



## Examining Green HR Practices and Innovative Work Behaviors: A Moderated Mediation Model in Hungarian Automotive Enterprises

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### Abstract

This study investigates the prevalence of the ability-motivation-opportunity (AMO) theory, creative work practices, a moderated mediation model of green innovation, organizational support, and green human resource practices in Hungarian automotive enterprises. Data collection involved a questionnaire and a sample of 320 managers from diverse automotive companies surveyed using a quantitative research approach. The results indicate the prominence of these variables within the Hungarian automotive industry, emphasizing the pivotal role of integrating green innovation, organizational support, and Green HR practices to cultivate a culture of sustainability and innovation. Nevertheless, the study acknowledges limitations, such as its cross-sectional design, use of self-report measures, and limited generalizability. To address these constraints, future research could employ longitudinal designs, larger sample sizes, and a mixed-methods approach to scrutinize relationships further and explore additional variables.

### Keywords

Ability-Motivation-Opportunity Theory, Creative Work Practices, Green Innovation, Organizational Support, Green Human Resource Practices, Hungarian Automotive Enterprises.

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## 1. Introduction

In recent years, the spotlight has intensified on sustainable business practices and environmental responsibility across diverse global industries. Notably, the automotive sector, renowned for its significant environmental impact, has acknowledged the imperative of adopting greener practices (Alat et al., 2023). In Hungary, a nation boasting a flourishing automotive industry, businesses progressively integrate Green Human Resource (GHR) practices to promote sustainable and ecologically friendly operations. Diverse individuals contribute to the success of Hungarian automakers in various fields, including design, engineering, production, shipping, sales, and customer service (Cheah et al., 2020). Their pivotal roles underscore the necessity of their knowledge and abilities for the effective manufacturing and delivery of high-quality automobiles and automotive parts (Grözinger et al., 2022). Hungary's automotive industry has burgeoned significantly, emerging as a significant player in the European automotive market, with abundant job prospects for the local workforce due to the establishment of production facilities and R&D centers by renowned international automakers (Hassan et al., 2022). Green HR practices refer to human resource management strategies and initiatives incorporating environmental sustainability into an organization's culture, policies, and practices (Yong et al., 2020). These measures aim to enhance staff members' understanding of and commitment to sustainable behavior, aligning their actions with the company's environmental objectives. The term encompasses how organizations integrate environmental sustainability principles into their human resource management plans and operations (Hsu & Chang, 2022), fostering a culture of sustainability



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and environmental responsibility by coordinating employee behavior with the company's environmental aims (Sule & Omoankhanle, 2022). Organizations may give preference to employees with suitable environmental knowledge, abilities, and experience, ensuring that new hires are committed to sustainability and can support the company's green objectives (Habeeb et al., 2020; Manase & Omondi, 2019). Training and participation in environmental sustainability awareness programs enable employees to comprehend the impact of their actions on the environment through workshops, seminars, and online courses on energy saving, waste management, and eco-friendly practices (Gohoungodji et al., 2020). Raising staff awareness contributes to promoting a sustainable culture. Green HR practices can be integrated into performance management systems by including sustainability goals and indicators connected to key performance indicators (KPIs) and performance reviews, motivating staff to produce environmentally friendly results (Rehman et al., 2021; Yang et al., 2022). Recognizing and rewarding sustainability initiatives further encourage environmentally friendly habits, and employee skills and knowledge can be enhanced through training and development programs focusing on sustainable practices (Yu et al., 2021). In the automotive industry, innovative work behaviors are pivotal in advancing sustainability initiatives alongside adopting Green HR practices (Zhou & Verburg, 2020). These behaviors entail proactive and imaginative steps staff members take to enhance business operations, provide fresh approaches, and contribute to the growth and success of their organizations. Employees actively create fresh concepts and ideas, offer creative methods to improve goods, procedures, or services, discover improvement opportunities, and propose novel solutions to problems (Alfy & Naithani, 2021; Caniëls & Veld, 2019).

Green innovation, encompassing creating and using new eco-friendly goods, services, procedures, or business models, is crucial for the automotive industry's sustainable evolution (Singh et al., 2020). This includes encouraging sustainable practices within organizations and devising creative solutions to environmental challenges, such as the development and production of electric and hybrid vehicles to minimize carbon emissions and reliance on fossil fuels (Hameed et al., 2021; Wang, 2019). Organizational support proves to be instrumental in promoting green innovation within automobile businesses (Huang et al., 2019). Organizations can encourage staff to use green innovation practices by fostering a supportive environment and offering essential resources. This involves committing proper resources, including money, technology, and experience, potentially creating specialized R&D departments or allocating specific funding for green innovation initiatives (Prabhashini, 2015; Yang et al., 2022). Employee empowerment comes from providing the tools to investigate and apply sustainable solutions (Shah et al., 2021). The current study explores the interplay of green HR practices and innovative work behaviors, incorporating a moderated mediation model that examines the role of green innovation and organizational support within Hungarian automotive companies. In developing our theoretical framework, we draw upon the Ability-Motivation-Opportunity theory, elucidating how individuals behave and perform in the workplace (Sibian & Ispas, 2021). This theory posits that an employee's performance is influenced by skill, motivation, and opportunity, providing a comprehensive lens through which to analyze the interactions of green HR practices, green innovation, and innovative work behaviors in the specific context of the Hungarian automotive industry.

## **2. Literature review**

### ***2.1 Theoretical Background of Ability-Motivation-Opportunity Theory***

The Ability-Motivation-Opportunity (AMO) theory is a framework that elucidates how individuals behave and perform in the workplace, emphasizing the interplay of skill, motivation, and opportunity (Yong et al., 2020). All three components must harmonize for an employee to achieve high levels of performance and engagement, as posited by the AMO hypothesis. "Ability" encompasses a worker's knowledge, abilities, and competencies for a specific task or job, including specialized and broader skills necessary for success (Sibian & Ispas, 2021). Employees with high ability are more likely to perform well and contribute to organizational objectives. "Motivation" denotes an employee's internal

drive and willingness to work hard, exhibiting behaviors aligned with organizational goals. Extrinsic rewards (recognition, financial incentives) and intrinsic rewards (personal fulfillment, autonomy) influence motivation, along with the compatibility of individual and organizational goal (Yong et al., 2020). "Opportunities" refer to the resources and environmental factors enabling employees to perform well, involving access to necessary support systems, knowledge, and tools (Sibian & Ispas, 2021).

GHRMP can enhance employees' capacity for green innovation and innovative work behavior through training programs on sustainability, environmental practices, and cutting-edge technologies (Rehman et al., 2021). Such programs equip employees with the knowledge and abilities essential for effective participation in green projects. Technical proficiency, creativity, problem-solving skills, and familiarity with sustainable practices are prerequisites for engaging in green innovation and exhibiting innovative work behavior (Gohoungodji et al., 2020). GHRMP is crucial in improving employees' skills in these areas by providing training and resources. An employee's motivation to engage in green innovation and innovative work behavior is influenced by the congruence of personal and organizational goals and extrinsic and intrinsic rewards (Hameed et al., 2021). It is essential to create opportunities within the organization for employees to utilize their skills and incentives for green innovation and innovative work behavior. This involves fostering a welcoming workplace, establishing clear job objectives, ensuring the availability of relevant information, and providing leadership support. Organizational support is pivotal for empowering and motivating employees to engage in green innovation and exhibit innovative work behavior (Purwanto et al., 2021). Such support can be demonstrated by providing resources, fostering collaboration, offering training and growth opportunities, and developing recognition and reward systems. Aligning ability, motivation, and opportunity within the context of GHRMP enhances employees' capacities for green innovation and innovative work behavior, contributing to the organization's environmental objectives and overall success. This integration fosters a resilient and creative workplace culture (Sibian & Ispas, 2021; Yong et al., 2020).

## **2.2 GHRMP and Green Innovation**

Green Human Resource Management Practices (GHRMP) hold the potential to incorporate sustainability standards into hiring and selection procedures, facilitating the recruitment of individuals with the necessary environmental knowledge and abilities to support green innovation and sustainability projects (Hameed et al., 2021). Courses offered by GHRMP on eco-friendly procedures, environmental laws, and cutting-edge technologies empower employees with the knowledge and abilities needed to engage in green innovation and implement sustainable practices at work (Huang et al., 2019). Additionally, GHRMP can integrate sustainability objectives and metrics into performance measurement systems, encouraging staff to actively participate in environmental projects by tying performance reviews and awards to sustainability and green innovation outcomes. Programs such as green teams or sustainability committees facilitated by GHRMP, provide platforms for staff members to generate original ideas, collaborate on environmentally friendly projects, and support overall sustainability initiatives (Gohoungodji et al., 2020).

Efficient communication channels set up by GHRMP within the organization contribute to spreading awareness about green innovation, environmental projects, and success stories (Habeeb et al., 2020). This communication fosters active engagement in green innovation practices and contributes to developing a shared awareness of the significance of sustainability. Leadership plays a crucial role in promoting green innovation, and GHRMP ensures that decision-makers demonstrate a strong commitment to sustainability, offer precise direction and guidance, and allocate funds for green innovation projects. Leadership support encourages employees to adopt green habits and cultivates an innovative and sustainable culture (Shah et al., 2021). Furthermore, GHRMP can promote cooperation and partnerships with external entities, such as vendors, clients, and research organizations, facilitating information exchange, co-creating sustainable solutions, and accelerating green innovation in the Hungarian automobile sector (Sibian & Ispas, 2021).

The integration of GHRMP into Hungarian automotive industries fosters an environment supporting green innovation and sustainability. This enables staff members to contribute their expertise, abilities,

and innovative ideas to developing environmentally friendly goods, services, and technologies, positioning Hungarian automakers as pioneers in sustainable business models and fostering positive change within the sector. Studies by Sule and Omoankhanle (2022) and Wang (2019) support the assertion that GHRMP has a favorable impact on employee involvement in green innovation efforts. Employees are more likely to actively contribute ideas, participate in green projects, and exhibit innovative behaviors that assist environmental sustainability when they perceive their organization's commitment to sustainability and receive support through GHRMP (Rehman et al., 2021; Shah et al., 2021).

Moreover, GHRMP helps organizations foster a climate for innovation, promoting a culture of creativity among their workforce by including sustainability goals in HR procedures. This empowerment of workers leads to motivation and responsibility. GHRMP encourages employee collaboration and knowledge sharing, improving green innovation (Yu et al., 2021). Through training and development programs that focus on sustainability, GHRMP equips workers with the knowledge and abilities needed for green innovation. Furthermore, GHRMP creates forums for exchanging best practices and lessons learned, promoting a culture of ongoing learning and progress (Yu et al., 2020).

H1: GHRMP has a significant impact on Green Innovation.

### ***2.3 Green Innovation and Innovative Work Behaviour***

Hungarian automakers can strategically focus on developing cars with enhanced fuel economy, reduced emissions, and support for alternative fuels. Allocating research and development funds is essential to produce cutting-edge technologies, lightweight materials, and energy-efficient components (Yang et al., 2022). Green innovation can be incorporated into manufacturing processes through eco-friendly practices like waste reduction, recycling, and energy conservation. Implementing smart manufacturing and automation technologies enhances production efficiency while minimizing environmental impact. Collaboration with suppliers to embrace sustainable practices, including ethical sourcing, adopting environmentally friendly materials, and reducing carbon emissions throughout the supply chain, fosters green innovation (Singh et al., 2020).

Motivating staff to generate original ideas and solutions can be achieved by promoting a culture of creativity, experimentation, and open communication within Hungarian automotive businesses. Establishing forums for idea exchange, brainstorming sessions, and cross-functional cooperation encourages staff to think creatively and propose innovative ideas (Ujma & Ingram, 2019; Yu et al., 2021). Staff engagement in continuous improvement, with authority to identify potential improvement areas, recommend process enhancements and implement creative practices enhancing productivity, quality, and sustainability, further promoting creative work practices. Hungarian automotive manufacturers can foster innovative work behavior by encouraging problem-solving abilities and adaptability, nurturing a culture of innovation within the company (Abbas & Sağsan, 2019; Gohoungodji et al., 2020).

Research consistently demonstrates a robust link between ecological innovation and creative work practices (Grošelj et al., 2021; Rehman et al., 2021; Yang et al., 2022). Wang (2019) asserts that businesses prioritizing sustainability and green innovation are more likely to cultivate an innovative culture, inspiring staff to generate new ideas, creatively solve problems, and experiment. The influence of organizational characteristics on the relationship between green innovation and creative work practices has been investigated (Pradhan & Jena, 2019). Factors such as leadership support, organizational culture, employee empowerment, and knowledge-sharing methods positively impact employee engagement in green innovation and their inclination to exhibit innovative work behavior. Research has also examined motivating variables encouraging employees to participate in green innovation and innovative work practices (Caniëls & Veld, 2019). Both intrinsic and extrinsic motivation, including rewards, recognition, and career progression linked to green innovation outcomes, play a significant role. Intrinsic motivation involves personal values and environmental awareness. Environmental awareness and knowledge significantly influence employees' engagement in green innovation and innovative work practices (Bos-Nehles & Veenendaal, 2019). Providing access to

environmental education, training, and information improves employees' capacity to support green innovation activities. Employee participation in green innovation processes has been emphasized in studies (Alfy & Naithani, 2021; Zhou & Verburg, 2020). Actively contributing ideas, participating in decision-making, and collaborating on green initiatives make employees more likely to engage in innovative work behavior and actively support the organization's sustainability objectives. Enablers and constraints affecting employees' participation in green innovation and innovative work practices have also been investigated (Grošelj et al., 2021). Obstacles such as resistance to change, lack of resources, and inadequate management support can impede progress, while enablers such as supportive leadership, an atmosphere of psychological safety, resource availability, and training facilitate engagement (Putra et al., 2020).

H2: Green Innovation has a significant impact on Innovative Work Behaviour.

#### ***2.4 Mediating Role of Green Innovation***

Employee participation in green innovation initiatives is influenced by GHRMP, which, in turn, encourages innovative work practices (Gohoungodji et al., 2020). Green innovation serves as a channel through which GHRMP positively impacts employees' inventive behaviors. Businesses implementing GHRMP are observed to foster employee innovation in the green domain, enhancing workers' creative thinking abilities at work. Studies indicate that green innovation mediates the association between GHRMP and innovative work behavior, demonstrating that green innovation either wholly or partially mediates the positive effect of GHRMP on innovative work behavior (Rehman et al., 2021). GHRMP supports employee empowerment and encourages participation in green innovation through empowerment programs, sustainability-focused training and development, and supportive leadership (Huang et al., 2019). This empowerment and drive have a cascading effect that promotes new work practices, including green innovation. GHRMP can enhance staff members' environmental understanding and consciousness. When manifested through green innovation, this environmental concern motivates individuals to act creatively at work. Employees can utilize green innovation to apply their environmental awareness and contribute to the organization's sustainability objectives (Yu et al., 2021). GHRMP, when combined with organizational support, fosters an environment where employees are motivated to pursue green innovation, subsequently influencing their innovative work practices. Resources, acknowledgment, and a culture that supports and rewards innovative behaviors aligned with sustainability goals are integral components of organizational support (Sibian & Ispas, 2021; Sule & Omoankhanle, 2022).

Green innovation can mediate the interaction between various factors or variables. For instance, it can serve as a mediator in the relationship between sustainable leadership and employee engagement or between Green HR practices (GHRMP) and organizational performance (Rehman et al., 2021; Yu et al., 2021). These elements exert influence on intended outcomes through a mechanism known as green innovation. Green innovation can be employed to elucidate how specific factors impact outcomes, offering a pathway through which GHRMP, environmental campaigns, or other sustainability-related elements may affect organizational performance, the actions of its personnel, or other desired outcomes. Green innovation acts as an intermediary between outcomes and the availability of resources (Caniëls & Veld, 2019; Habeeb et al., 2020). For instance, it can mediate the relationship between the adoption of sustainable practices or the successful execution of green projects and the availability of financial, technological, or information resources relevant to sustainability. Green innovation can mediate the relationship between employee behavior and incentive variables. For example, it can mediate the relationship between employees' intrinsic motivation, such as environmental awareness or a passion for sustainability, and their participation in eco-friendly projects or creative work practices (Gohoungodji et al., 2020). Green innovation can mediate the relationship between intended outcomes, such as enhanced environmental performance, competitive advantage, or organizational sustainability, and input elements, such as GHRMP or environmental practices. It functions as a bridge between sustainable practices and observable results (Huang et al., 2019).

H3: Green innovation mediates the relationship between GHRMP and innovative work behavior.

### ***2.5 Moderating Role of Organizational Support***

Employees can actively participate in green innovation initiatives when their employer provides the necessary funds, time, and technology (Asgari et al., 2020). Organizations play a crucial role in helping employees translate their creative ideas into practice and overcome obstacles by providing essential resources. This support reinforces the positive connection between environmentally friendly innovation and innovative workplace practices. Organizational support fosters collaboration and teamwork among employees, facilitating a climate favorable to green innovation through cross-functional cooperation, knowledge sharing, and open communication (Eisenberger et al., 2020). Employee exchange of knowledge and ideas enhances the link between green innovation and inventive work behavior (Matusik et al., 2022). Organizational backing for green innovation efforts inspires staff to adopt new work practices through recognition and rewards. Employees are more likely to display innovative behaviors when they perceive their contributions to green innovation are acknowledged and rewarded. By encouraging employees' efforts, organizational support strengthens the connection between green innovation and innovative work behavior (Asgari et al., 2020; Thompson et al., 2020).

Organizations can provide employees with the necessary skills and expertise for green innovation through training and development initiatives centered on sustainability and innovation. By funding employees' professional development and offering relevant training opportunities, organizations encourage employees to engage in creative work behavior connected to sustainability. The availability of training and development opportunities enhances the link between green innovation and forward-thinking workplace practices (Eisenberger et al., 2020; Saadeh & Suifan, 2020). Organizational support creates a welcoming environment that promotes taking risks, trying new things, and learning from mistakes. Employees are more inclined to engage in green innovation and display innovative work behavior when they believe their organization supports and promotes these behaviors. The organization's encouraging environment strengthens the favorable association between green innovation and innovative work behavior (Ridwan et al., 2020).

The positive correlation between green innovation and innovative work practices is further strengthened through organizational assistance. Employee desire and commitment to engage in creative work behavior connected to sustainability are enhanced when they perceive high levels of support from their employer, such as encouragement, resources, and acknowledgment of green innovation (Asgari et al., 2020). Organizational support can buffer negative consequences hindering the relationship between green innovation and innovative work behavior. For example, organizational support can mitigate challenges or impediments employees face when adopting green innovation, such as limited resources or resistance to change (Ridwan et al., 2020). Support from the organization enhances the effective implementation of green innovation initiatives, subsequently promoting innovative work behavior. Clear standards, support structures, and communication channels provided by organizations encourage more inventive work behavior during the application of green innovation initiatives. Organizational support for cooperation and collaboration facilitates the relationship between green innovation and inventive work behavior by fostering a collaborative culture, providing venues for information exchange, and encouraging cross-functional collaboration. Employees leverage their pooled knowledge and ideas in this collaborative environment (Thompson et al., 2020). In the form of feedback, learning opportunities, and continuous improvement methods, organizational support can impact the relationship between green innovation and inventive work behavior. Employees are better equipped to display innovative work behavior when they receive constructive criticism, have opportunities for skill development, and engage in green innovation learning projects (Matusik et al., 2022; Saadeh & Suifan, 2020).

H4: Organizational support moderates the relationship between green innovation and innovative work behavior.

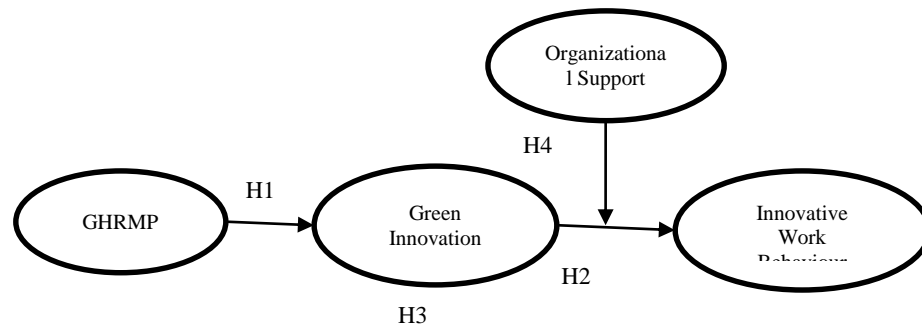


Figure 1: Proposed Research Model

### 3. Methodology

The research adopts a quantitative and descriptive approach for hypothesis testing, employing a cross-sectional method for primary data collection through questionnaires. Targeting Hungarian automotive companies, a convenience sampling method was utilized with 350 questionnaires distributed to managerial-level employees. A high response rate of 91% was achieved with 320 properly filled responses, ensuring the robustness of the analysis. Statistical procedures were conducted using the Smart PLS software.

#### 3.1 Measurements

For data collection, an adapted questionnaire with items from various sources was employed, ensuring self-explanation and clarity about the study's purpose. The second section focused on demographic variables. Responses were gathered on a 5-point Likert scale, emphasizing ethical practices and participant comfort during data collection. The confidentiality of data was assured, with a specific mention of its use for research purposes. The instrument's reliability, tested using the Cronbach alpha value (0.70), indicated its trustworthiness. The adapted scale is detailed in Table 1.

Table 1: Measurement Scale

	Source
<b>GHRMP</b>	
<ul style="list-style-type: none"> <li>• Selection of employees according to environmental criteria.</li> <li>• Attract employees via environmental responsibility.</li> <li>• Training for employees on environmental issues.</li> <li>• Environment-related responsibilities are part of the job description.</li> <li>• Participation of the employees in environmental concerns.</li> <li>• Environmental performance is considered in the appraisal of employees.</li> <li>• Environmental performance is be rewarded in other ways besides money.</li> <li>• Environmental performance-based compensation.</li> </ul>	(Hameed et al., 2021)
<b>Green Innovation</b>	(Singh et al., 2020)
<ul style="list-style-type: none"> <li>• Uses low energy consumption.</li> <li>• Utilizes recycled, remanufactured, or reused materials.</li> <li>• Utilizes cleaner technics to block pollution.</li> <li>• Uses pollution-control equipment.</li> </ul>	

<ul style="list-style-type: none"> <li>• Makes changes to product designs.</li> <li>• Designs eco-friendly packaging for products</li> </ul>	(Eisenberger et al., 2020)
Organizational Support	
<ul style="list-style-type: none"> <li>• My organization cares about my opinions.</li> <li>• My organization cares about my well-being.</li> <li>• My organization appreciates any extra effort from me.</li> <li>• My organization cannot ignore any complaint from me.</li> <li>• Even if I did the best job possible, my organization would fail to notice.</li> <li>• My organization cares about my general satisfaction at work</li> </ul>	
Innovative Work behavior	(Alfy & Naithani, 2021)
<ul style="list-style-type: none"> <li>• Creating new ideas for difficult issues).</li> <li>• Searching out new working methods, techniques or instruments.</li> <li>• Generating original solutions for problems.</li> <li>• Mobilizing support for innovative ideas.</li> <li>• Acquiring approval for innovative ideas.</li> <li>• Making important organizational members enthusiastic about innovative idea</li> </ul>	

## 4. Results

### 4.1 Demographics

Table 2 presents the demographic details and descriptive statistics of the sample for the study (N=320), following a preliminary analysis of respondent data. SmartPLS3 was utilized to assess the structural and measurement models.

Table 2: Demographic profile

	Description	No. of Responses	%
<b>Gender</b>	Male	190	59
	Female	130	41
<b>Age</b>	20-35	90	28
	35-50	110	34
	Above 50	120	38
<b>Qualification</b>	FA/FSC	80	25
	BA/BSC	120	38
	Diploma	70	21
	Others	50	16
<b>Length of service</b>	2 Years	120	38
	3 Years	110	34
	More than 3 Years	90	28
<b>Designation</b>	Senior Managers	120	38
	Middle Managers	110	34
	Junior level Managers	90	28

### 4.2 Measurement model

Parameters like Composite Reliability, Cronbach's Alpha, and AVE are commonly used to evaluate the reliability and validity of a measurement model (Hair Jr. et al., 2021). The composite reliability estimates in Table 3 ranged from "0.890 to 0.930," all exceeding 0.70.

Table 3: CR, AVE, and Cronbach's Alpha

	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
<b>GHRMP</b>	0.913	0.930	0.623
<b>Green Innovation</b>	0.863	0.898	0.596
<b>Innovative Work Behaviour</b>	0.912	0.932	0.694
<b>Organizational Support</b>	0.849	0.890	0.578

Discriminant validity, a crucial aspect of construct validity in a measurement model, measures the extent to which different concepts (latent variables) within a model are empirically distinct, quantifiably distinct, and unrelated (Hair Jr. et al., 2021). After confirming the validity and reliability of all variables, researchers conducted additional investigations for structural route analysis (Hair et al., 2019). Table 4 illustrates the values for Discriminant Validity.

Table 4: Discriminant Validity

	<b>GHRMP</b>	<b>GI</b>	<b>IWB</b>	<b>OS</b>
<b>GHRMP</b>	0.789			
<b>Green Innovation</b>	-0.600	0.772		
<b>Innovative Work Behaviour</b>	-0.768	0.662	0.833	
<b>Organizational Support</b>	-0.626	0.703	0.681	0.760

#### 4.3 Structural Equation Model

Structural Equation Modelling (SEM) involves direct relations, represented as single arrows or paths, indicating the relationship between two variables. According to Table 5, GHRMP significantly impacts green innovation ( $\beta = 0.600$ ,  $t = 12.294$ ,  $p = 0.000$ ). Additionally, Table 6 reveals that green innovation significantly influences innovative work behavior ( $\beta = 0.362$ ,  $t = 6.589$ ,  $p = 0.000$ ).

Table 5: Structural Relationship

	<b>B</b>	<b>T Statistics</b>	<b>P Values</b>	<b>Decision</b>
<b>GHRMP -&gt; Green Innovation</b>	0.600	12.294	0.000	Supported
<b>Green Innovation -&gt; Innovative Work Behaviour</b>	0.362	6.589	0.000	Supported
<b>GHRMP -&gt; Green Innovation -&gt; Innovative Work Behaviour</b>	-0.217	5.304	0.000	Supported
<b>Green Innovation*Organizational Support -&gt; Innovative Work Behaviour</b>	0.427	8.548	0.000	Supported

Mediating variables act as connecting factors between independent and dependent variables. Table 5 indicates that green innovation, as a mediating variable, maintains a significant relationship between GHRMP and innovative work behavior ( $\beta = -0.217$ ,  $t = 5.304$ ,  $p = 0.000$ ). Consequently, H2 is accepted.  $R^2$  square values for green innovation and innovative work behavior are 0.360 and 0.531, respectively. Table 5 illustrates the significant moderating role of organizational support between green innovation and innovative work behavior ( $\beta = 0.427$ ,  $t = 8.548$ ,  $p = 0.000$ ).

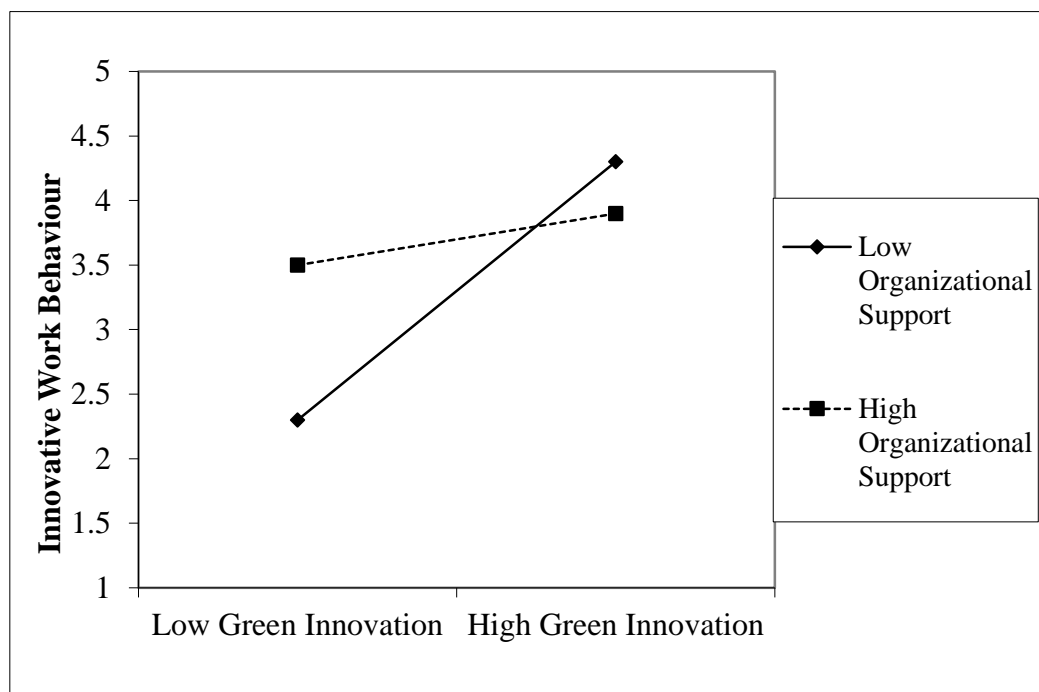


Figure 2: Moderating analysis

While the slopes of the correlations influenced by moderation differ, all slopes in Graph 1 are significant for low, moderate, and high levels of findings (Dash & Paul, 2021). The previously positive and robust relationship between green innovation and innovative work behavior is strengthened, particularly among managers in Hungarian automobile businesses, emphasizing the moderating influence of organizational support. In essence, organizational support amplifies the connection between green innovation and innovative work behavior, even when viewed negatively, showcasing a nuanced improvement in the link through organizational support.

## 5. Discussion

The current study highlights the prevalence of the ability-motivation-opportunity theory, creative work practices, and a moderated mediation model involving green innovation, organizational support, and Green Human Resource Management Practices (GHRMP) within Hungarian automotive enterprises. The study affirms that organizational support moderates the relationship between GHRMP, green innovation, and innovative work behavior, with all theories gaining acceptance. The study's findings indicate a significant impact of Green HRMP on green innovation among managers in Hungarian automobile companies. This underscores the role of implementing Green HR practices within organizations to promote green innovation initiatives (Gharibeh, 2019). Integrating sustainability practices into HR policies positively influences managers' ability to generate innovative ideas and implement environmentally friendly practices. Green HRMP encompasses practices such as sustainability-focused training and development programs, recruitment criteria emphasizing environmental consciousness, and supportive leadership recognizing green initiatives. These practices create a work environment that values sustainability and encourages innovative behaviors, leading to increased innovation in addressing environmental challenges and embracing eco-friendly business practices (Grošelj et al., 2021). The study's results align with the growing recognition of HR practices' crucial role in steering sustainable business practices. Incorporating environmental considerations into HR processes effectively engages employees and managers in environmental initiatives, fostering a greater focus on green innovation and the development of eco-friendly products, processes, and services. The findings also suggest that automobile companies in Hungary actively acknowledge the importance of sustainability and proactively integrate green practices into their HR strategies. This

positive trend signifies a commitment within the automotive industry to incorporate sustainability principles into business operations, given its substantial environmental impact.

The study also identifies a significant but negative mediation effect of green innovation on the relationship between Green HRMP (Green Human Resource Management Practices) and innovative work behavior among managers in Hungarian automobile companies. It suggests that while Green HRMP directly impacts innovative work behavior, green innovation is a mediating factor that negatively influences this relationship. The negative mediation effect implies that the focus on green innovation within the context of Green HRMP may divert managers' attention and resources from other innovative work behaviors. Integrating green practices into HR policies may require managers to allocate more time and resources to environmentally friendly initiatives, potentially limiting their engagement in a broader range of innovative ideas and practices. Specific requirements and constraints associated with green innovation may further restrict the variety of innovative activities managers pursue (Habeeb et al., 2020). These findings illuminate the intricate interplay between Green HRMP, green innovation, and innovative work behavior. While Green HRMP practices aim to promote sustainability and innovation, the mediating effect of green innovation highlights a potential trade-off. This study offers valuable insights for automobile companies in Hungary and similar industries, emphasizing the need to balance promoting sustainability through green innovation and fostering a culture that encourages diverse forms of innovation. By recognizing and managing the potential negative mediation effect of green innovation, organizations can create an environment supporting both environmental sustainability and a broad spectrum of innovative behaviors.

The study reveals that organizational support significantly moderates the relationship between green innovation and innovative work behavior among managers in Hungarian automobile companies. This finding underscores the crucial role of organizational support in shaping and influencing this relationship. The moderation effect indicates that the impact of green innovation on innovative work behavior varies based on the level of organizational support extended. Organizational support encompasses various forms, including providing resources, recognition, training, and feedback and encouraging a supportive work environment that encourages innovation and sustainability. The study emphasizes the pivotal role of organizational support in facilitating and enhancing the positive relationship between green innovation and innovative work behavior. When managers perceive high levels of support from their organization, they are more likely to engage in innovative work behaviors aligned with sustainability goals (Rehman et al., 2021). Organizational support catalyzes by providing necessary resources, encouragement, and guidance, empowering managers to explore and implement innovative ideas related to green innovation.

Moreover, it acts as a buffer against barriers and challenges that might impede the relationship between green innovation and innovative work behavior. When managers encounter limited resources, resistance to change, or lack of training in implementing green innovation, organizational support mitigates these barriers and offers solutions. It enables managers to engage in innovative work behaviors effectively. The significant moderation effect implies that the positive impact of green innovation on innovative work behavior is amplified when strong organizational support is present. Organizations that prioritize and actively support green innovation initiatives create an environment where managers feel empowered and motivated to contribute their innovative ideas and efforts toward sustainability. This finding underscores the importance of fostering a supportive organizational culture to maximize the positive influence of green innovation on innovative work behavior among managers in the context of automobile companies in Hungary.

### ***5.1 Practical and Theoretical Implications***

The practical implications emanating from this study underscore the necessity of incorporating Green HR practices, cultivating a supportive organizational culture, and championing creative work practices to propel green innovation and innovative work behavior within Hungarian automotive enterprises. Concurrently, the theoretical implications emphasize the pertinence of the AMO theory,

creative work practices, mediation, and moderation models in comprehending the intricate relationships among these variables. These insights guide managerial decision-making and pave the way for future research endeavors in the sphere of sustainable practices and innovation within the automotive sector. The study accentuates the pivotal role of integrating Green HR practices in Hungarian automotive enterprises. The focus should be on implementing policies that accentuate environmental consciousness, such as sustainable recruitment and selection criteria, training programs centered on sustainability, and performance management systems aligned with green objectives. This integration is instrumental in fostering a culture of environmental responsibility and innovation among employees. Establishing a supportive organizational culture is critical in promoting green innovation and innovative work behavior. Companies are urged to extend organizational support through resources, recognition, and training to empower employees and managers to participate in green innovation initiatives. This support surmounts barriers and facilitates implementing sustainable practices, thereby driving innovation and fostering positive environmental outcomes. Encouraging and endorsing creative work practices among employees is advocated. Organizations can enhance innovative work behavior and green innovation by providing opportunities for employees to explore and experiment with novel ideas. Achieving this involves fostering a culture valuing experimentation, open communication, and collaboration across different departments and teams. The study contributes significantly to the existing literature by supplying empirical evidence of the prevalence of the AMO theory, creative work practices, and their correlation with green innovation, organizational support, and Green HR practices in Hungarian automotive enterprises. This affirms the applicability and relevance of these theories within the context of sustainable practices and innovation in the automotive industry.

Additionally, the study enhances comprehension of the relationship between Green HR practices, green innovation, and innovative work behavior by scrutinizing the mediating effect of green innovation and the moderating effect of organizational support. These findings contribute to theoretical knowledge by elucidating the mechanisms through which these variables interconnect, offering insights into the complex dynamics of sustainable practices and innovation in organizational settings. The study's focus on Hungarian automotive enterprises provides industry-specific insights into the adoption and impact of green innovation, organizational support, and Green HR practices, thereby enriching the understanding of sustainability practices in the automotive sector and forming a basis for future research in similar industries or regions.

## ***5.2 Limitations and Future Research***

Future research avenues could address identified limitations and explore deeper into additional aspects to further advance understanding of the AMO theory, creative work practices, green innovation, organizational support, and Green HR practices within Hungarian automotive enterprises. Employing larger sample sizes, longitudinal designs, multiple data sources, and mixed-method approaches could enhance findings' robustness and generalizability, contributing to academic knowledge and practical insights. While the study offers valuable insights into the specific context through a sample of 320 managers from Hungarian automotive enterprises, future research could amplify external validity by involving larger sample sizes and a more diverse range of companies. The study's cross-sectional design limits the ability to establish causal relationships between variables. Future research could deploy longitudinal or experimental designs to explore the dynamic nature of relationships and establish causality. Mitigating common method bias, introduced by self-report measures for data collection, could be achieved through future studies incorporating objective measures or multiple data sources. Additionally, the study, focusing on certain variables, may not cover other relevant factors such as leadership styles, organizational culture, and external environmental factors. Future research could explore these factors for a more comprehensive understanding of relationships. While the study employs a quantitative research approach, future research could consider complementing quantitative analysis with qualitative methods, such as interviews or case studies, for a deeper understanding of underlying mechanisms and contextual factors influencing relationships.

### 5.3 Conclusion

This study provides compelling evidence of the prevalence of the ability-motivation-opportunity (AMO) theory, creative work practices, a moderated mediation model of green innovation, organizational support, and Green HR practices within Hungarian automotive enterprises. These variables significantly shape sustainable and innovative practices within the industry. The prevalence of AMO theory underscores the recognition that employees' abilities, motivation, and opportunities are crucial in driving green innovation and **fostering** innovative work behaviors. Aligning these elements allows organizations to create an environment that encourages employees to engage in sustainable practices and contribute innovative ideas. Creative work practices are prevalent, indicating that Hungarian automotive companies value and encourage employees' creativity and exploration of new ideas. These practices enable employees to contribute to green innovation and engage in innovative work behaviors supporting sustainability initiatives. The moderated mediation model of green innovation suggests that while it acts as a mediator between green human resource practices and innovative work behaviors, it negatively influences this relationship. This underscores the potential trade-off between focusing on sustainability-related practices and promoting a broader range of innovative work behaviors. Organizational support is acknowledged as a critical factor in driving green innovation and innovative work behaviors. Findings indicate that employees are more likely to engage in sustainable practices and contribute innovative ideas when organizations provide support. Organizational support serves as a facilitator, enabling employees to overcome barriers and implement green innovation effectively. The dominance of Green HR practices underscores the importance of integrating sustainability into HR policies and practices within Hungarian automotive enterprises. These practices contribute to creating a culture of environmental responsibility and innovation. In summary, the prevalence of the AMO theory, creative work practices, moderated mediation model of green innovation, organizational support, and Green HR practices in Hungarian automotive enterprises underscores the significance of sustainability and innovation within the industry. These findings offer valuable insights for automotive sector organizations to formulate strategies for promoting green innovation, supporting employee creativity, and ensuring organizational support for sustainable practices.

## References

- Abbas, J., & Sağsan, M. (2019, 2019/08/20/). Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis. *Journal of Cleaner Production*, 229, 611-620. <https://doi.org/10.1016/j.jclepro.2019.05.024>
- Alat, P., Das, S. S., Arora, A., & Jha, A. K. (2023, 2023/01/01). Mental health during COVID-19 lockdown in India: Role of psychological capital and internal locus of control. *Current Psychology*, 42(3), 1923-1935. <https://doi.org/10.1007/s12144-021-01516-x>
- Alfy, S. E., & Naithani, P. (2021, 2021/01/01). Antecedents of innovative work behaviour: a systematic review of the literature and future research agenda. *World Review of Entrepreneurship, Management and Sustainable Development*, 17(1), 1-19. <https://doi.org/10.1504/WREMSD.2021.112082>
- Asgari, A., Mezginejad, S., & Taherpour, F. (2020). The Role of Leadership Styles in Organizational Citizenship Behavior through the Mediation of Perceived organizational Support and Job satisfaction. *Innovar*, 30(75), 87-98. <https://doi.org/10.15446/innovar.v30n75.83259>
- Bos-Nehles, A. C., & Veenendaal, A. A. R. (2019, 2019/10/11). Perceptions of HR practices and innovative work behavior: the moderating effect of an innovative climate. *The International Journal of Human Resource Management*, 30(18), 2661-2683. <https://doi.org/10.1080/09585192.2017.1380680>
- Caniëls, M. C. J., & Veld, M. (2019, 2019/02/21). Employee ambidexterity, high performance work systems and innovative work behaviour: How much balance do we need? *The International Journal of Human Resource Management*, 30(4), 565-585. <https://doi.org/10.1080/09585192.2016.1216881>
- Cheah, J.-H., Thurasamy, R., Memon, M. A., Chuah, F., & Ting, H. (2020). Multigroup Analysis using SmartPLS: Step-by-Step Guidelines for Business Research. *Asian Journal of Business Research*, 10(03), 1-19. <https://doi.org/10.14707/ajbr.200087>
- Dash, G., & Paul, J. (2021, 2021/12/01/). CB-SEM vs PLS-SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change*, 173, 121092. <https://doi.org/10.1016/j.techfore.2021.121092>
- Eisenberger, R., Linda Rhoades Shanock, & Wen, X. (2020). Perceived organizational support: Why caring about employees counts. *Annual Review of Organizational Psychology and Organizational Behavior*, 07, 101-124. <https://doi.org/10.1146/annurev-orgpsych-012119-044917>
- Gharibeh, M. (2019, 10/01). The Impact of Green Human Resource Management Practices (GHRMP) on the competitive advantage of the organization. *Journal of Social Sciences (COES&RJ-JSS)*, 8(4), 630-640. <https://doi.org/10.25255/jss.2019.8.4.630.640>
- Gohoungodji, P., N'Dri, A. B., Latulippe, J.-M., & Matos, A. L. B. (2020, 2020/12/20/). What is stopping the automotive industry from going green? A systematic review of barriers to green innovation in the automotive industry. *Journal of Cleaner Production*, 277, 123524. <https://doi.org/10.1016/j.jclepro.2020.123524>
- Grošelj, M., Černe, M., Penger, S., & Grah, B. (2021). Authentic and transformational leadership and innovative work behaviour: the moderating role of psychological empowerment. *European Journal of Innovation Management*, 24(3), 677-706. <https://doi.org/10.1108/EJIM-10-2019-0294>
- Grözing, A.-C., Wolff, S., Ruf, P. J., & Moog, P. (2022, 2022/02/01). The power of shared positivity: organizational psychological capital and firm performance during exogenous crises. *Small Business Economics*, 58(2), 689-716. <https://doi.org/10.1007/s11187-021-00506-4>
- Habeeb, F., Altyar, A., & Khazeal, B. (2020). Impact of Green Human Resource Practices on Mosul University's Green Core Capabilities. Proceedings of the 1st International Multi-Disciplinary Conference Theme: Sustainable Development and Smart Planning, IMDC-SDSP 2020, Cyperspace, 28-30 June 2020, <https://doi.org/10.4108/eai.28-6-2020.2298157>.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>

- Hair Jr., J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer Nature.  
<https://doi.org/10.1007/978-3-030-80519-7>
- Hameed, S., Mehmood, K., & Butt, A. (2021). Organizational Sustainability through Green Human resource practices: inspecting the moderating role of employee's green value. *Turkish Online Journal of Qualitative Inquiry*, 12(07), 8863.
- Hassan, H., Hs Bollah, H. M., & Mohamad, R. (2022, 2022/01/01/). Examining the interlink of social media use, purchase behavior, and mental health. *Procedia Computer Science*, 196, 85-92.  
<https://doi.org/10.1016/j.procs.2021.11.076>
- Hsu, C.-P., & Chang, C.-W. (2022, 2022/04/01/). Does the social platform established by MMORPGs build social and psychological capital? *Computers in Human Behavior*, 129, 107139.  
<https://doi.org/10.1016/j.chb.2021.107139>
- Huang, Z., Liao, G., & Li, Z. (2019, 2019/07/01/). Loaning scale and government subsidy for promoting green innovation. *Technological Forecasting and Social Change*, 144, 148-156.  
<https://doi.org/10.1016/j.techfore.2019.04.023>
- Manase, G. W., & Omondi, M. (2019). Influence of Green Human Resources Management Practices on Greening TVET: A Case of Shamberere Technical Training Institute. *Africa Journal of Technical & Vocational Education & Training*, 04(01), 33-43.
- Matusik, J. G., Ferris, D. L., & Johnson, R. E. (2022). The PCMT model of organizational support: An integrative review and reconciliation of the organizational support literature. *Journal of Applied Psychology*, 107(3), 329-345. <https://doi.org/10.1037/apl0000922>
- Prabhashini, M. (2015). *Impact of Green Human Resource Management Practices on Employees' Job Commitment: With Reference to Apparel Industry in Sri Lanka*. Uva Wellassa University of Sri Lanka].
- Pradhan, S., & Jena, L. K. (2019, 2019/03/01). Does Meaningful Work Explains the Relationship Between Transformational Leadership and Innovative Work Behaviour? *Vikalpa*, 44(1), 30-40.  
<https://doi.org/10.1177/0256090919832434>
- Purwanto, A., Purba, J. T., Bernarto, I., & Sijabat, R. (2021). The Role of Transformational Leadership, Organizational Citizenship Behaviour, Innovative Work Behaviour, Quality Work Life, Digital Transformation and Leader Member Exchange on Universities Performance. *Linguistica Antverpiensia*(02), 2908 – 2932.
- Putra, I. K. S. W., Riana, I. G., & Surya, I. B. K. (2020). The Influence Of Authentic Leadership And Work Engagement Over Innovative Work Behavior. *Journal of Multidisciplinary Academic*, 04(05), 295-299.
- Rehman, S. U., Kraus, S., Shah, S. A., Khanin, D., & Mahto, R. V. (2021, 2021/02/01/). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. *Technological Forecasting and Social Change*, 163, 120481. <https://doi.org/10.1016/j.techfore.2020.120481>
- Ridwan, M., Mulyani, S. R., & Ali, H. (2020). Improving Employee Performance Through Perceived Organizational Support, Organizational Commitment and Organizational Citizenship Behavior. *Systematic Reviews in Pharmacy*, 11(12), 839-849.
- Saaddeh, I. M., & Suifan, T. S. (2020). Job stress and organizational commitment in hospitals. *International Journal of Organizational Analysis*, 28(1), 226-242. <https://doi.org/10.1108/IJOA-11-2018-1597>
- Shah, S. M. A., Jiang, Y., Wu, H., Ahmed, Z., Ullah, I., & Adebayo, T. S. (2021). Linking Green Human Resource Practices and Environmental Economics Performance: The Role of Green Economic Organizational Culture and Green Psychological Climate. *International Journal of Environmental Research and Public Health*, 18(20), 10953. <https://doi.org/10.3390/ijerph182010953>
- Sibian, A.-R., & Ispas, A. (2021). An Approach to Applying the Ability-Motivation-Opportunity Theory to Identify the Driving Factors of Green Employee Behavior in the Hotel Industry. *Sustainability*, 13(9), 4659.  
<https://doi.org/10.3390/su13094659>
- Singh, S. K., Giudice, M. D., Chierici, R., & Graziano, D. (2020, 2020/01/01/). Green innovation and environmental performance: The role of green transformational leadership and green human resource management.

*Technological Forecasting and Social Change*, 150, 119762.  
<https://doi.org/10.1016/j.techfore.2019.119762>

- Sule, O. E., & Omoankhanle, J. A. (2022, February 23,2022 ). Green Human Resources Management Practices and Pro-Environmental Behavior of Knowledge Workers in Selected Private Organisations in Ogun State, Nigeria. *Journal of Business Strategy Finance and Management*, 04(01), 111-123.  
<https://doi.org/10.12944/JBSFM.04.01.09>
- Thompson, P. S., Bergeron, D. M., & Bolino, M. C. (2020). No obligation? How gender influences the relationship between perceived organizational support and organizational citizenship behavior. *Journal of Applied Psychology*, 105(11), 1338-1350. <https://doi.org/10.1037/apl0000481>
- Ujma, M., & Ingram, T. (2019). Perception of ability-motivation-opportunity oriented HRM practices and organizational commitment: The role of task uncertainty. *Journal of Entrepreneurship, Management and Innovation*, 15(04), 139-161.
- Wang, C.-H. (2019). How organizational green culture influences green performance and competitive advantage. *Journal of Manufacturing Technology Management*, 30(4), 666-683. <https://doi.org/10.1108/JMTM-09-2018-0314>
- Yang, H., Li, L., & Liu, Y. (2022, 2022/05/01/). The effect of manufacturing intelligence on green innovation performance in China. *Technological Forecasting and Social Change*, 178, 121569.  
<https://doi.org/10.1016/j.techfore.2022.121569>
- Yong, J. Y., Yusliza, M. Y., Jabbour, C. J. C., & Ahmad, N. H. (2020). Exploratory cases on the interplay between green human resource management and advanced green manufacturing in light of the Ability-Motivation-Opportunity theory. *Journal of Management Development*, 39(1), 31-49. <https://doi.org/10.1108/JMD-12-2018-0355>
- Yu, C.-H., Wu, X., Zhang, D., Chen, S., & Zhao, J. (2021, 2021/06/01/). Demand for green finance: Resolving financing constraints on green innovation in China. *Energy Policy*, 153, 112255.  
<https://doi.org/10.1016/j.enpol.2021.112255>
- Yu, W., Chavez, R., Feng, M., Wong, C. Y., & Fynes, B. (2020, 2020/01/01/). Green human resource management and environmental cooperation: An ability-motivation-opportunity and contingency perspective. *International Journal of Production Economics*, 219, 224-235. <https://doi.org/10.1016/j.ijpe.2019.06.013>
- Zhou, Z., & Verburg, R. (2020, 2020/06/01). Open for business: The impact of creative team environment and innovative behaviour in technology-based start-ups. *International Small Business Journal*, 38(4), 318-336.  
<https://doi.org/10.1177/0266242619892793>