi: 10.5539/ibr.v10n1p199

5. Anderson, J. C., and Gerbing, D. W. (1988). Structural equation modeling in practice: a review and recommended two-step approach. Psychol. Bulletin 103:411. doi: 10.1037/0033-2909.103.3.411
6. Arfi, W. B., Hikkerova, L., and Sahut, J.-M. (2018). External knowledge sources, green innovation and performance. Technol. Forecasting Soc. Change 129, 210–220. doi: 10.1016/j.techfore.2017.09.017
7. Atlin, C., and Gibson, R. (2017). Lasting regional gains from non-renewable resource extraction: the role of sustainability-based cumulative effects assessment and regional planning for mining development in canada. Extr. Ind. Soc. 4, 36–52. doi: 10.1016/j.exis.2017.01.005
8. Avlonitis, G. J., Papastathopoulou, P. G., and Gounaris, S. P. (2001). An empirically-based typology of product innovativeness for new financial services: Success and failure scenarios. J. Prod. Innovation Manage. 18, 324–342. doi: 10.1111/1540-5885.1850324
9. Bagozzi, R. P., and Yi, Y. (1988). On the evaluation of structural equation models. J. Acad. Marketing Sci. 16, 74–94.
10. Bernauer, T., Engel, S., Kammerer, D., and SejasNogareda, J. (2007). Explaining green innovation: ten years after Porter's win-win proposition: how to study the effects of regulation on corporate environmental innovation? Politisc. Vierteljahresschrift 39, 323–341.
11. Berrone, P., Fosfuri, A., and Gelabert, L. (2017). Does greenwashing pay off? Understanding the relationship between environmental actions and environmental legitimacy. J. Bus. Ethics 144, 363–379. doi: 10.1007/s10551-015-2816-91. P Nagpal., (2022). Organizational Commitment as an Outcome of Employee Engagement: A Social Exchange Perceptive using a SEM Model. International Journal of Biology Pharmacy and Allied Science. January, Special Issue, 2022, 11(1): 72-86.

https://doi.org/10.31032/IJBPAS/2022/11.1.1008.

12. Pooja Nagpal., Kiran Kumar., A.C. & Ravindra., H. V. (2020). Does Training and Development Impacts – Employee Engagement? Test Engineering and Management, the Mattingley Publishing Co., Inc., 83. 19407 – 19411. ISSN: 0193-4120.
13. Pooja Nagpal., Kiran Kumar., A. C. & Ravindra., H. V.(2020) .Perceived Organizational Support and Employee Engagement. Test Engineering and Management, 83, the Mattingley Publishing Co., Inc., 900-904. ISSN: 0193-4120.
14. Namita Rajput, Gourab Das, Kumar Shivam, Chinmaya Kumar Nayak, Kumar Gaurav, Pooja Nagpal, An inclusive systematic investigation of human resource management practice in harnessing human capital, Materials Today: Proceedings, 2021, ISSN 2214-7853, https://doi.org/10.1016/j.matpr.2021.07.362.
15. Pooja Nagpal., Kiran Kumar., A.C. & Ravindra., H.V. (2020). Employee Engagement - Impact of Demographic Variables in Indian IT Sector. Purakala31 (32), 136-142. ISSN: 0971-2143. Pooja Nagpal., &Madhusudhan R. Urs. (2019). A study on Determinants and Outcomes of Job Crafting in an Organization; Journal of Emerging Technologies and Innovative Research,7, (15). 145-151. ISSN: 2349-5162. (UGC Care Listed Journal)
16. Pooja Nagpal., Senthil Kumar., & Ravindra. H V. (2019). The Road Ahead of HR-AI to boostEmployee Engagement; Journal of Emerging Technologies and Innovative Research, 7, (15),180-183. ISSN: 2349-5162.