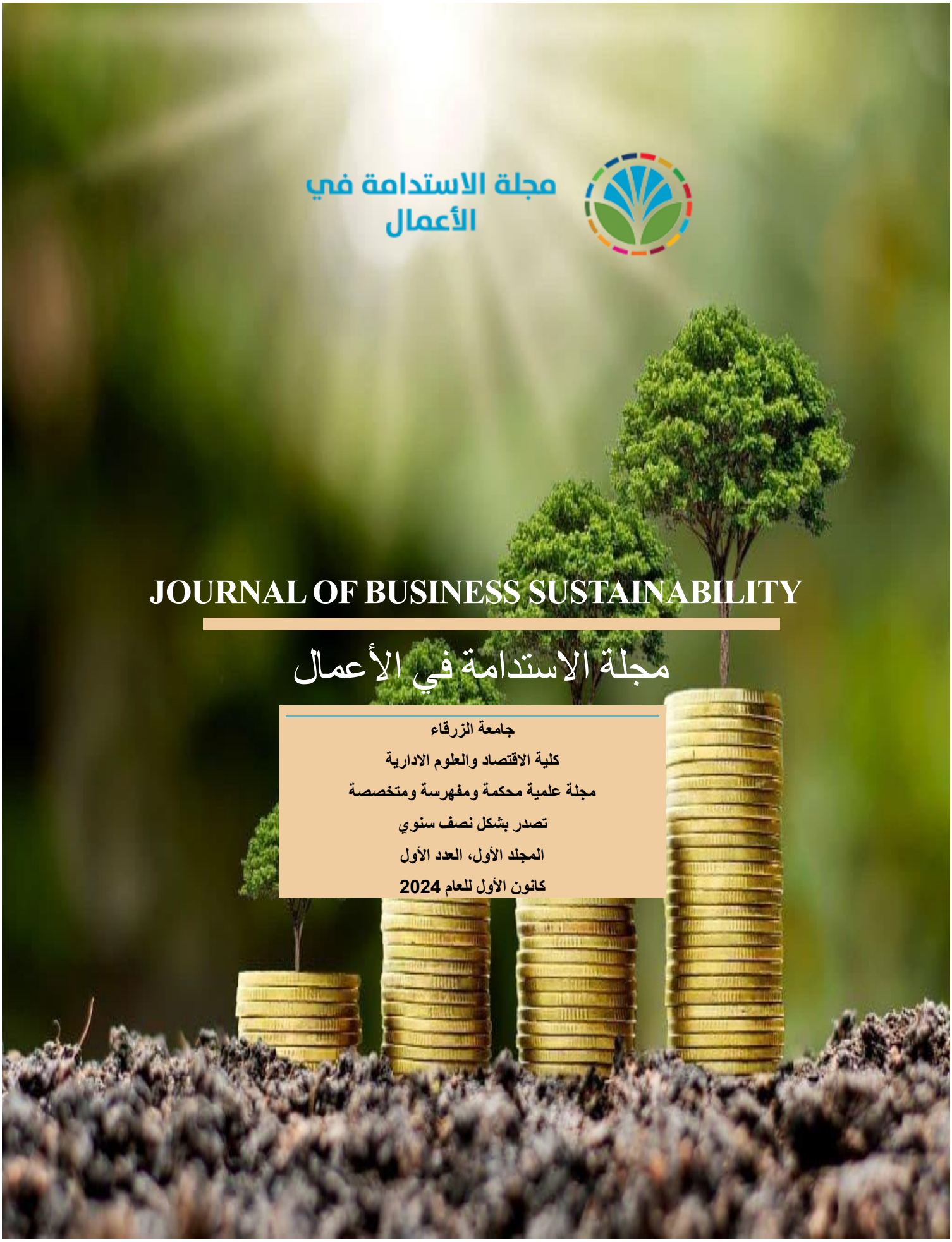


# JOURNAL OF BUSINESS SUSTAINABILITY

# مجلة الاستدامة في الأعمال

**جامعة الزرقاء**

**كلية الاقتصاد والعلوم الادارية**

**مجلة علمية محكمة ومفهرسة ومتخصصة**

**تصدر بشكل نصف سنوي**

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الزرقاء – الأردن

# مجلة الاستدامة في الاعمال

مجلة علمية محكمة ومفهرسة ومتخصصة ونصف سنوية

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## نبذة عن المجلة

الأهداف

تعمل مجلة استدامة الأعمال كمنصة حيوية مخصصة لاستكشاف ونشر وتطوير الأبحاث حول تقاطع ممارسات الأعمال والاستدامة. من خلال تبني نهج متعدد التخصصات، توفر هذه المجلة منتدى شاملاً للحوار العلمي والاستقصاء التجريبي في استراتيجيات الأعمال المستدامة، والإدارة البيئية، والمسؤولية الاجتماعية، والجدوى الاقتصادية.

هدفنا هو تسهيل الحوار بين العلماء والممارسين وصناع السياسات وأصحاب المصلحة في جميع أنحاء العالم، وتعزيز فهم أعمق للعلاقات المعقدة بين العمليات التجارية والتأثير المجتمعي والحفاظ على البيئة.

النطاق

تسعى المجلة إلى تشجيع وتقديم مواضيع متعلقة بالأعمال مكتوبة بوضوح ومترابطة بشكل قوي ومُثبَتة جيدًا والتي ستجلب ممارسات وأفكارًا تجارية جديدة إلى المناطق الأوروبية والمتوسطية. تشمل التغطية، على سبيل المثال لا الحصر:

-استراتيجيات الاستدامة المؤسسية وتنفيذها
-اتخاذ القرارات الأخلاقية في مجال الأعمال
-الحفاظ على البيئة وإدارتها
-ريادة الأعمال الاجتماعية ونماذج الأعمال الشاملة
-الابتكار والتكنولوجيا الخضراء
-التمويل والاستثمار المستدام
-التسويق
-الإدارة
-التمويل
-الاقتصاد
-وجهات النظر العالمية والتعاون
-المحاسبة
-الابتكار المستدام وتبني التكنولوجيا
-العمليات وإدارة الجودة
-إدارة سلسلة التوريد المستدامة
-إشراك أصحاب المصلحة والحوكمة المؤسسية

Aims

The Journal of Business Sustainability serves as a vital platform dedicated to exploring, disseminating, and advancing research on the intersection of business practices and sustainability. Embracing a multidisciplinary approach, this journal provides a comprehensive forum for scholarly discourse and empirical inquiry into sustainable business strategies, environmental stewardship, social responsibility, and economic viability.

Our aim is to facilitate dialogue among scholars, practitioners, policymakers, and stakeholders worldwide, promoting a deeper understanding of the intricate relationships between business operations, societal impact, and ecological preservation.

Scope

The journal seeks to encourage and present clearly written, robustly linked, and well-argued business related topics that will bring new business practices and ideas to the European and Mediterranean regions. Coverage includes, but is not restricted to:

- Corporate Sustainability Strategies and Implementation
- Ethical Decision-Making in Business
- Environmental Conservation and Management
- Social Entrepreneurship and Inclusive Business Models
- Green Innovation and Technology
- Finance and Sustainable Investment
- Marketing
- Management
- Finance
- Economics
- Global Perspectives and Collaboration
- Accounting
- Sustainable innovation and technology adoption
- Operations and Quality Management
- Sustainable Supply Chain Management
- Stakeholder Engagement and Corporate Governance

## كلمة رئيس التحرير

أعزائي القراء الأكارم،

يسرني أن أقدم لكم العدد الأول من مجلة "الاستدامة في الأعمال" الصادرة عن كلية الاقتصاد والعلوم الإدارية في جامعة الزرقاء لشهر كانون الثاني 2024. يمثل هذا العدد خطوة مهمة في مسيرتنا نحو تعزيز الوعي بمفاهيم الاستدامة وتطبيقاتها في بيئة الأعمال، في وقت تتسارع فيه التحديات البيئية والاجتماعية والاقتصادية التي تواجه العالم.

إن الاستدامة لم تعد مجرد توجه أو خيار تكميلي، بل أصبحت ضرورة أساسية لكل المؤسسات والشركات في مختلف القطاعات. تتسارع التغيرات المناخية، وتزداد الضغوط على البيئة والمجتمعات، مما يفرض على الشركات تبني استراتيجيات مستدامة تساهم في المحافظة على مواردنا الطبيعية وضمان النمو المستدام. من هنا تأتي أهمية هذه المجلة التي تسعى إلى تسليط الضوء على أهمية الاستدامة كعنصر محوري في تطوير استراتيجيات الأعمال الناجحة.

يتناول هذا العدد عدة مواضيع محورية تتعلق بالاستدامة في مجال الأعمال، مثل أهمية الاقتصاد الأخضر، والتوجهات العالمية نحو تقليل البصمة البيئية، واستراتيجيات الشركات الكبرى في دمج مبادئ الاستدامة ضمن عملياتها. كما يركز العدد على البحث في كيفية تفاعل الشركات مع التحديات البيئية والاجتماعية من خلال حلول مبتكرة وأطر عمل قابلة للتطبيق.

نحن في كلية الاقتصاد والعلوم الإدارية بجامعة الزرقاء نؤمن بأهمية دور التعليم العالي في بناء كوادر قادرة على مواكبة التطورات العالمية في مجال الاستدامة. لذلك، نحرص على تزويد طلبتنا وأعضاء هيئة التدريس في مجالات الاقتصاد والإدارة بأحدث الأدوات والمعارف اللازمة لفهم استراتيجيات الأعمال المستدامة وتطبيقها بشكل عملي في بيئات الأعمال المختلفة.

إن هذه المجلة تمثل منصة حوارية بين الأكاديميين، والباحثين، وصناع القرار في القطاعين العام والخاص، بهدف تبادل الأفكار والآراء حول كيفية تحقيق التنمية المستدامة على أرض الواقع. كما أنها تسهم في دعم البحث العلمي في مجال الاستدامة، وتعزيز التعاون بين مؤسسات التعليم العالي والمجتمع الصناعي والتجاري.

أتوجه بخالص الشكر لجميع المساهمين في هذا العدد من المجلة، من أكاديميين وباحثين وطلاب، الذين بذلوا جهوداً مخلصة لضمان جودة المحتوى وتنوع المواضيع التي تطرقت إليها. نحن نؤمن أن هذا العدد يمثل بداية مشرقة لمستقبل واعد في مجال الاستدامة في الأعمال، وأنه سيشكل مرجعاً مهماً لجميع المهتمين بهذا المجال.
نتمنى لكم قراءة مفيدة وملهمة، ونتطلع إلى تفاعلكم المستمر في الأعداد القادمة.

مع أطيب التحيات،
أ.د. طارق المبيضين
رئيس التحرير – مجلة الاستدامة في الأعمال
كلية الاقتصاد والعلوم الإدارية

## تعليمات النشر

إرشادات للباحث

متطلبات التحضير للنشر

يمكنك استخدام هذه القائمة لإجراء فحص نهائي للبحث قبل إرساله إلى المجلة للمراجعة .

تأكد من وجود العناصر التالية:

أن يتم تعيين كاتب واحد كمراسل مع تفاصيل الاتصال:

- عنوان البريد الإلكتروني
- العنوان البريدي الكامل

تحميل جميع الملفات الضرورية التالية:

- البحث
- تضمين الكلمات الرئيسية
- جميع الاشكال (تضمين التعليقات ذات الصلة)
- جميع الجداول (بما في ذلك العناوين والوصف)
- التأكد من أن جميع استشهادات الاشكال والجداول في النص تتطابق مع الملفات
- الملفات الإضافية (إن وجد)

اعتبارات إضافية:

- أن يتم تدقيق وتنقيح اللغة
- جميع الإشارات المذكورة في قائمة الإشارات المرجعية مستشهد بها في النص، والعكس صحيح
- أن يتم الحصول على الإذن لاستخدام المواد المحمية بحقوق النشر من مصادر أخرى (بما في ذلك الإنترنت)

مساهمات المؤلف

تدير هذه المجلة عملية مراجعة مجهولة الهوية. سيتم تقييم جميع المساهمات في البداية من قبل المحررين لمدى ملاءمة المجلة. ثم يتم إرسال الأوراق التي تعتبر مناسبة إلى ما لا يقل عن اثنين من المراجعين الخبراء المستقلين لتقييم الجودة العلمية للورقة. المحرر مسؤول عن القرار النهائي بشأن قبول المقالات أو رفضها. لا يشارك المحررين في القرارات حول الأوراق التي كتبوها أنفسهم أو كتبها أفراد الأسرة أو الزملاء أو والتي تتعلق بالمنتجات أو الخدمات التي يكون للمحرر فيها مصلحة. يخضع أي تقديم من هذا القبيل لجميع الإجراءات المعتادة للمجلة.

مراجعة الأقران

تستخدم هذه المجلة مراجعة الأقران مجهولة الهوية ، مما يعني أن هويات المؤلفين مخفية من المراجعين ، والعكس صحيح. مزيد من المعلومات متوفرة على موقعنا. لتسهيل هذا ، يرجى تضمين ما يلي بشكل منفصل:

- صفحة العنوان (مع تفاصيل المؤلف): يجب أن يشمل هذا العنوان ، وأسماء المؤلفين ، والانتماءات ، والإقرارات ، وأي إعلان لبيان الفائدة ، وعنوان كامل للمؤلف المقابل بما في ذلك عنوان البريد الإلكتروني.

- البحث المجهول (لا تفاصيل المؤلف): يجب ألا يتضمن الهيئة الرئيسية للورقة (بما في ذلك المراجع والأرقام والجداول وأي شكر وتقدير) أي معلومات تحديد ، مثل أسماء المؤلفين أو الانتماءات.

التقسيم الفرعي - أقسام مرقمة

قسّم بحثك إلى أقسام محددة ومرقمة بوضوح. يجب ترقيم الأقسام الفرعية 1.1 (ثم 1.1.1 ، 1.1.2 ، ...) ، 1.2 ، إلخ (لا يتم تضمين الملخص في ترقيم القسم). استخدم هذا الترقيم أيضًا من أجل المرجع الداخلي المتبادل: لا تشير فقط إلى "النص". ويمكن إعطاء أي قسم فرعي عنوانا موجزا. يجب أن تظهر كل عنوان على سطر منفصل خاص به.

رسوم النشر(APC):

نحن فخورون بالإعلان عن إطلاق مجلتنا الأكاديمية " مجلة الاستدامة في الأعمال" الملتزمة بتعزيز نشر المعرفة دون حواجز مالية. من خلال فهم التحديات التي يواجهها الباحثون في الوصول إلى فرص النشر ، نحن ملتزمون بضمان ألا تعيق التكلفة مشاركة الأبحاث المؤثرة. وبالتالي ، يسعدنا أن نعلن أن رسوم معالجة المقالات (APCs) لهذه المجلة قد تم التنازل عنها بالكامل للباحثين. مهمتنا هي تسهيل وسيلة سلسة للباحثين في جميع أنحاء العالم للمساهمة في عمل عالي الجودة للتحكيم دون عبء رسوم النشر. نعتقد أن هذه المبادرة ستمكن الباحثين وتعزز المجتمعات الأكاديمية من خلال جعل المنشورات العلمية أكثر سهولة وإنصافا للجميع.

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*Journal of Business Sustainability*

الاصدار الأول


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# Analysis of HR practices in SMEs in Jordan

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**ABSTRACT**

Several recent Human Resource Management (HRM) research analyses assert that knowledge management and intellectual assets are the leading drivers of competitiveness, productivity, and organizational success. The following report studies how knowledge-based HRM practices, intellectual capital, small- and medium-business processes, and product innovation are linked (SMEs). Data were acquired from 250 Jordanian SMEs via a random sample method. We conducted a computational structural equation modeling (CB-SEM) test to see if our developed research model is viable. The findings show that small businesses with knowledge-based HRM practices, especially in knowledge management, are more likely to have product and process innovation, intellectual capital, and knowledge management capabilities. There is also an influence on innovativeness via intellectual capital and the additional knowledge management capabilities SMEs possess. The emergence of intellectual capital as a predictive factor of SME's process and product innovation also appears to be a reliable trend. The mediation effect of intellectual capital and knowledge management capacity was finally discovered regarding the connection between SME knowledge-based HRM practice and product and process innovation. In the study of HRM, there is no complete explanation of how knowledge management promotes innovation. This research seeks to uncover the structural process among knowledge-based HRM practices and innovation by investigating the connections between managerial knowledge capacity and intellectual assets in the context of knowledge-based view (KBV) theory. This study was conducted in a non-Western culture and provided empirical evidence that non-knowledge-based HRM practices lead to innovation for SMEs. The conclusions give scholars and managers vital information and provide the groundwork for future research.

Keywords: Human resource, SMEs, Intellectual assets, Innovation process, Knowledge-based capacity.

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## 1. INTRODUCTION

Jordan's economy is known as one of the small and medium enterprises (SMEs), where 98 percent of businesses and 60 percent of the labor force consists of small businesses with less than 50 employees, who together are a majority of Jordan's business with about 50 percent of GDP value as of the country's overall product economy. Jordan's SME sector has faced several difficulties, including an economic shift to a market economy where development is prevalent (Al-Weshah, Kakeesh, & Alhammad, 2022). The SMEs' position has been affected because of extremely rapid development. Jordan first introduced its open market and deregulation policies in 2000. Then, after nine years, the SME industry was hit by the next economic calamity. SMEs contribute heavily to job creation in Jordan. Research shows that SMEs positively impact lowering the unemployment rate in Jordan (Allozi, Alshurideh, AlHamad, & Al Kurdi, 2022). It's got all the crucial elements for improvement and job creation. Increasing evidence points to the fact that SMEs play a crucial role in the Jordanian economy. Small and medium enterprises create the bulk of new job opportunities and most ideas that drive economic growth. SMEs are the only means of allowing many Jordanians to receive new work prospects (Al-Hyari, 2020). The human resource (HR) strategy for attracting and retaining top personnel is extremely important, especially in a climate of increased competition from a knowledge economy (Alfawaire & Atan, 2021). Understanding HRM will be extremely important for motivating, selecting, and retaining employees who work on innovative processes and products (Kurdi, Alzoubi, Akour, & Alshurideh, 2022; Rasool, Samma, Wang, Zhao, & Zhang, 2019). Human resource practices that emphasize experience, skills, and technologies as critical knowledge conduits are in operation (Vrontis et al., 2022). A durable competitive advantage demands resource-constrained SMEs actively seeking knowledge inflows and outflows. To maintain competitiveness in the SME context, it is necessary to have strategic movements of knowledge (Ojha, Patel, & Parida, 2023). Innovative thinking is based on the enterprise's knowledge assets. Extending beyond the management of human resources and knowledge management, a previous study also demonstrated the impact of intellectual capacity, which is intellectual content – knowledge, details, experience, core methodology, intellectual property, and consumer experience – that can be put to be used to create wealth (Abd-Elrahman, El-Borsaly, Hafez, & Hassan, 2020; Trequattrini, Lardo, Cuozzo, & Manfredi, 2022). There has been a realization among modern firms that knowledge-resource-dominated societies have emerged where the ability to get a significant intellectual capital advantage is key to competing (Li, Song, Wang, & Li, 2019). Scholars point to the shifting of strength from tangible assets to intangibles, like intellectual capital, as the primary driver of organizations' success and development (Baima, Forliano, Santoro, & Vrontis, 2021); thus, organizations must create strategies to empower intellectual capital and embed it into their corporate cultures. Several studies concluded that for the innovation process to be successful, a definite knowledge input is necessary (Aliasghar, Sadeghi, & Rose, 2023; Azeem, Ahmed, Haider, & Sajjad, 2021; Castaneda & Cuellar, 2020). Organizations should look at knowledge-based HRM, knowledge management capability, and intellectual capital to respond to changing business conditions (Garcia-Perez, Ghio, Occhipinti, & Verona, 2020; Hayaeian, Hesarzadeh, & Abbaszadeh, 2022). This research aims to fill the research gap by identifying the critical factors in predicting innovation via the impact of HRM, intellectual capital, and KMS. It's well-known that in the area of HRM and innovation, little empirical evidence exists (Yao, Marescaux, Ma, & Storme, 2023). Although scholars such as Sokolov and Zavyalova (2021); Barrena-Martinez, López-Fernández, and Romero-Fernández (2019), who studied the intellectual capital-HRM interactions and discovered a link between the two, as well as Cooke, Xiao, and Chen (2021), who studied how successful companies designed their HRM in the context of China, may have collected some useful data, there is still no consensus on whether HRM has a positive or negative effect on innovation. Research revealed that knowledge-based HRM processes contribute significantly to corporate innovation (Le, 2023). There is no proof that knowledge-based HRM practices, knowledge management capacity, human assets, and innovation in SMEs are linked (Singh, Mazzucchelli, Vessal, & Solidoro, 2021). But this research fills that gap by having empirical contributions to the body of knowledge and practice. Many academics have tried to develop a knowledge-based view (KBV) of firms, focusing on Western firms. KBV aims to clarify how knowledge, which is the resource in question, impacts production efficiency and gives a competitive advantage. We must go past research that overlooks the true causes of success in these approaches (Grant & Phene, 2022; Herden, 2020). This study will explain and conceptualize how knowledge-based HRM practices are related to knowledge accumulation, the subsequent flow of employee intellectual capital, and how they indicate a firm's ability to innovate. This study will extend the context theoretical contribution in literature by providing research on the relationships between HRM, organizational learning, intellectual capital, and innovation in a non-Western setting.

## 2. Literature review

While it's tough to anticipate how HRM will be affected in the future, it's clear that it will be radically transformed by introducing new technology, globalization, and sweeping developments in the industry and how people work (Pandey, Balusamy, & Chilamkurti, 2023). For example, HRM strategies have evolved into a powerful tool for sustainability that has a competitive advantage in Western countries (Hamadamin & Atan, 2019). Strategic HRM techniques benefit and enhance companies (Gupta, 2020). Strategic HRM strategies prioritize building people resources that cannot be copied easily (Greer, 2021). HRM is seen as a system that directs and manages people to secure sustained competitive advantage, although there are differing perspectives on it (Chadwick & Flinchbaugh, 2021). Management information systems (KMS) support organizational learning by collecting and organizing content and methods knowledge and allowing it to be accessible to all employees (Fitriastuti, Sujoko, Herawan, & Vemberi, 2020). Knowledge management is an intricate strategy for improving a firm's knowledge economy (Santoro, Thrassou, Bresciani, & Del Giudice,

2019). Knowledge management involves a range of factors such as human resources practices, technology, culture, and organizational structures, according to (Zaim, Muhammed, & Tarim, 2019). "Innovations and new ideas". Implementation of KMS requires dealing with human factors on top of being technological (Abu-AlSondos, 2023). That knowledge would help inform HRM practices.

2.1 Knowledge based hrm practices

Training, recruiting, remuneration, and performance assessment are significant in organizational success (Anwar & Abdullah, 2021). As Huselid points out, "demands for fluency extend far beyond the requirements of proficiency" (Huselid & Becker, 1996). Knowledge-based HRM methods include knowledge-based approaches. HRM techniques are specifically geared toward boosting an organization's learning process. Managers must alter long-term HRM changes to help create new knowledge and co-create with their colleagues in their workplaces (Hewett & Shantz, 2021).

2.1.1 Recruitment based on knowledge

It is said that recruitment is the process of discovering, recruiting, and obtaining the services of qualified individuals to carry out a business's various needs for its workforce (Mahapatro, 2021). When looking for new employees, it's crucial to go beyond considering the employees' existing skill set, expertise, or experience; instead, the potential is the main consideration. Employees that have great potential to be good learners are more apt to study and gain the skills or knowledge needed for innovation, according to Lam, Nguyen, Le, and Tran (2021). Knowledge-based recruitment places focus on picking employees who are educated and knowledgeable.

2.1.2 Performance evaluation based on knowledge

Employees are motivated by the implementation of performance evaluation since it helps to establish the behavior they must do (Murphy, 2020). Managers should consider including specific and explicit performance measures for knowledge creation, application, and sharing processes to ensure the process is effective (Muhammed & Zaim, 2020). Employees tend to enjoy knowing how they are doing and where they are going. This motivates employees better (Fowler, 2023). Performance evaluation emphasizes feedback and development because this information can highlight disparities between targets and employees' performances, encouraging employees to work smarter (Chien, Mao, Nergui, & Chang, 2020). Employees can also increase their learning confidence by being tested on learning and growth (Chanana & Sangeeta, 2021). Employees are assessed according to their contribution and participation in developing the organization's knowledge process, which involves creating, sharing, and using information (Muhammed & Zaim, 2020).

2.1.3 Training of employees based on theory knowledge

Cabrera and Estacio (2022), found that skilled employees cannot sustain their competence indefinitely since their abilities tend to deteriorate and become obsolete. The design and implementation of training and development programs will help enhance the match between employee skill sets and their immediate requirements, thereby increasing human capital for the firm (Maity, 2019).

In addition to boosting their domain knowledge and creative problem-solving abilities, training helps individuals better connect the dots in the workplace, as per Lau and Ngo (2004). Knowledge-based career development entails training employees to be knowledgeable and learn various things. To do this, it's important to provide training to fit each employee's needs and continuously develop employees (Blanchard & Thacker, 2023).

2.1.4 Compensation for employees based on their knowledge

A review by Hoffman and Tadelis (2021) says that managerial remuneration practices assist keep employees' skill levels up. Managers commonly deploy intangible and tangible incentives to encourage the development of knowledge sharing, creation, and application among employees. Previous studies have concluded that it is important to provide employees with opportunities to apply what they know and generate new ideas, such as (Chanana & Sangeeta, 2021; Smids, Nyholm, & Berkers, 2020). Employees are compensated for their contributions to the company's knowledge process, including knowledge creation, sharing, and application (Muhammed & Zaim, 2020).

2.1.5 Career management via knowledge-based management

Career management assists in keeping and acquiring exceptional workers. Top employees have greater career chances in the firm, according to (Yildiz, Temur, Beskese, & Bozbura, 2020). The big elements of powerful knowledge-based career management include top management help, skill assessments, information making, communication, and different ways to improve employability. Knowledge-based career advancement means using the information a company has collected to assist employees in achieving their career objectives and in making the workforce more efficient (Nicolaescu et al., 2020).

3. Theoretical framework and research hypothesis

Knowledge-based theory (KBV) supports the idea that organizations exist to generate, merge, and apply that knowledge (Al Koliby, Mohd Suki, & Abdullah, 2022). In the case of businesses, the accumulation of information might be the difference between life and death. Businesses face confusing and unpredictable environments where imitation rarely succeeds (Alekseevna, 2023). Modern HR strategies are needed to encourage people to generate and apply information since it may be seen as a method of knowledge management. According to Agustian, Pohan, Zen, Wiwin, and Malik (2023), businesses improve their capacity for knowledge by hiring talented individuals. Investing in a company's hiring process is what it takes to determine the organization's value of human capital. Effective ways to encourage firms to become more knowledge-driven are hiring, recruiting, and training employees with intellectual potential and offering salary remuneration that makes it worthwhile for the firm to invest in its people.

H1: The correlation between Knowledge-based HRM strategies and performance positively impacts Jordan's SMEs' capacity to store knowledge.

Knowledge-based HRM focuses on encouraging employees to think creatively and advance company strategy. The structural features of organizations (such as expertise, customer relationships, social ideals, and professional skills) create intellectual capital and foster employees' abilities to grow wealth and value (Verma, Arya, Thomas, Bolognesi, & Mueller, 2023). Firms can improve their process innovative behavior, efficiency, transactional time, and access to information codified for the organization by using the structural relation aspect of intellectual capital (Ali et al., 2023), as well as their overall intellectual capital (X. Sun, 2022). Employee learning helps generate intellectual capital, as evidenced by employees inspiring others to learn and boosting company capabilities. Studies show that businesses influence the talents of their employees through the creation of HRM programs. Hayaeian et al. (2022) SMEs can boost the overall intellectual capital of their businesses by using knowledge-based HRM strategies.

H2: Intellectual capital grows when SMEs' staff are educated with knowledge-based HRM techniques in Jordan.

Incremental and radical developments depend heavily on HRM practices. It has been well-established that HRM practices have an impact on creativity (Ho, Soo, Tian, & Teo, 2023). The connection between HR strategies and organizational creativity has recently been proved more concretely (El-Kassar, Dagher, Lythreatis, & Azakir, 2022; Jeong & Shin, 2019). To resolve issues faster and simpler, organizations utilize expertise in the KMS, which specializes in HRM procedures (El-Farr & Hosseingholizadeh, 2019). This means that to better an organization's abilities to innovate, good knowledge management is vital (Azeem et al., 2021). Knowledge-based practices are linked to innovation performance (for example, as described by Singh et al. (2021). Kremer, Villamor, and Aguinis (2019) found a correlation between research and innovation, employee knowledge acquisition, and company creativity. Firms need to utilize KMS methods to create new ideas and information to make themselves creative (Wahjudewanti, Tjakraatmaja, & Anggoro, 2021).

H3 Understanding the importance of HRM in supporting innovations is vital for SMEs.

The connection between intellectual capital and knowledge management has been studied (Abeysekera, 2021). Several ingredients, including expertise, intellectual property, information, and knowledge, combine to build value at the core of intellectual capital (Paoloni, Coluccia, Fontana, & Solimene, 2020). Scholars agree that the importance of a firm's ability to generate a competitive advantage is proportional to the distinctiveness of its organizational knowledge (For example, see "Scholars like (K.-A. Sun & Lee, 2019). Suppose the quality of the knowledge acquired, used, and stored in an organization affects the type of intellectual capital created there. In that case, how an organization obtains, uses, and stores its knowledge will affect the type of intellectual capital it

has. It is impossible to characterize intellectual capital without referencing relational capital, structural capital, and competent knowledge management capabilities, as these are needed to utilize relational and structural capital properly.

H4 SME employees' intellectual capital capability is improved through SMEs' knowledge management capacity.

Knowledge, seen as the most crucial resource, has a large role in an organization's ability to obtain and retain its advantage over competitors (Azeem et al., 2021). Rehman and Iqbal (2020), claimed that an integrated KMS is essential to implement organizational innovativeness. This is bolstered by the belief that an inclusive KMS is critical to accomplishing that goal. The authors of Scuotto, Nespoli, Palladino, and Safraou (2022) emphasize that firms must have well-developed KM capabilities to recognize and respond to competitors. Another consideration is that product, and process innovation necessitates acquiring, communicating, and exploiting current and new information inside the company (Tortora, Chierici, Briamonte, & Tiscini, 2021). Higher levels of knowledge management ability in SMEs are likely to have a learning impact, which will quickly increase their competitiveness, as they can be dynamic in reaction to their market and lessen the chance of redundancy and think of creative ideas (Hassan & Raziq, 2019). Using deep knowledge to make products that embody and communicate corporate expertise supports continued investment in new goods.

H5: SME's capacity for knowledge management positively impacts product and process innovations.

Knowledge resources are understood to be everything available to a company that's both tangible and intangible. Intellectual capital is what makes databases, information systems, and written processes, which house the codified knowledge of your company, accessible for product and process innovation (Pokrovskaia, Korableva, Cappelli, & Fedorov, 2021). Companies achieve innovation by developing new or superior products and services. This can take many forms, such as products with radically improved features or new ones. Unlike, innovation incorporates the production of new information, which appears in one of two ways: either as input (concepts and ideas) or output (novel goods and processes). Intellectual capital is important when predicting innovation, which views it as something done by people, making its development depend on human capacities. Studies demonstrate a likely correlation between intellectual capacity and inventiveness (Hayaeian et al., 2022).

H6 Small-business employees' intellectual capital is influential on product and process developments.

Much-needed information is discovered and innovated into products, services, and procedures that serve the company by transforming general knowledge into targeted knowledge (Goyal, Ahuja, & Kankanhalli, 2020). For example, Chatterjee, Ghosh, and Chaudhuri (2020) suggest that the correct use of KMS is the way to revolutionize the business process. Unearthing, developing, and implementing new products and services, new technology, new organizational structures, new processes, and new productions are all part of the innovative efforts of companies (Marion & Fixson, 2021). Organizations generally rely on human resource management to achieve their goals, which are most frequently manifested in their ability to innovate. Barrena-Martinez et al. (2019), found that intellectual capital could help elucidate the connection between HRM practices and organizational outcomes. Knowing that they should encourage new employees to join the company's brain trust, corporations around the world have been advocating greater use of knowledge-based HRM practices since such policies boost a company's knowledge capacity building, and the amount of that will correspond to the firm's level of cognitive capital (Phaladi, 2021). Additionally, superior intellectual capital grants the ability to create an unmatchable process and product that competitors cannot mimic (Astuti, Datrini, & Chariri, 2023). Intellectual capital and knowledge management skills can thus function as critical factors in SME innovation processes, especially those based on knowledge-based HRM.

H7 The connection between knowledge-based HRM techniques and product and process developments of SMEs is mediated by employees' knowledge systemic approach and intellectual capital.

4. Sampling process and industrial processing

Trade liberalization and globalization have brought new opportunities and problems for Jordanian SMEs (small and medium-sized enterprises). This research investigates how knowledge-based HRM strategies used by SMEs in Jordan influence the growth of human capital, accumulation of knowledge, and the overall competitiveness of SMEs in the country. In Jordan, SMEs' market share has been calculated at 98%, the author found, meaning that the economy depends on the SME sector's success, which employs most

workers. SME classification is determined by the number of workers and the amount of investment capital. The expert translators used processes they are accustomed to translating the questionnaire from English to Arabic (Abubakar, Megeirhi, & Shneikat, 2018). The devices were tested using a study of 15 participants to examine the reliability of the equipment. Respondents were informed of the project's intentions, as they were in past studies. The lack of personal information about participants was considered to avoid social desirability bias and the risk of bias caused by the procedure (Bergen & Labonté, 2020). A randomized sample strategy was used to recruit HR managers and directors of Jordanian SMEs to boost the research's accuracy and reliability. A total of 250 participants who responded correctly finished the experiment; hence the data was collected from that group.

4.2 Measures and scales taken

The research of Kianto, Sáenz, and Aramburu (2017) gathered 13 items that help evaluate knowledge-based HRM. The eight items that Usmanova, Wang, Sumarliah, Mousa, and Maiga (2021) used to gauge knowledge management capacity were utilized in the present study.

The Lin, Yang, and Arya (2009) study utilized three items to catch intellectual capital. Elrehail et al. applied 13 elements for innovativeness (Škerlavaj, Song, & Lee, 2010). Scoring closer to 5 indicates a higher score. Items were constructed on a 5-point scale format, yielding greater scores the closer they are to 5.

4.3 Strategy of analysis

According to the author, he or she collected 250 valid responses before strategizing on analytic methods. To begin, we ran a frequency analysis on the demographic profiles of the participating SMEs in SPSS. The author then compares the demographic makeup of the enrolled SMEs with that of all Jordanian SMEs. The author writes about how to address biased results, which could affect the results. The researcher looks at the factors' reliability and validity and the theoretical framework in a second step. Confirmatory factor analysis (CFA) was utilized in the AMOS program, with emphasis on standardized factor loadings (SFL), validity (discriminant and convergent), and reliability.

5. Analysis of the data

According to the Jordanian Ministry of Trade and Industry, the SMEs categorization is derived from the number of employees present in the company. The SEM approach was used to run measurements and hypothesis tests with IBM SPSS AMOS. CFA (a statistical approach used to validate the factor structure of a set of observed variables) can provide construct validity that encompasses convergent and discriminant validity, which helps researchers detect and determine it (Bagozzi, 1980). Standardized factor loadings (SFL), convergent validity (CR), average variance extracted (AVE), and Cronbach's alpha (α) were used to test the validity and discriminate capacity of the scale.

Single-factor model indices displayed a bad fit, proving that CMB and/or CMV did not affect the measurement model (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff, MacKenzie, & Podsakoff, 2012). The factor loadings were all over .835 and ranged to .878, with significant T-values between 17.647 and 19.289. The above factors follow the specifications from the specifications previously given (Fornell & Larcker, 1981). The AVE value was .50 (Anderson & Gerbing, 1988), and the CR value was over .60 (Hair, Anderson, Babin, & Black, 2010). The index was above .70 (Miller, Nunnally, & Wackman, 1976). We found that the model is both converging and diverging with strong internal consistency because of the following. Research found that a strong positive correlation exists between knowledge-based HRM and intellectual assets ($r = .937$, $p < .001$), innovation / process innovation ($r = .975$, $p < .001$), and knowledge management capacity ($r = .959$, $p < .001$). For the second time, knowledge management capacity is found to have a positive and statistically significant association with intellectual capital ($r = .930$, p.001) and product and process innovation ($r = .962$, p.001). A positive and significant association exists between intellectual capital and product and process innovation ($r = .933$, $p < .001$). It's evident from these outcomes that the variables are tightly linked and follow the theoretical framework.

5.2 Structural model analysis

A considerable positive influence (β = .959, p < .001) is seen on knowledge management capacity, intellectual capital (β = .555, p < .001), and product and service creativity (β = .600, p < .001) by the application of knowledge-based HRM approach. These were the hypotheses we favored. Furthermore, the positive and significant effect of SMEs' knowledge management capacity on knowledge management (β = .399, p < .001) and product / process innovation (β = .311, p < .001) is evident. These two hypotheses, we came to believe, must be correct. The intellectual capital of SMEs improves both product and process innovation. The effect is rather significant (β = .082, p < .05). Thus, it was proven correct. It was also pointed out by Hayes (2015) that, unlike the Sobel test, bootstrapping reasoning is based on an estimation of the indirect impact itself rather than on hypotheses about the form of the sample mean of the indirect consequence, allowing it to circumvent the difficulty that has plagued the Sobel test. According to current SEM and bootstrapping features and advantages. The researcher tested hypothesis 7 using a validation sample of 5,000 by utilizing bootstrapping technique with a 95 percent bias-corrected confidence interval. The findings reveal that SMEs' intellectual capital and knowledge management capabilities connect knowledge-based HRM practices to innovativeness (β = .375, ρ < .001). Practical mediation may occur, with a degree of certainty of ρ = .000 (95% confidence interval: .262 to .480). We ended up backing hypothesis 7. Look at Table 6.

## 6. Discussions and conclusions

There is a lack of empirical and theoretical evidence on the relationship between knowledge-based human resource management, intellectual capital, & innovation in a non-Western work environment in the literature. To close this gap, the current study explores the links mentioned above, with the intention that the findings can be adopted by top management of organizations interested in converting their human resources into organizational success and, more specifically, innovations. This research is significant because it reveals the mechanical process that results in innovative products and services and the integration of knowledge-based human resource management methods, which is a precursor of intellectual capital in the past. Knowledge management, a significant predecessor of intellectual capital, was seen as a means of revitalizing the process. Consequently, by probing and confirming theories and concepts that originated in the Western Hemisphere in a non-Western setting, Jordan, this work makes significant theoretically and empirically contributions to the field. First and foremost, this study confirmed that knowledge-based human resource management methods had a favorable impact on the managerial knowledge capacity of SMEs. It has been suggested that the nature of a small or medium-sized enterprise's human resources impacts its inclination to build knowledge management capabilities. This observation is consistent with the findings of (Alexandru et al., 2020). These practices enable firms to create knowledge management capabilities quickly, thereby creating a channel for applying knowledge, resulting in superior product offers in the long run (Lee, Choi, & Lee, 2020).

Second, the findings of this article demonstrated that knowledge-based human resource management strategies had a favorable impact on the intangible resources of SME personnel. This discovery also corroborates other findings previously published in the literature before the current investigation (Hayaeian et al., 2022). Third, knowledge-based human resource management techniques favor the new product introductions of SMEs, meaning that the strength of a company's process or product innovativeness cannot be separated from its dependence on human resource management practices. In addition, Papa, Dezi, Gregori, Mueller, and Miglietta (2020), who explored the impact of human resource management strategies on the company's innovation process, found that this finding is consistent with their findings. Fourth, the article discovered that the ability to manage knowledge favors the intangible resources of SME employees. According to the findings of this study, increasing innovation capabilities in SMEs necessitated the implementation of efficient knowledge management practices (Hassan & Raziq, 2019). In order to achieve a significant level of innovativeness, a company must utilize its innovation capabilities in the process of creating new value. Fifth, this article discovered that SME's ability to manage their knowledge has a beneficial impact on their ability to innovate in the areas of product and process development. This finding implies that, in addition to the influence of knowledge management ability on intangible resources, it has a direct and considerable impact on the innovativeness of organizations. Being able to understand this outcome helps us to understand that information, both tacit and explicit, is a crucial building block for the innovation of a company. This result also

validates and strengthens the amount of knowledge that already exists in this field (Cao, Le, & Nguyen, 2022). It was also discovered in this article that the intellectual capital of SMEs personnel has a beneficial impact on product and service innovation, meaning that intellectual capital enables innovation through the proper use of wisdom and understanding by workers (Iskandar & Kaltum, 2021). Prior research has established a correlation between innovation and the firm's intellectual capital (Altındağ, Fidanbaş, & İrdan, 2019). The final finding of this article was that knowledge management competence and intellectual capital have a mediating influence on the relationship between experience and understanding human resource management (KBHRM) and operations and product innovation. This discovery is significant because it elicits the identification of additional mechanisms that may boost the effectiveness of experience and understanding human resource management practices on innovation. Beyond the fact that this study contributes to filling the gap in the literature by trying to analyses the mechanism for optimum solution influence of knowledge-based HRM practise on innovation, this finding indicates that small and medium-sized enterprises (SMEs) must devote sufficient attention to ways of knowing and intellectual capital within their organizations.

6.1 Implications or theory and practice

The significance of knowledge-based human resource management in SMEs has been recognized in previous studies; however, research examining cogent issues in this context has been lacking (e.g., Nasution et al., 2011; Nicolau and Santa-Mara, 2013). The current study provides an empirically proven outcome that highlights and confirms the relevance of knowledge-based human resource management in SMEs. Management can use the model described in this research to aid in conceptualizing the mechanisms that can be implemented in their organizations when attempting to generate unique value-adding products and services, as demonstrated in this study. The approach presented in this study is concentrated on the flow of knowledge in organizations, ranging from human resource practices to innovation. This assumption is congruent with the Knowledge-Based View (KBV) concept, modeled with many references and impetus in the organization's Resource–Based View (RBV). It is important to note that RBV does not place a high value on knowledge because it is regarded as a generic resource. This is the missing link.

In order to mitigate these disadvantages, KBV emphasizes the strategic significance of knowledge-based resources, which can provide a competitive advantage for businesses. Theoretically, this study contributes to the knowledge management & human resources management study streams by establishing a relationship between knowledge-based human resource management and innovation through the development of knowledge management ability and intellectual capital, respectively. In conclusion, the current analysis confirms the validity of the KBV assumption. According to the findings of this article, managers should build an awareness of how it works environment that will allow them to realize the rewards of KMS using knowledge-based human resource management methods. Finally, when knowledge-based HRM methods are supplemented with sufficient knowledge management capacity & intellectual capital, process and technology innovation can reach their zenith. As a result, managers must foster teamwork among their employees to facilitate knowledge exploration, development, and sharing among themselves. Organizations concerned with translating their human resources into organizational success can put the conclusions of this study into practice by implementing them at the highest levels of management. It is important to recognize that this study has several limitations, which are as follows. One, the information was gathered through a self-report approach, which made the outcome susceptible to social desirability. A causal inference may impact the outcome because the information was gathered at a single location and from a single source. Even though a random sampling method was used, the sample size appears modest, raising concerns about the sample selection. Currently, the results are restricted to Jordan and cannot be extrapolated to other nations or cultural work situations until further resources are available.

It has been discovered that there are significant practical consequences for managers who need to gain human resource ( HR) skills and competencies to boost their capabilities. The process of acquiring & sharing information amongst employees fosters knowledge. Promoting information sharing through a reward system that favors combined efforts instead of individual ones is possible. Furthermore, managers can help establish an environment learning by providing the necessary infrastructure and encouraging the

development of social ties. On the other hand, it must have been discovered that instruction had no effect on invention; this situation must be further examined.

First and foremost, managers must be aware of the practices they should employ in the HRMS, as some activities, when coupled, can have a negative impact on the learning in the business. Similarly, the availability of individual appraisal & pay for performance is important. Such a situation will likely result in a dispute, which can be handled by careful selection & suitable fit among the HRMP to be integrated into the system. Furthermore, the fit should not be limited to the practices alone since the fit must also take into account the company's overall strategy. In addition, managers that create a safe working environment for their staff by substituting agreements with full-time schedules, and accepting & encourage risk-taking, will be more likely to stimulate creativity. Fourth, cultural issues should be addressed with attention, as ignoring them would negatively impact creativity. Cultural changes necessitate a change in management strategy, which is not always possible. Fifth, the necessity of selecting and employing individuals with different knowledge and high education, as well as taking the necessary steps to retain abilities and key personnel who are believed to be essential to the organization's success. A dynamic workplace allows this to be accomplished through career advancement, promotions, flexibility, autonomy, motivation, and investment in effective leadership methods. Finally, managers would deploy many human resource management systems; however, such systems should be developed in concert with one another. As noted in the review, the relationship between the theoretical basis of the HRMP and innovation is extremely noticeable. However, there is still room to investigate further hypotheses to explain, for example, this association in greater depth. Trait theory can be used since it describes the individual-level elements that might positively or negatively impact human resource management systems (Easa & Orra, 2021). Furthermore, when it comes to technique, most research had a small sample size, making it beneficial to use a larger sample size in the future. The influence of the environment in which the techniques were implemented should also have been carefully considered (Tamiminia et al., 2020).

Furthermore, the industry was taken into consideration; nonetheless, it would be interesting to examine the types of practices that would have an impact on each sector. Furthermore, the longitudinal strategy is rare since just four articles have used it, as observed (Bjornevik et al., 2022). So longitudinal studies might be used to determine the influence of the HRMP on creativity over time at various time intervals. Furthermore, no studies in the field have looked at the sample of examination before and after using the HRMP. Lastly, when conducted in person, face-to-face interviews would provide more in-depth information regarding the topic of study being investigated.

Two opposing viewpoints have been expressed regarding the sparseness of practices that have been encountered. In the first case, a call is made for a limited number of practices, resulting in increased versatility (Xing et al., 2020). While in the latter, it is noted that large sets of practices are included (Donate, Ruiz-Monterrubio, Sánchez de Pablo, & Peña, 2020), the former does not. Using alternative techniques or substituting existing practices would be another topic of interest to investigate further. Additionally, there is a lack of agreement on the types of practices that are matched and appropriate. Finally, including other variables to depict the relationship between human capital management and innovation is appealing, such as organizational structure, psychological contract, and organizational capital, which is a positive development.

References

1. Abd-Elrahman, A.-E. H., El-Borsaly, A. A.-E., Hafez, E. A.-E., & Hassan, S. A. (2020). Intellectual capital and service quality within the mobile telecommunications sector of Egypt. Journal of intellectual capital, 21(6), 1185-1208.
2. Abeysekera, I. (2021). Intellectual capital and knowledge management research towards value creation. From the past to the future. Journal of Risk and Financial Management, 14(6), 238.
3. Abu-AlSondos, I. (2023). An empirical study of critical success factors in implementing knowledge management systems (KMS): The moderating role of culture. Uncertain Supply Chain Management, 11(4), 1527-1538.
4. Abubakar, A. M., Megeirhi, H. A., & Shneikat, B. (2018). Tolerance for workplace incivility, employee cynicism and job search behavior. The Service Industries Journal, 38(9-10), 629-643.
5. Agustian, K., Pohan, A., Zen, A., Wiwin, W., & Malik, A. J. (2023). Human Resource Management Strategies in Achieving Competitive Advantage in Business Administration. Journal of Contemporary Administration and Management (ADMAN), 1(2), 108-117.

6. Al-Hyari, K. (2020). Initial empirical evidence on how Jordanian manufacturing SMEs cope with the covid-19 pandemic. Academy of Strategic Management Journal, 19, 1-12.
7. Al-Weshah, G., Kakeesh, D., & Alhammad, F. (2022). Entrepreneurial marketing in Jordanian SMEs: Initiatives and challenges. Entrepreneurial Rise in the Middle East and North Africa: The Influence of Quadruple Helix on Technological Innovation, 67-91.
8. Al Koliby, I. S., Mohd Suki, N., & Abdullah, H. H. (2022). Linking knowledge acquisition, knowledge dissemination, and manufacturing SMEs' sustainable performance: the mediating role of knowledge application. The Bottom Line, 35(4), 185-202.
9. Alekseevna, S. S. (2023). The Role of Entrepreneurial Imaginativeness in Sustaining Business Success through Crisis: The Case of Russian Business Owners.
10. Alexandru, V. A., Bolisani, E., Andrei, A. G., Cegarra-Navarro, J. G., Martínez Martínez, A., Paiola, M., . . . Zieba, M. (2020). Knowledge management approaches of small and medium-sized firms: a cluster analysis. Kybernetes, 49(1), 73-87.
11. Alfawaire, F., & Atan, T. (2021). The effect of strategic human resource and knowledge management on sustainable competitive advantages at Jordanian universities: The mediating role of organizational innovation. Sustainability, 13(15), 8445.
12. Ali, M. A., Hussin, N., Flayyih, H. H., Haddad, H., Al-Ramahi, N. M., Almubaydeen, T. H., . . . Hasan Abunaila, A. S. (2023). A Multidimensional View of Intellectual Capital and Dynamic Innovative Performance. Journal of Risk and Financial Management, 16(3), 139.
13. Aliasghar, O., Sadeghi, A., & Rose, E. L. (2023). Process innovation in small-and medium-sized enterprises: The critical roles of external knowledge sourcing and absorptive capacity. Journal of Small Business Management, 61(4), 1583-1610.
14. Allozi, A., Alshurideh, M., AlHamad, A., & Al Kurdi, B. (2022). Impact of transformational leadership on the job satisfaction with the moderating role of organizational commitment: Case of UAE and Jordan manufacturing companies. Academy of Strategic Management Journal, 21, 1-13.
15. Altındağ, Ö., Fidanbaş, Ö., & İrdan, G. (2019). The impact of intellectual capital on innovation: A literature study. Business Management Dynamics, 8(12).
16. Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological bulletin, 103(3), 411.
17. Anwar, G., & Abdullah, N. N. (2021). The impact of Human resource management practice on Organizational performance. International journal of Engineering, Business and Management (IJEBM), 5.
18. Astuti, P. D., Datrini, L. K., & Chariri, A. (2023). Understanding the antecedents and consequences of sustainable competitive advantage: testing intellectual capital and organizational performance. Economies, 11(4), 120.
19. Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. Technology in Society, 66, 101635.
20. Bagozzi, R. P. (1980). Performance and satisfaction in an industrial sales force: An examination of their antecedents and simultaneity. Journal of marketing, 44(2), 65-77.
21. Baima, G., Forliano, C., Santoro, G., & Vrontis, D. (2021). Intellectual capital and business model: a systematic literature review to explore their linkages. Journal of intellectual capital, 22(3), 653-679.
22. Barrena-Martinez, J., López-Fernández, M., & Romero-Fernández, P. M. (2019). The link between socially responsible human resource management and intellectual capital. Corporate Social Responsibility and Environmental Management, 26(1), 71-81.
23. Bergen, N., & Labonté, R. (2020). "Everything is perfect, and we have no problems": detecting and limiting social desirability bias in qualitative research. Qualitative health research, 30(5), 783-792.
24. Bjornevik, K., Cortese, M., Healy, B. C., Kuhle, J., Mina, M. J., Leng, Y., . . . Munger, K. L. (2022). Longitudinal analysis reveals high prevalence of Epstein-Barr virus associated with multiple sclerosis. Science, 375(6578), 296-301.
25. Blanchard, P. N., & Thacker, J. W. (2023). Effective training: Systems, strategies, and practices: SAGE Publications.
26. Cabrera, W., & Estacio, D. (2022). Job attitude as a factor on employees performance. International Journal of Economics Development Research (IJEDR), 3(1), 13-35.
27. Cao, T. T., Le, P. B., & Nguyen, N. T. M. (2022). Impacts of high-involvement HRM practices on organizational innovation capability: the mediating mechanism of tacit and explicit knowledge sharing. International Journal of Innovation Science, 14(5), 733-749.
28. Castaneda, D. I., & Cuellar, S. (2020). Knowledge sharing and innovation: A systematic review. Knowledge and Process Management, 27(3), 159-173.
29. Chadwick, C., & Flinchbaugh, C. (2021). Searching for competitive advantage in the HRM-firm performance relationship. Academy of Management Perspectives, 35(2), 181-207.
30. Chanana, N., & Sangeeta. (2021). Employee engagement practices during COVID-19 lockdown. Journal of Public Affairs, 21(4), e2508.
31. Chatterjee, S., Ghosh, S. K., & Chaudhuri, R. (2020). Knowledge management in improving business process: an interpretative framework for successful implementation of AI–CRM–KM system in organizations. Business Process Management Journal, 26(6), 1261-1281.
32. Chien, G. C., Mao, I., Nergui, E., & Chang, W. (2020). The effect of work motivation on employee performance: Empirical evidence from 4-star hotels in Mongolia. Journal of Human Resources in Hospitality & Tourism, 19(4), 473-495.

33. Cooke, F. L., Xiao, M., & Chen, Y. (2021). Still in search of strategic human resource management? A review and suggestions for future research with China as an example. Human Resource Management, 60(1), 89-118.
34. Donate, M. J., Ruiz-Monterrubio, E., Sánchez de Pablo, J. D., & Peña, I. (2020). Total quality management and high-performance work systems for social capital development: Effects on company innovation capabilities. Journal of intellectual capital, 21(1), 87-114.
35. Easa, N. F., & Orra, H. E. (2021). HRM practices and innovation: An empirical systematic review. International Journal of Disruptive Innovation in Government, 1(1), 15-35.
36. El-Farr, H., & Hosseingholizadeh, R. (2019). Aligning human resource management with knowledge management for better organizational performance: how human resource practices support knowledge management strategies? Current Issues in Knowledge Management: IntechOpen.
37. El-Kassar, A.-N., Dagher, G. K., Lythreatis, S., & Azakir, M. (2022). Antecedents and consequences of knowledge hiding: The roles of HR practices, organizational support for creativity, creativity, innovative work behavior, and task performance. Journal of Business Research, 140, 1-10.
38. Fitriastuti, L. I., Sujoko, S., Herawan, T., & Vemberi, Y. (2020). A Conceptual Framework on the Effect of Knowledge Management System Usage, Organizational Learning on Innovation and Organizational Performance. Quality-Access to Success, 21(176).
39. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research, 18(1), 39-50.
40. Fowler, S. (2023). Why Motivating People Doesn't Work... and what Does: More Breakthroughs for Leading, Energizing, and Engaging: Berrett-Koehler Publishers.
41. Garcia-Perez, A., Ghio, A., Occhipinti, Z., & Verona, R. (2020). Knowledge management and intellectual capital in knowledge-based organisations: a review and theoretical perspectives. Journal of knowledge management, 24(7), 1719-1754.
42. Goyal, S., Ahuja, M., & Kankanhalli, A. (2020). Does the source of external knowledge matter? Examining the role of customer co-creation and partner sourcing in knowledge creation and innovation. Information & management, 57(6), 103325.
43. Grant, R., & Phene, A. (2022). The knowledge based view and global strategy: Past impact and future potential. Global Strategy Journal, 12(1), 3-30.
44. Greer, C. R. (2021). Strategic human resource management: Pearson Custom Publishing.
45. Gupta, A. D. (2020). Strategic human resource management: Formulating and implementing HR strategies for a competitive advantage: CRC Press.
46. Hair, Anderson, R., Babin, B., & Black, W. (2010). Multivariate data analysis: A global perspective (Vol. 7): Upper Saddle River, NJ: Pearson.
47. Hamadamin, H. H., & Atan, T. (2019). The impact of strategic human resource management practices on competitive advantage sustainability: The mediation of human capital development and employee commitment. Sustainability, 11(20), 5782.
48. Hassan, N., & Raziq, A. (2019). Effects of knowledge management practices on innovation in SMEs. Management Science Letters, 9(7), 997-1008.
49. Hayaeian, S., Hesarzadeh, R., & Abbaszadeh, M. R. (2022). The impact of knowledge management strategies on the relationship between intellectual capital and innovation: evidence from SMEs. Journal of intellectual capital, 23(4), 765-798.
50. Hayes, A. F. (2015). An index and test of linear moderated mediation. Multivariate behavioral research, 50(1), 1-22.
51. Herden, T. T. (2020). Explaining the competitive advantage generated from Analytics with the knowledge-based view: the example of Logistics and Supply Chain Management. Business Research, 13(1), 163-214.
52. Hewett, R., & Shantz, A. (2021). A theory of HR co-creation. Human Resource Management Review, 31(4), 100823.
53. Ho, M., Soo, C., Tian, A., & Teo, S. T. (2023). Influence of strategic HRM and entrepreneurial orientation on dynamic capabilities and innovation in small-and medium-sized enterprises. International Small Business Journal, 02662426231201761.
54. Hoffman, M., & Tadelis, S. (2021). People management skills, employee attrition, and manager rewards: An empirical analysis. Journal of Political Economy, 129(1), 243-285.
55. Huselid, M. A., & Becker, B. E. (1996). Methodological issues in cross-sectional and panel estimates of the human resource-firm performance link. Industrial Relations: A Journal of Economy and Society, 35(3), 400-422.
56. Iskandar, Y., & Kaltum, U. (2021). The Relationship Between Intellectual Capital and Performance of Social Enterprises: A Literature Review. Academic Journal of Interdisciplinary Studies, 10(5), 309-330.
57. Jeong, I., & Shin, S. J. (2019). High-performance work practices and organizational creativity during organizational change: a collective learning perspective. Journal of management, 45(3), 909-925.
58. Kianto, A., Sáenz, J., & Aramburu, N. (2017). Knowledge-based human resource management practices, intellectual capital and innovation. Journal of Business Research, 81, 11-20.
59. Kremer, H., Villamor, I., & Aguinis, H. (2019). Innovation leadership: Best-practice recommendations for promoting employee creativity, voice, and knowledge sharing. Business Horizons, 62(1), 65-74.
60. Kurdi, B., Alzoubi, H., Akour, I., & Alshurideh, M. (2022). The effect of blockchain and smart inventory system on supply chain performance: Empirical evidence from retail industry. Uncertain Supply Chain Management, 10(4), 1111-1116.

61. Lam, L., Nguyen, P., Le, N., & Tran, K. (2021). The relation among organizational culture, knowledge management, and innovation capability: Its implication for open innovation. Journal of Open Innovation: Technology, Market, and Complexity, 7(1), 66.
62. Le, P. B. (2023). Applying knowledge-based human resource management to drive innovation: the roles of knowledge sharing and competitive intensity. Management Research Review.
63. Lee, O.-K. D., Choi, B., & Lee, H. (2020). How do knowledge management resources and capabilities pay off in short term and long term? Information & management, 57(2), 103166.
64. Li, Y., Song, Y., Wang, J., & Li, C. (2019). Intellectual capital, knowledge sharing, and innovation performance: Evidence from the Chinese construction industry. Sustainability, 11(9), 2713.
65. Lin, Z., Yang, H., & Arya, B. (2009). Alliance partners and firm performance: resource complementarity and status association. Strategic management journal, 30(9), 921-940.
66. Mahapatro, B. (2021). Human resource management: New Age International (P) ltd.
67. Maity, S. (2019). Identifying opportunities for artificial intelligence in the evolution of training and development practices. Journal of Management Development, 38(8), 651-663.
68. Marion, T. J., & Fixson, S. K. (2021). The transformation of the innovation process: How digital tools are changing work, collaboration, and organizations in new product development. Journal of Product Innovation Management, 38(1), 192-215.
69. Miller, S., Nunnally, E. W., & Wackman, D. B. (1976). A communication training program for couples. Social Casework, 57(1), 9-18.
70. Muhammed, S., & Zaim, H. (2020). Peer knowledge sharing and organizational performance: the role of leadership support and knowledge management success. Journal of knowledge management, 24(10), 2455-2489.
71. Murphy, K. R. (2020). Performance evaluation will not die, but it should. Human resource management journal, 30(1), 13-31.
72. Nicolaescu, S. S., Florea, A., Kifor, C. V., Fiore, U., Cocan, N., Receu, I., & Zanetti, P. (2020). Human capital evaluation in knowledge-based organizations based on big data analytics. Future Generation Computer Systems, 111, 654-667.
73. Ojha, D., Patel, P. C., & Parida, V. (2023). Virtual integration in SMEs: The digitalization circuitry of dynamic strategic planning for SMEs. International Journal of Information Management, 102657.
74. Pandey, A., Balusamy, B., & Chilamkurti, N. (2023). Disruptive artificial intelligence and sustainable human resource management: Impacts and innovations-The future of HR: CRC Press.
75. Paoloni, M., Coluccia, D., Fontana, S., & Solimene, S. (2020). Knowledge management, intellectual capital and entrepreneurship: a structured literature review. Journal of knowledge management, 24(8), 1797-1818.
76. Papa, A., Dezi, L., Gregori, G. L., Mueller, J., & Miglietta, N. (2020). Improving innovation performance through knowledge acquisition: the moderating role of employee retention and human resource management practices. Journal of knowledge management, 24(3), 589-605.
77. Phaladi, M. P. (2021). Framework for integrating knowledge management and human resource management for the reduction of organisational knowledge loss in selected South African state-owned enterprises. PhD diss., University of South Africa. https://hdl. handle. net/10500/28506.
78. Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. Journal of applied psychology, 88(5), 879.
79. Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. Annual review of psychology, 63, 539-569.
80. Pokrovskaia, N. N., Korableva, O. N., Cappelli, L., & Fedorov, D. A. (2021). Digital regulation of intellectual capital for open innovation: Industries' expert assessments of tacit knowledge for controlling and networking outcome. Future Internet, 13(2), 44.
81. Rasool, S. F., Samma, M., Wang, M., Zhao, Y., & Zhang, Y. (2019). How human resource management practices translate into sustainable organizational performance: the mediating role of product, process and knowledge innovation. Psychology research and behavior management, 1009-1025.
82. Rehman, U. U., & Iqbal, A. (2020). Nexus of knowledge-oriented leadership, knowledge management, innovation and organizational performance in higher education. Business Process Management Journal, 26(6), 1731-1758.
83. Santoro, G., Thrassou, A., Bresciani, S., & Del Giudice, M. (2019). Do knowledge management and dynamic capabilities affect ambidextrous entrepreneurial intensity and firms' performance? IEEE transactions on Engineering Management, 68(2), 378-386.
84. Scuotto, V., Nespoli, C., Palladino, R., & Safraou, I. (2022). Building dynamic capabilities for international marketing knowledge management. International Marketing Review, 39(3), 586-601.
85. Singh, S. K., Mazzucchelli, A., Vessal, S. R., & Solidoro, A. (2021). Knowledge-based HRM practices and innovation performance: Role of social capital and knowledge sharing. Journal of International Management, 27(1), 100830.
86. Škerlavaj, M., Song, J. H., & Lee, Y. (2010). Organizational learning culture, innovative culture and innovations in South Korean firms. Expert Systems with Applications, 37(9), 6390-6403.
87. Smids, J., Nyholm, S., & Berkers, H. (2020). Robots in the workplace: a threat to—or opportunity for—meaningful work? Philosophy & Technology, 33(3), 503-522.
88. Sokolov, D., & Zavyalova, E. (2021). Human resource management systems and intellectual capital: is the relationship universal in knowledge-intensive firms? International Journal of manpower, 42(4), 683-701.

89. Sun, K.-A., & Lee, S. (2019). Competitive advantages of franchising firms and the moderating role of organizational characteristics: Evidence from the restaurant industry. International Journal of Hospitality Management, 77, 281-289.
90. Sun, X. (2022). The effects of intellectual capital, innovative behavior, and absorptive capacity on organizational effectiveness in the service industry in Thailand-the moderating role of social capital.
91. Tamiminia, H., Salehi, B., Mahdianpari, M., Quackenbush, L., Adeli, S., & Brisco, B. (2020). Google Earth Engine for geo-big data applications: A meta-analysis and systematic review. ISPRS Journal of Photogrammetry and Remote Sensing, 164, 152-170.
92. Tortora, D., Chierici, R., Briamonte, M. F., & Tiscini, R. (2021). 'I digitize so I exist'. Searching for critical capabilities affecting firms' digital innovation. Journal of Business Research, 129, 193-204.
93. Trequattrini, R., Lardo, A., Cuozzo, B., & Manfredi, S. (2022). Intangible assets management and digital transformation: evidence from intellectual property rights-intensive industries. Meditari Accountancy Research, 30(4), 989-1006.
94. Usmanova, K., Wang, D., Sumarliah, E., Mousa, K., & Maiga, S. S. (2021). China's halal food industry: the link between knowledge management capacity, supply chain practices, and company performance. Interdisciplinary Journal of Information, Knowledge, and Management, 16, 285.
95. Verma, R., Arya, V., Thomas, A., Bolognesi, E., & Mueller, J. (2023). Does startup culture in the emerging country grow around societal sustainability? An empirical study through the lens of co-creational capital and green intellect. Journal of intellectual capital, 24(4), 1047-1074.
96. Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2022). Artificial intelligence, robotics, advanced technologies and human resource management: a systematic review. The International Journal of Human Resource Management, 33(6), 1237-1266.
97. Wahjudewanti, A. S., Tjakraatmaja, J. H., & Anggoro, Y. (2021). Knowledge Management Strategies to Improve Learning and Growth in Creative Industries: A Framework Model. Budapest International Research and Critics Institute-Journal (BIRCI-Journal) Vol, 4(2), 1903-1915.
98. Xing, W., Liang, J., Tang, W., He, D., Yan, M., Wang, X., . . . Huang, M. (2020). Versatile applications of capacitive deionization (CDI)-based technologies. Desalination, 482, 114390.
99. Yao, J., Marescaux, E., Ma, L., & Storme, M. (2023). A contingency approach to HRM and firm innovation: The role of national cultures. Human Resource Management, 62(5), 685-699.
100. Yildiz, D., Temur, G. T., Beskese, A., & Bozbura, F. T. (2020). A spherical fuzzy analytic hierarchy process based approach to prioritize career management activities improving employee retention. Journal of Intelligent & Fuzzy Systems, 39(5), 6603-6618.
101. Zaim, H., Muhammed, S., & Tarim, M. (2019). Relationship between knowledge management processes and performance: critical role of knowledge utilization in organizations. Knowledge Management Research & Practice, 17(1), 24-38.

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# Challenges and Opportunities in Influencer Marketing on Purchase Behavior

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**ABSTRACT**

The aim of this paper is to discover the challenges and opportunities in the influencer marketing, where the influencer marketing has become one of the crucial establishments in the marketing mix, where influential personalities promote the brands in the digital environment, increasing brand awareness, forming perceptions, and even making purchases. This marketing approach leverages micro-celebrity personalities within the new media, such as Instagram, YouTube, and TikTok, to influence purchasing behavior. Therefore, using social media influencers in advertising is a crucial tactic in engaging with consumers more indirectly than directly; however, it has its drawbacks. Challenges like counterfeit concerns, high regulatory compliance, and return on investment affect the prospects of campaigns. Market saturation also presents a challenge for brands since the market is hardly distinguishable. This research has been built to make an overview regarding the literature in theoretical way, and shed light on the challenges and opportunities in the influence purchase intentions.
Subsequently, academic research should aim to develop more objective measures and acknowledge the potential of influencer marketing, especially in other promising geographical markets.

***Keywords:***
*Challenges, Opportunities, Social Media, Influencer Marketing, purchase behavior*.

## INTRODUCTION

Today, influencer marketing has become one of the crucial establishments in the marketing mix, where influential personalities promote the brands in the digital environment, increasing brand awareness, forming perceptions, and even making purchases. This marketing approach leverages micro-celebrity personalities within the new media, such as Instagram, YouTube, and TikTok, to influence purchasing behavior (De Veirman et al., 2024). However, as this paper has demonstrated, influencer marketing is not without its problems, and as with many things, what may be quite straightforward at first glance hides its fair share of significant opportunities and daunting obstacles. Thus, this paper aims to illustrate these elements by focusing on the existing literature review and providing directions for future studies. The ultimate goal of this study is, therefore, to offer an objective perspective on the best ways through which firms can leverage influencer marketing while containing potential shortcomings of the strategy.

## LITERATURE REVIEW

The overall concept of influencer marketing as a practice has developed immensely over the last few years and matured into one of the most effective strategic tools for brands that seek to advertise their products and services directly to target consumers. New research has presented the effectiveness as well as the advantages and disadvantages of influencer marketing plans. In showcasing

the uniqueness of the influencers, there is, on one hand, authenticity, and then, on the other, there is the compromise of selling one's image through sponsored posts. This raises the question of how such diverse expectations can even be met, let alone how trust and credibility can be maintained within such a context (Lou & Yuan, 2022). According to Nair and Bhagat, (2024), this authenticity paradox can significantly impact the reach and the commitment of the followers, which is why the theory has a crucial role in the effectiveness of influencer marketing efforts. The problem here lies in creating the right persona of an influencer who is normal and relatable but is also professional enough so as not to give the audiences the feeling that they're being sold something.

Adding another layer to it, Freberg et al. (2022) discuss the various regulations that are associated with influencer marketing. There are no comprehensive rules set, and digital platforms are international, which makes the regulation a significant concern for both brands and influencers with respect to compliance and disclosure (Abidin, 2016). As a result, the regulatory authorities in distinct countries gradually started elaborating more precise legal acts and norms to increase transparency in Influencer advertising, which has opened a series of new challenges in terms of strategy formulation for international brands (Enke & Borchers, 2019). On the opportunity side, Lim et al. (2017) elaborate on technological enhancement, including data analytics and AI, which increases the possibility of pairing influencers and the brand. They can also assist in evaluating the ROI for campaigns more effectively, which is one of the significant problems in this area. Advanced analytics better understand the customers' behaviors, which creates opportunities for impactful influencer marketing strategies.

However, there are some limitations, such as the lack of research focusing on the long-term outcomes of employing influencer marketing to approve brand loyalty and consumer buying behavior, which provides a direction for future research. According to Ao et al. (2023) some indications can be made between specific measures of consumer engagement with influencers and loyalty, if only partially, and with certain external variables that affect the accuracy of these measures at different levels, such as the type of market or the economic environment (Okonkwo & Namkoisse, 2023). Moreover, the role of emerging markets in influencing the efficacy of an influencer has not been explored adequately and constitutes another topic for future investigation. The consumer behaviors in these markets, for the most part, deviate significantly from those found in well-developed markets, which might imply different conditions that could be more or less suitable for influencer marketing.

## Challenges in Influencer Marketing

Influencer marketing, despite its potential for high engagement and return on investment, is fraught with several significant challenges that can undermine the effectiveness and credibility of campaigns.

### 4.1 Authenticity and Trust

Influencer marketing faces a lot of challenges, but probably the most rampant one is the question of authenticity. More often than not, when influencers are in the process of integrating more sponsored content into their feeds, audiences are more likely to see them as being fake and, hence, lose their trust in something important when it comes to engagement and purchase (Lou & Yuan, 2019). This lack of confidence can be highlighted by false or misleading disclosures of affiliations or overemphasizing the utility of goods, leading to public outrage and, consequently, loss of followers.

### Regulatory Compliance

There exists a rather large grey area since influencer marketing is rapidly growing, and the legal framework has not yet been developed to match this growth. The exposure requirements vary from country to country, and it is quite challenging for influencers and their respective brands to abide by the emerging rules (Childers et al., 2018). This is compounded by the fact that most digital platforms have a global nature of operation, which means brands must figure out how to meet the many different legal specifications that are available to avoid being penalized (Kareklas et al., 2024).

### ROI Measurement

Measuring the effectiveness, or the actual ROI, from the influencer campaigns is still complex. As engagement statistics of likes, comments, and shares are easily obtained, it is difficult to associate these statistics to sales or brand development measures directly (Bell et al., 2024). Budgeting is a real challenge because there is no clear way to set the KPI for influencers, which also makes strategic planning challenging (Bell et al., 2024).

### Saturation and Differentiation

However, compared to the initial years of influencer marketing, the market eventually got saturated as more brands came on board, flooding the market. Today, influencers are competing not only with each other but also with the brand's advertising campaigns (Jin et al., 2019). Such saturation complicates the process of identifying and using the influencer who will help to become a valuable addition to the brand.

### Long-term Engagement

It has been quite challenging to establish and sustain the relationships of influencers with customers and audiences for a long time now that influencer marketing is losing its essence. The audiences may also begin to ignore influencers' recommendations, which may harm long-term advertising initiatives and force brands to update the types of influencer content that they produce constantly (Enke & Borchers, 2019).

## Opportunities in Influencer Marketing

In the evolving landscape of influencer marketing, while challenges persist, several significant opportunities also present themselves, allowing brands and influencers to harness the full potential of this dynamic marketing strategy.

### Technological Advancements

The increased use of data analytics and machine learning has also boosted influencer selection and the management of campaigns. Analytical tools like predictive analysis can come in handy in defining who the brand should target since the demographics of the audience and its degree of interaction match those of the brand (Kapoor et al., 2024). Additionally, platforms that employ the use of AI can modify the content of the campaign in response to real-time data feedback, which is actually a reflection of audiences' response to given content, hence enhancing the impact of the campaign.

Niche Marketing

However, with increased market transition, there is potential to target specific influencers with a relatively small yet sincere and loyal fan base. Such players are generally associated with higher levels of trust and interaction levels than mainstream players, thanks to the perceived authenticity and relevance to customized niches (Lou & Yuan, 2022). Working with influencers who have small but dedicated audiences can be beneficial as it is way more effective than mass reach and conversion.

Global Reach

Geographical regions become irrelevant in influencer marketing since they present the brands with an opportunity to tap audiences in various parts of the world through culturally sensitive personalities. This is especially useful for brands that want to enter another area or sector because they can gather valuable information from their rivals' websites (Hughes et al., 2019). A crucial advantage of collaborating with regional talent is that brands are able to learn about the latter's insights into what is popular in a given area and specific aspects of culture that characters may potentially address.

Integrated Multi-Channel Campaigns

Multi-channel marketing strategies are no exception, and influencers can facilitate them effectively. By combining efforts with influencers, it is possible to design campaigns that are coherent and based on multiple platforms, from Instagram or YouTube to TikTok, which will engage consumers (Hughes et al., 2019). This integration ensures the consistency of the message being passed through the brand and also enhances the exposure and effectiveness of the whole campaign.

Long-Term Partnerships

The primary advantage of partnering with influencers is that one is likely to form long-term affiliations that will compound returns. While short-term promotions work for a quicker impact, there is the reputed and encouraged growth of partnerships that leads to influencers naturally endorsing brands (Lou & Yuan, 2022). These relationships also provide avenues for more crafted and intentional marketing campaigns that adapt over time, depending on feedback and results, for better and more precise marketing activity.

## METHODOLOGY

This research has been built to make an overview regarding the literature in theoretical way, and shed light on the challenges and opportunities in the influence purchase intentions.

## RECOMMENDATION AND IMPLICATION

For further research we recommend to specify the community and the field. Also, Re-assessing and expanding theory, framework or model you have addressed in the research.

## CONCLUSION

Today, using social media influencers in advertising is a crucial tactic in engaging with consumers more indirectly than directly; however, it has its drawbacks. Challenges like counterfeit concerns, high regulatory compliance, and return on investment affect the prospects of campaigns. Market saturation also presents a challenge for brands since the market is hardly distinguishable. However, there are significant possibilities that have not been explored so far, such as the incorporation of new technologies such as Artificial Intelligence–AI, building a niche audience network, exploring global markets effectively, and building effective long-term relationships with influencers. Understanding these challenges and leveraging the opportunities noted above would go a long way in establishing long-term efficient influencer marketing strategies with improved consumer trust. Subsequently, academic research should aim to develop more objective measures and acknowledge the potential of influencer marketing, especially in other promising geographical markets.

## REFERENCES

Abidin, C. (2016). “aren’t these just young, rich women doing vain things online?”: Influencer selfies as subversive frivolity. Social media + Society, 2(2). https://doi.org/10.1177/2056305116641342

Ao, L., Bansal, R., Pruthi, N., & Khaskheli, M. B. (2023). Impact of social media influencers on customer engagement and purchase intention: A meta-analysis. Sustainability, 15(3), 2744. https://doi.org/10.3390/su15032744

Bell, C., Olukemi, A., & Broklyn, P. (2024). Influencer Marketing Roi: Measurement Techniques and Optimization Strategies. https://doi.org/10.20944/preprints202408.0171.v1

Childers, C. C., Lemon, L. L., & Hoy, M. G. (2018). #SPONSORED #AD: Agency perspective on influencer marketing campaigns. Journal of Current Issues & Research in Advertising, 40(3), 258–274. https://doi.org/10.1080/10641734.2018.1521113

De Veirman, M., Cauberghe, V., & Hudders, L. (2017). Marketing through Instagram influencers: The impact of number of followers and product divergence on brand attitude. International Journal of Advertising, 36(5), 798–828. https://doi.org/10.1080/02650487.2017.1348035

Enke, N., & Borchers, N. S. (2019). Social Media Influencers in strategic communication: A conceptual framework for strategic social media influencer communication. International Journal of Strategic Communication, 13(4), 261–277. https://doi.org/10.1080/1553118x.2019.1620234

Freberg, K., Graham, K., McGaughey, K., & Freberg, L. A. (2022). Who are the social media influencers? A study of public perceptions of personality. Public Relations Review, 37(1), 90–92. https://doi.org/10.1016/j.pubrev.2010.11.001

Hughes, C., Swaminathan, V., & Brooks, G. (2019). Driving brand engagement through online social influencers: An empirical investigation of sponsored blogging campaigns. Journal of Marketing, 83(5), 78–96. https://doi.org/10.1177/0022242919854374

Jin, S. V., Muqaddam, A., & Ryu, E. (2019). Instafamous and social media influencer marketing. Marketing Intelligence & Planning, 37(5), 567–579. https://doi.org/10.1108/mip-09-2018-0375

Kapoor, K. K., Tamilmani, K., Rana, N. P., Patil, P., Dwivedi, Y. K., & Nerur, S. (2024). Advances in social media research: Past, present and future. Information Systems Frontiers, 20(3), 531–558. https://doi.org/10.1007/s10796-017-9810-y

Kareklas, I., Carlson, J. R., & Muehling, D. D. (2016). The role of regulatory focus and self-view in “green” advertising message framing. Journal of Advertising, 41(4), 25–39. https://doi.org/10.1080/00913367.2012.10672455

Lim, X. J., Mohd Radzol, A. R., Cheah, J.-H. (Jacky), & Wong, M. W. (2017). The impact of social media influencers on purchase intention and the mediation effect of customer attitude. Asian Journal of Business Research, 7(2). https://doi.org/10.14707/ajbr.170035

Lou, C., & Yuan, S. (2024). Influencer marketing: How message value and credibility affect consumer trust of branded content on social media. Journal of Interactive Advertising, 19(1), 58–73. https://doi.org/10.1080/15252019.2018.1533501

Nair, S., & Bhagat, H. A. (2024). The impact of Social Media Influencers on consumer behavior. https://www.researchgate.net/publication/379829505_The_Impact_of_Social_Media_Influencers_on_Consumer_Behavior

Okonkwo, I., & Namkoisse, E. (2023). The role of influencer marketing in Building Authentic Brand Relationships Online. Journal of Digital Marketing and Communication, 3(2), 81–90. https://doi.org/10.53623/jdmc.v3i2.350

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# CHANGING FACE OF DIGITIAL FORENSIC'S DUE TO IoT'S

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**ABSTRACT**

This Global development has come a long way, and the way it is going, it will not take much time to take over the world by storm. The way the usage of computers and the internet has grown was not enough that the new wave to an internet of thing (IoT) came in and has changed the way we have always seen the internet and its working. Trillions of G.B of data are being generated daily, and the same data is being interpreted and analyzed to provide new and innovative solutions to day-to-day problems. This information can be used positively or negatively, and it depends on the person who is using the data and the intentions with which it is being used. This information can be used to fight the new wave of crime by law enforcement agencies worldwide, and the same data can be used by financial institutions and firms to make big decisions in making the world a better place. IoT has come in as a tool to help and assist law enforcement agencies and prosecutorial offices with a series of guidelines that are in line with the rules and regulations laid down by the law to complete the investigation process. In the said manuscript, the authors have attempted to understand the role of IoT in the investigation process of digital crimes and tried to understand the reason for the lag in the judicial system in India and how this can be changed when law agencies and IoT shake hands and work together for a common goal. research themes, clusters, and interdisciplinary collaborations, advancing knowledge and informing future research directions.

***Keywords:***
*Internet of Thing, Investigation, Digital Investigation, Investigating agencies and Law enforcement.*

## 2. INTRODUCTION

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## INTRODUCTION

The Iot, a synonym for the internet of things, is a combined technology of connecting physical electronic goods to the internet or cloud(Rasooli, Bhushan, & Kumar, 2020)(Tawalbeh, Muheidat, Tawalbeh, & Quwaider, 2020). The role of these physical products is to analyze the collected data on the problem; this is done without the individuals' interference as they reduce the usage of human interface in the process. When we break the Iot, I stands for the" internet" services commonly known as the world wide web and the connectivity of computer products, and the T stands for the "things," which are the physical products that can be as small as a wearable electronic watch. The primary purpose of IoT is the collection of data about the assigned job; it can be health care, agriculture or even meditation, and complex items like pollution, unemployment, diseases, and crime(Gercke, 2012; Morgan, 2019; Nouh, Nurse, Webb, & Goldsmith, 2019).

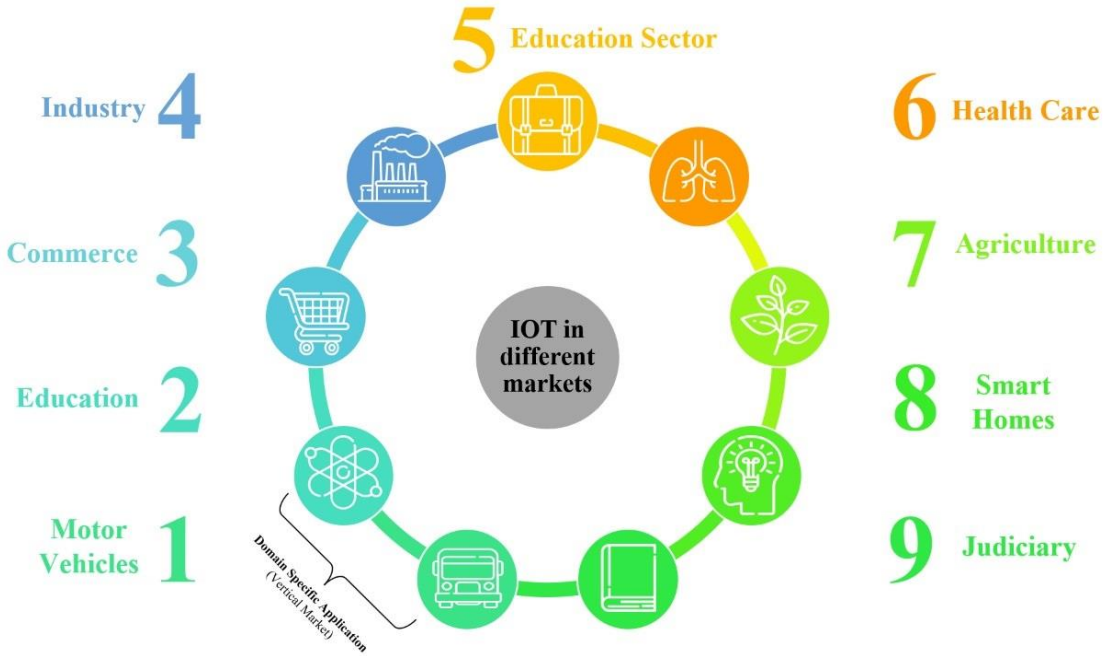


*Fig: I Different areas where IoT can be/is used.(Developed by Author)*

Digital/ Forensic investigation has been recognized as an academic and professional discipline in developed countries like the USA, U.K., Australia, and Germany, several courses at U.G. and P.G. level in these countries are being offered to the students, and the same has been famous as there are job opening available after successful completion of these courses, giving a push to the students in these countries to opt for the same (Tawalbeh et al., 2020) When we see into the working culture and style of the crime investigation there is a well-defined infrastructure that supports crimes, may it be traditional crimes or the new age cyber-crimes. This infrastructure is working at the state and national level and for both the public and private sectors. There is specific, explicit legislation that talks about the crimes that have been committed by misusing the internet, computer, and IoT, which are provided under the guidelines of the digital evidence. With the increase in IoT and other internet tools, this game has changed to another level. The underdeveloped country like India, Bangladesh, and others need to develop a unique digital forensic investigation infrastructure as India took many measures after the 2008 Mumbai attack (Chandran. R, 2021). After the attack, many questions were rocked at the administration as the question where we are equipped to tackle such kind of attacks and why were the intels of U.S. intelligence ignored about the potential attack (Robertson. N, 2021), and if proper precautions and steps would have been considered many lives could have been saved. The primary question in the investigation was the excessive use of digital devices and how high-level planning was done to make the attack success, and yes, they succeeded, to open our eyes and create new ways to understand the new digital investigation techniques and increase the use of IoT in the same. The use of satellite phones, Direct inward dialing, GPS equipment's and other IOT was unearthed (Federation of American Scientists, 2021).

Several incidences after that have rocked the Indian national security may be the Hacking of Indian official websites, web pages, or websites of atomic research claimed by the hackers from Pakistan (Federation of American Scientists, 2021). The train bombing of 2006 was also an example of IoT being used to commit the crimes as I.P. address and masking those I.P. address plus making proxies for the same was an integral part of the attack. It proves that the Indian digital forensic investigation infrastructure and the people associated are at the initial stages, and a lot must be done in this regard. IoT has been in use for quite now but is subject to professionals working in a specific area. These can be termed the technology to connect the physical devices to the internet; a simple example can be a WiFi router (Point Software Technologies, 2019). IoT is being used as an important tool to pull digital crimes as it is impossible for anyone to enter the network of any induvial or company without breaking into the IoT first (Rani, Kumar, & Bhushan, 2019). The crimes committed are either using IoT totally or taking the help of the instruments as much as possible. These devices are easily connected to the internet, and the information shared is at a click of a button. We can find a large number of gadget are available which can be easily transported and can be kept hidden from the eyes of people(i.e., sunglasses with camera and recording, a pen with camera and GPS, and how can forget the wearable watches which comes with a lot of feature and the best or the worst feature is that it is always connected to the internet) making it impossible for the naked eyes to get hold of such things. Until these things are being used for the benefit of the people, it is good, but if used for malicious activities, it damages the economy. The beauty of IoT is such that it can be used and misused in any field and any sector; the central point is that is its target audience and the mindset of the user, this can be used in agriculture, education, health care, and all the fields you name it and IoT is present there (Bhatt, Sharma, Sharma, Sharma, & Sharma, 2021). Thus, in the said study, the authors have tried to understand the working of IoT and digital forensic investigation and the infrastructure working in India with particular reference to academic structure, legal bodies, and law enforcing bodies(Sharma & Kumar, 2020).

| S.No | Name of author/authors | Findings |
|---|---|---|
| 1 | Almuhammadi, S., & Alsulaiman, F. (2022) | This paper reviews digital forensic methodologies tailored for IoT-based healthcare systems, highlighting the challenges and solutions specific to this domain. |
| 2 | Conti, M., Dragoni, N., & Lesyk, V. (2022) | It provides a comprehensive survey of man-in-the-middle attacks in IoT environments, discussing the implications for digital forensics. |
| 3 | Sikorski, R., & Faber, S. (2023) | This paper discusses the various tools and techniques available for the forensic analysis of IoT devices. |
| 4 | Zhang, Z., & Wang, Y. (2023) | The focus is on the unique security and forensic challenges posed by smart home environments |
| 5 | Kumar, R., & Singh, S. (2024). | The authors propose advanced frameworks to address the specific needs of digital forensics in IoT ecosystems |
| 6 | Patel, N., & Chawla, S. (2024) | This research explores the integration of blockchain technology to enhance the reliability and traceability of digital forensic processes in IoT systems. |
| 7 | Hossain, M., & Karim, A. (2023) | A review of how machine learning techniques can be applied to digital forensics in IoT environments. |
| 8 | Rahman, A., & Ahmed, S. (2022). | This systematic review identifies the main challenges in IoT digital forensics and proposes strategic solutions. |

| | | |
|---|---|---|
| 9 | Li, X., & Zhou, Z. (2023) | This paper provides a state-of-the-art review on the forensic readiness of IoT devices. |
| 10 | Wang, Q., & Liu, H. (2024). | An exploration of the frameworks and challenges associated with digital forensics in industrial IoT settings. |

*Table1: discussing the past research on the IOT and forensic accounting.*

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## LITERATURE REVIEW

The widespread use of the Internet of Things (IoT) has had a tremendous influence on the field of digital forensics, creating both potential and difficult obstacles (Stout & Urias, 2016). With the increasing prevalence of IoT devices in our everyday lives, they provide a vast amount of data that is essential for investigations and incident response. Nonetheless, the decentralised and diverse structure of IoT ecosystems presents distinct challenges in gathering, safeguarding, and examining this digital data. (Hillier & Karroubi, 2022).

Researchers acknowledge the challenging responsibility of overseeing Insider Threat Detection in organisations, since malevolent actions might easily evade detection within the extensive network of IoT devices and the constantly growing digital traces (Hillier & Karroubi, 2022). The integration of the digital realm into the physical environment of the Internet of Things (IoT) has introduced hitherto unforeseen forms of assaults. These attacks need the development of a new, efficient, and widely distributed technique for detecting them. This is because IoT systems have limited resources and complicated architectures.

In order to tackle these difficulties, several researches have investigated the possibility of using machine learning and deep learning methods for intrusion detection in IoT-focused environments. These researches have shown encouraging outcomes in terms of scalability, precision, and decreased computing burden, providing a ray of hope in the competition to protect the more susceptible IoT environment.

The increasing reliance on IoT devices has generated significant security apprehensions, since the potential risks to these applications are continuously appearing and evolving. The following table is what gives an insight to the topic:

## RESEARCH METHODOLOGY

The author of the article attempts to present the notion of digital/forensic investigation and its transformation as a result of the growing use of IoT technologies. The author has considered the law that governs these rules and regulations, which have been established and are now being implemented in the specified manner. The rules and regulations serve as both a standard and a checklist, guiding the authorities that implement them to ensure that the law is both effective and easily understood. The police officials and legal professionals are the only ones now working in this subject, which is why this task is being carried out.

### Result and Analysis

The results and analysis are categorised into many sections. The first section focuses on comprehending the law, followed by the second section which examines the guidelines. The third section delves into the structure and operations of the Police Organisation, while the last section explores the efforts made in education and training.

### Legislation:

Specific cyber offenses, digital signatures, and electronic records were recognized as a criminal act by the Information Technology Act 2000(I.T. Act, 2000), monitored by the ministry of communication and Information Technology. Section 66 of the Act defines hacking as an act of altering electronic information in some way or other to misuse it; Sec 67 talks about the publishing of obscene content which is an electronic form, but the problem comes when to implement all these as there are many loopholes in the system and lack of awareness among the people(Contents, 2019) many questions were raised in the case of Avnish Bajaj, CEO of Baazee.com as a lot of confusion and ambiguities were found (Symantec, 2019). These limitations led to the amendment of this act

in 2008, which redefined Hacking as a criminal activity. However, criminal acts are being covered under the Indian Penal Code 1860, and wherein the civil issues are dealt with by the Central Government adjudicating Officer who has been provided with the power of the civil court, which authorizes them to penalize pass judgment following the I.T. Act, 2000. The appeal of the same can be filed in the Cyber Regulations Tribunal. The investigation process of the same is a complicated affair which can either be done by the officials and if not in their domain this can be handed over to the private investigating agencies, as the type and level of crimes have gone up with the increased usage of IoT. Sec 78 gives in the details of the investigating officer who must not be below the rank of Deputy Superintendent of Police (Government of India, 2000), the reason for being the position gives him access to a larger area, and many police stations come under him which provides him with the freedom to work quickly and efficiently.

On the other hand, he can be held liable for the progress also. In 2009, the act was revised, giving the power of investigation to the Inspector in case of cybercrime because the number of issues was increasing, and the investigation was lacking behind (Government of India, 2009). Another major announcement in the amendment was that the number of cybercrimes centers was increased to divide the workload, and quick actions could be taken on the offenders. It was also found that the police officers lacked understanding of the Indian Penal Code (Scheidt & Adda, 2020), and the business sector reported the same, as the cybercrimes significantly hit them. Another angle to this was that the business community was afraid of brand devaluation and loss in profit due to such cybercrime attacks, and if taken care of the public, they have been fearful of reaching out to police due to the past experiences of harassment and non-action (Conference Support Section, Organized Crime Branch, Division for Treaty Affairs, & Unodc, 2013). Sec 45 of the Indian evidence act ask for the testimony by the expert standing as a witness that they are an expert in the related field and have perfect knowledge about the topic in concern as the movement the use of IoT is there in the crime the witness needs to justify the capability of the instrument in questions and the capacity of the offender to pull that crime. With the increase in usage of IOT's communicating with each other, the chances of data breach and theft have increased manifold. Sec 43 of the ITA (amended) talks about*" **Reasonable practices and procedures and sensitive personal data or Information Rules, 2011" (Rules).*** However, the role of the private digital investigator as a witness is questionable; this does not mean that the police investigators cannot take their help; the legal provision provides them authority to outsource the investigation if needed.

**Guidelines:**

Now let talk about the implementation of the legal framework, our law is still in the initial stages, and a lot must have changed us as the recognition and prosecution of the cybercrime offenders, as there is still a gap between the law and its execution, plus the lack of specialized people to work with the authorities also creates a bend in the system. When compared to the Us and U.K. where NIST and ACPO, respectively. These organizations provide guidelines to the enforcement agencies, and India does not have such a body working here. Section 154-176 of the code of Criminal Procedure in support of Sec 80 of the I.T. Act, 2000 specifies the powers of the police department, but the point of concern is that there are no guidelines on the investigation of Cybercrime. The usage of IoT has further increased the complexity of the problem and needs to have more strict investigation guidelines. The amendment act 2008 gives more flexibility to the states and can develop and implement the rules and infrastructures to implement their investigation team and Modus of Operandi, which is to be recorded in the police manual of the state (Gercke, 2012). In the U.S., if the guidelines are not available, there is a CERT-IN (Computer Emergency Response Team), which is to be approached if the responder must follow as detailed by the American Federal Law Enforcement Training Centre (U.S. Department of Homeland Security, 2006). In India, CBI has been working with legal enforcement agencies is working on the investigating process concerning the working on cybercrime (CBI Crime Manual, 2005) with the collaboration Centre for development of Advanced Computing (CDAC) to increase the efficiency of the work drafted(Resource Centre for Cyber Forensics, 2021). The advancement of the work in this field is much to be done, and a lot must be achieved as there is not a single point of investigating authority, which leads to confusion, delays, and inconsistency in the investigation process. The rules change with the jurisdiction of the state, the investigation

officer changes, and many formalities are there, resulting in delay and sometimes forgoing the investigation process. (https://www.google.com/processofdigitalforensics&chips, 2018)

**Police Organisation:**

Guidelines issued by law enforcement agencies and the infrastructure seeking into the working of investigation in India lead to a significant discussion in India. In India, the police system is split into 2 tier organizations, the central and the state. The police are controlled differently at the state and center levels. The central team has access to 2 armed forces, and the other non- paramilitary organization such as CBI, is working in India, and other investigating agencies are there to support. (CBI. Central Bureau of Investigation, 2020).

Director-General of Police who heads the state police force is supported by Inspector General, Deputy Inspector generals, Superintendents, Deputy Superintendents, and Inspectors at the hierarchy level. CBI is vested with special powers and responsibilities when it comes to investigation, as they are given the charge of national-level crimes such as corruption, financial crime, bribery at the top level of administration, terrorism, and interstate crimes (CBI. Central Bureau of Investigation, 2020); additional work of supporting the different state-level investigations. Central Forensic Science Laboratory (CFSL) is also a part of CBI which seeks into the computer forensics division, whose main aim is to provide forensic support to the different bodies such as expert testimony, forensic services, on-site investigation support, and collection of evidence for the crime scene, plus giving training to the other bodies (CBI. CBI Crime Manual, 2005). India, a member of Interpol (Brown, 2015), has also given several insights to the investigating agencies in the area. Interpol's 7$^{th}$ International conference on Cybercrime held in New Delhi (Gercke, 2012) was also on the new trends on cybercrime and how there is a growth in the procedure. Interpol and CBI work hand in hand when a crime is investigated, in more than two countries, one being India. It also happened in the case of the Mumbai Attacks wherein Interpol, CBI, and international agencies such as the FBI was a part of the investigating team, and they were given unprecedented access to the evidence and the resources to find the truth behind the attack (Salamh & Mirza, 2021). Computer Emergency Response Team (CERT) is another wing that supports the investigating agencies in India about computer security incidents and gives advice on security issues (Point Software Technologies, 2019), this is the team that offers an insight into IoT and how they work, but they are not directly involved in the digital forensic investigation. There are several gaps in the system and the working bodies as sec 66 and 67 of the Information Technology Act of 2000, which talks about the investigation but is absent about the procedure and requirement of the forensic team, leading to help the private players enter into the investigation process as the law bounds them. They can enhance their digital forensic investigation services to any level and provide private players(Husamuddin & Qayyum, 2017; Ics-, 2021; Of, 2007). Several private players have entered the system of forensic investigation and doing tremendously well and providing professional guidance needed by the corporates, further enhancing their expertise in the legal side and other addon services(Al-room, 2021; Leloglu, 2017). That can be concluded that state police departments outsource the investigation work to these private players (Bhatt et al., 2021; Tawalbeh et al., 2020).

**Education and Training:**

The complex nature of the higher education system (HES) prevalent in India is much more complex than the same in the U.K. and U.S. In India University Grants Commission (UGC) is the one that is taking care of the higher education sector in India under the UGC Act, 1956. The commission's main objective is to control and maintain the different academic standards maintained by the HES in India (UGC, 2007). The Education Institutes (Universities) are being categorized as:

1. Central Universities are established by the central government act, passed by the parliament.
2. The state statute establishes State-level universities.
3. Deemed universities are those which are neither governed by center or state but are recognized by UGC.
4. Self-financed/ privately funded universities that are recognized by UGC are known as Private universities.

The problem arises that the degrees issued by the Higher Education Institutes that are not recognised are also not by the countries like the U.K. and USA (Acharya S. 2008). One reason for the same is the absence of a central admission authority in India as it is

in the U.K., this is the portal that allows the admission seekers to fill in the application, and then it is the central authority that redirects the applications, or the universities shortlist the students at the main level. This allows the process to be quick and effective, making it through direct inquiry or courses offered. If this system comes into the act in India, it will be a better way for a student to choose his approach based on their credentials. When it comes to forensic sciences courses, the same has been offered in India since 1952; thought the efforts of making it an entire-fledged approach started in 1967 when UGC and CBI came together to develop a course under a committee for establishing Criminology and Forensic Science (CFS) in Academia, these were to be affiliated to different universities and thus proper course to be seamline, Institute of Criminology and Forensic Sciences(ICFS) founded in 1971, with a significant objective to train a specific person in the field of forensic investigation. The University of Patiala and Madras started the degree courses for both U.G. and P.G. students under the head, leading the same to be established discipline, and the same started in the affiliated colleges. But same is not the case with Digital Forensics Investigation, as it has still not been identified as a specific discipline in India. There are just a handful of institutes that have considered this topic as a primary requirement of which Madras University's Criminology department offers M.SC in Cyber Forensics and Information Security (CBI, 2010), and SRM University is offering M.Tech in Information Security and computer forensics (CBI, 2007;). With time the number of HEI offering cyber investigations has gone to 256. Different training and refresher courses have started in India, and from police department to Army personal, such training is being provided to each government servant. The usage of such as take a lot of effort and time to make it available so that people can be aware of the facts and figure of Cyber investigation.

## REFERENCES


1. Acharya S. Cyber terrorism-the dark side of the web world. Legal Service India. [Online]..Available from: http://www.legalserviceindia.com/ article/l169-Cyber-Terrorism.html; 2008 [accessed 20.03.21]
2. Almuhammadi, S., & Alsulaiman, F. (2022). Digital forensics for IoT-based healthcare systems: A review. Computers & Security, 110, 102476.
3. Al-room, K. (2021). Drone Forensics : A Case Study of Digital Forensic Investigations Conducted on Common Drone Models. 13(1). https://doi.org/10.4018/IJDCF.2021010101
4. Bhatt, H., Sharma, B. B., Sharma, A., Sharma, R., & Sharma, M. (2021). An IoT-Based Soil Properties Monitoring System for Crop Growth and Production. 200–219. https://doi.org/10.4018/978-1-7998-7756-1.ch009
5. Brown, C. S. D. (2015). Investigating and prosecuting cyber crime: Forensic dependencies and barriers to justice. International Journal of Cyber Criminology, 9(1), 55–119. https://doi.org/10.5281/zenodo.22387
6. Conference Support Section, Organized Crime Branch, Division for Treaty Affairs, & Unodc. (2013). Comprehensive Study on Cybercrime. United Nations Office on Drugs and Crime, (February), 1–320. Retrieved from http://www.unodc.org/documents/organized-crime/UNODC_CCPCJ_EG.4_2013/CYBERCRIME_STUDY_210213.pdf
7. Contents, T. O. F. (2019). Now continued as Forensic Science International : Digital Investigation . AUTHOR INFORMATION PACK. 1–16.
8. Conti, M., Dragoni, N., & Lesyk, V. (2022). A survey of man-in-the-middle attacks in the Internet of Things. Journal of Network and Computer Applications, 87, 48-69.
9. Gercke, M. (2012). Cybercrime Understanding Cybercrime : Understanding Cybercrime: Phenomena, Challenges and Legal Response, (ITU), 366. https://doi.org/10.1088/1367-2630/11/1/013005
10. Hossain, M., & Karim, A. (2023). Machine learning in IoT digital forensics: A comprehensive review. IEEE Access, 11, 11234-11248.
11. Hillier, C., & Karroubi, T. (2022). Turning the Hunted into the Hunter via Threat Hunting: Life Cycle, Ecosystem, Challenges and the Great Promise of AI. *arXiv preprint arXiv:2204.11076*.

12. Husamuddin, M., & Qayyum, M. (2017). Internet of Things: A study on security and privacy threats. 2017 2nd International Conference on Anti-Cyber Crimes, ICACC 2017, (March 2017), 93–97. https://doi.org/10.1109/Anti-Cybercrime.2017.7905270
13. Ics-, P. (2021). 3 rd International Conference- IC4S-2021 Scheduled to be held on Proceedings of IC4S-2021 will be indexed in DBLP and Scopus Springer Lecture Notes in Networks and Systems ( LNNS ). 2021, 2–4.
14. Kumar, R., & Singh, S. (2024). Advanced digital forensics frameworks for IoT ecosystems. Future Generation Computer Systems, 137, 268-283.
15. Leloglu, E. (2017). A Review of Security Concerns in Internet of Things. Journal of Computer and Communications, 05(01), 121–136. https://doi.org/10.4236/jcc.2017.51010
16. Li, X., & Zhou, Z. (2023). Forensic readiness of IoT devices: A state-of-the-art review. Forensic Science International: Digital Investigation, 45, 301178.
17. Morgan, S. (2019). 2019 Official Annual Cybercrime Report. 2019 Report by Cybersecurity Ventures Sponsored by Herjavec Group, 12.
18. Nouh, M., Nurse, J. R. C., Webb, H., & Goldsmith, M. (2019). Cybercrime Investigators are Users Too! Understanding the Socio-Technical Challenges Faced by Law Enforcement. (February). https://doi.org/10.14722/usec.2019.23032
19. Of, O. L. E. (2007). R Ole of I Matinib in.
20. Patel, N., & Chawla, S. (2024). Integrating blockchain with digital forensics for IoT. Computer Communications, 181, 120-130.
21. Point Software Technologies, C. (2019). Cyber Attack Trends Analysis Report. 01.
22. Rahman, A., & Ahmed, S. (2022). Challenges and strategies in IoT digital forensics: A systematic review. Journal of Computer Networks and Communications, 2022, 9867563.
23. Rani, D., Kumar, N., & Bhushan, B. (2019). Implementation of an Automated Irrigation System for Agriculture Monitoring using IoT Communication. Proceedings of IEEE International Conference on Signal Processing, Computing and Control, 2019-Octob, 138–143. https://doi.org/10.1109/ISPCC48220.2019.8988390
24. Rasooli, M. W., Bhushan, B., & Kumar, N. (2020). Applicability of wireless sensor networks & IoT in saffron & wheat crops: A smart agriculture perspective. International Journal of Scientific and Technology Research, 9(2), 2456–2461.
25. Salamh, F. E., & Mirza, M. M. (2021). UAV Forensic Analysis and Software Tools Assessment : DJI Phantom 4 and Matrice 210 as Case Studies. 1–14.
26. Scheidt, N., & Adda, M. O. (2020). Framework of Confidence Values during Digital Forensic Investigation Processes. 15, 228–234. https://doi.org/10.37394/23203.2020.15.24
27. Sharma, B. B., & Kumar, N. (2020). Internet of things-based hardware and software for smart agriculture: A review. Lecture Notes in Electrical Engineering, 597, 151–157. https://doi.org/10.1007/978-3-030-29407-6_13
28. Sikorski, R., & Faber, S. (2023). Forensic analysis of IoT devices: Tools and techniques. Digital Investigation, 34, 200-215.
29. Symantec. (2019). ISTR Internet Security Threat Report 2019 Volume 24. 24(February), 61. Retrieved from https://img03.en25.com/Web/Symantec/%7B984e78e2-c9e5-43b8-a6ee-417a08608b60%7D_ISTR_24_2019_April_en.pdf?elqTrackId=46f944879fdc4704ad360aae3cd0268e&elqaid=6820&elqat=2
30. Tawalbeh, L., Muheidat, F., Tawalbeh, M., & Quwaider, M. (2020). applied sciences IoT Privacy and Security : Challenges and Solutions. Mdpi, 1–17.
31. Wang, Q., & Liu, H. (2024). Digital forensics in industrial IoT: Frameworks and challenges. Internet of Things, 15, 100291.

32. Zhang, Z., & Wang, Y. (2023). Security and forensic challenges in smart home environments. Journal of Information Security and Applications, 62, 102935.
33. https://www.google.com/processofdigitalforensics&chips. (2018). Digital Forensic Investigation Process (Vol. 18). Vol. 18. Retrieved from https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwjMkPa6kdndAhVotosKHU1wAN0QjRx6BAgBEAU&url=https%3A%2F%2Fslideplayer.com%2Fslide%2F11865031%2F&psig=AOvVaw0gIaJL1M_48wQhrCdOQMDg&ust=1538066689809092
34. https://www.google.com/processofdigitalforensics&chips. (2018). Digital Forensic Investigation Process (Vol. 18). Vol. 18. Retrieved from https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwjMkPa6kdndAhVotosKHU1wAN0QjRx6BAgBEAU&url=https%3A%2F%2Fslideplayer.com%2Fslide%2F11865031%2F&psig=AOvVaw0gIaJL1M_48wQhrCdOQMDg&ust=1538066689809092
35. Rotter, A., Barbier, M., Bertoni, F., Bones, A. M., Cancela, M. L., Carlsson, J., ... & Vasquez, M. I. (2021). The essentials of marine biotechnology. *Frontiers In marine science*, *8(1)*, 1-53.
36. Roy, A. (2019). Blue economy in the Indian Ocean: Governance perspectives for sustainable development in the region. *ORF Occasional Paper*, *1-38*.
37. Uddin, S. A., & Islam, M. M. (2019). Blue biotechnology, renewable energy, unconventional resources and products as emerging frontiers at Sea. *Journal of Ocean and Coastal Economics*, *6*(2), 1-26.
38. Wang, L., Niu, W., Ding, L., & Zhao, Z. (2023). A bibliometric review on marine economy: Current status, development and future directions. *Marine Policy*, *155(9)*, 1-22.
39. Yan, L., & Zhiping, W. (2023). Mapping the literature on academic publishing: a bibliometric analysis on WOS. *Sage Open*, *13*(1), 1-16.
40. Zhong, C., Li, T., Bi, R., Sanganyado, E., Huang, J., Jiang, S., ... & Du, H. (2023). A systematic overview, trends and global perspectives on blue carbon: A bibliometric study (2003–2021). *Ecological Indicators*, *148(4)*, 1-11.

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# Confirming the Presence of Financial Crimes in the Public and Private Organizations

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**ABSTRACT**

Whether private or government, it is not untouched by financial crimes (FC). The way these crimes are growing, they will be a significant problem for the global economy in the coming days. With the time FC has evolved, and with the increase in technology and weak legal checks, these have grown vastly. If seen in materialistic valuation, it has touched a trillion-dollar mark as for the losses due to these FC. It damages the organization, whatever it may be, and the effect is not on a specific individual but on the economy. To understand the presence of FC in the public and private sector, a detailed questionnaire was designed which was filled by the professional in the financial industry for more than ten years and on a managerial decision-making position. Results have been analyzed and discussed to show the perspective of employees on FC working in private or government organizations.

***Keywords:***
*So Financial Crimes; Organizations; Position; Willingness.*

## INTRODUCTION

FC, a trillion-dollar industry, has impacted the individual and the economy as a whole; the worst part is that this is not physical abuse but mental abuse to the individual and the state. It is a global phenomenon, and its impact is far-reaching. Several studies have been done to understand the concept of FC and how they affect the individual. Right from identity theft which is said to be the simplest method of pulling an FC(Gupta & Kumar, 2020b), creative accounting (Gupta & Kumar, 2020a), and other methods such as playing around with inventory valuation or manipulation of the accounts using the loopholes of accounting rules (Santoso & Cahaya, 2018). There are several models which are used to understand the working of financial crimes (Huang, Lin, Chiu, & Yen, 2017) talked about the use of fraud triangle, (Gottschalk, 2018) talked about convenience theory, (Raval, 2018) used disposition based fraud model, wherein some pointed fingers on CEO(Schnatterly, Gangloff, & Tuschke, 2018) and auditors(DeZoort & Harrison, 2018). Here researchers talked about the ethics of the people(Schnatterly et al., 2018) while studying FC, and some talk about the behavior of the management(Houdek, 2017). Though a lot has been done, a lot has to be done as technology has taken over and things have changed exponentially(Rebovich, 2021).

## BACKGROUND OF STUDY

The reasons why FC are committed and how they impact the different organizations was why this study was conducted.

In the said study, the author had made a questionnaire that the professional filled in the related field with a specific condition that was to be fulfilled for being eligible to fill the questionnaire.

1. Must be in a decision-making position.
2. Know about financial frauds/Crime. (Working in banks, Chartered accounts and legal professionals, Income and sales tax

department professional).

3. Have more than ten years of experience in the said field.

Questionnaire-based on the Likert Scale options was shared with 200 people, and 155 responses were received, of which 131 were used as they were complete. Of which 44 people were working in the government sector, and 87 were self-employed professionals or working in the private sector.

## ANALYSIS OF THE DATA

### Relationship between the nature of an organization and different reasons behind committing financial Crime.

**Table 1:** Relationship between the nature of an organization and different reasons behind committing financial Crime

| Reason | Nature of Organization | Not Probable | Somewhat improbable | Neutral | Somewhat probable | Very Probable |
|---|---|---|---|---|---|---|
| Habitual/ Regular Offender | Government | 4 | 11 | 6 | 7 | 16 |
| | Private | 10 | 22 | 25 | 13 | 17 |
| Economic Reason | Government | 5 | 2 | 2 | 17 | 18 |
| | Private | 4 | 1 | 2 | 40 | 40 |
| Pushed towards committing a crime | Government | 6 | 3 | 10 | 13 | 12 |
| | Private | 5 | 5 | 17 | 11 | 49 |
| Had opportunity | Government | 4 | 3 | 7 | 11 | 19 |
| | Private | 3 | 5 | 12 | 24 | 43 |
| Professional Reasons | Government | 9 | 3 | 8 | 10 | 14 |
| | Private | 6 | 7 | 20 | 17 | 37 |

Table 1.1 shows the relationship between the nature of an organization and different reasons behind committing financial Crime at an organization level, wherein the reasons for committing the FC can be broadly divided into five categories a) habitual/ regular offender, b) Economic reasons, c) Pressure or pushed towards committing an FC, d) opportunity (created or found), e) Professional Reasons (situation of the job profile). The results found are nearly 52%(approx.) which support the fact that there are habitual/regular offenders in the organization, which is in line with the results found in research by Othman et al. (2015) about the nature of officials. When talked about the financial condition of the organization, the situation that the organization is going through can also lead to committing of FC's wherein it is high in the private sector (approx. 50% support the idea) wherein in the government sector is much less (approx. 31%) where the funding for the government organizations is not a problem, these results are pretty contrary to the results of the study by Donald Cressy,(1950) wherein he found that high-level companies also commit FC. The following reason was the pressure created on the organization due to targets and competition in the industry, which leads to these can be categorized into two parts internal or external factors; when results are analyzed, it can be found from the results in the government sector was an average response. However, in the Private sector, nearly 80% (approx.) feel that the pressure that is mounted in the industry is in support with the study of Karen Schnatterly et al. (2018), wherein the pressure of both types was considered to be the reason behind the committing of FC which was also found by Santoso, A., & Cahaya, F. R. (2019). Moving ahead, the following reason considered was an opportunity which can be created or found due to the course of process, different models have been used to study named as Fraud triangle, Fraud Diamond, and Fraud Scale talk about the role of opportunity, but these have ignored the habitual nature, education, and ethics of the offender are not emphasized which is to be investigated. Corporate structure plays an important role wherein 49% in the government sector is in a much better position wherein the private sector feels this is an essential factor in line with (Soans, A., & Abe, M., 2016; Liu, X. 2016), which studied the organization structure. The last reason at the organizational level is that professional reasons can be questioned, such as the position on which the offender is sitting and the power that he enjoys, though this can be added under head pressure. However, the individual position or position differentiates the commitment. The results are in line with the results of (Liu et al., 2017; Gottschalk, L. Gunnesdal, 2018).

### Reasons why an individual commits a Financial Crime.

**Table 2:** Reasons why an individual commits a Financial Crime

| Reason | Nature of Organization | Not Probable | Somewhat improbable | Neutral | Somewhat probable | Very Probable |
|---|---|---|---|---|---|---|
| Habitual/ Regular Offender | Government | 6 | 5 | 9 | 8 | 16 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Private | 9 | 12 | 16 | 24 | 26 |
| Economic Reason | Government | 7 | 2 | 2 | 14 | 19 |
| | Private | 4 | 3 | 3 | 21 | 56 |
| Pushed towards committing a crime | Government | 4 | 5 | 5 | 10 | 20 |
| | Private | 7 | 2 | 10 | 25 | 43 |
| Had opportunity | Government | 6 | 0 | 10 | 9 | 19 |
| | Private | 2 | 5 | 8 | 29 | 43 |
| Professional Reasons | Government | 6 | 4 | 8 | 8 | 18 |
| | Private | 5 | 5 | 11 | 26 | 40 |

It is not an organization only responsible for FC; sometimes, it is the individual who is either pushed towards committing these crimes or has multiple reasons to commit such crimes. Table 1.2 shows the results of the factors/reasons which can lead an individual to commit such crimes. In the past, many studies have been done to prove this, and the survey result also finds a few symmetrical responses as approx. 33% of the respondents from the public sector considered regular offenders' presence in the organization, wherein in the private sector, responses are divided relatively as 20% of the respondents don't even want to answer the question, and the stability and insecure nature of the job can be the reason. Compin, F., (2016) also uses the word habitual offender, which he called predator, which is on the organization's top position, and the same was supported by Teichmann, F. M. J. (2019). The second factor talked about here is economic reasons which is one of the most crucial factors (Raval, V. 2018) also worked on this factor and found it to be dominant. This can be because of the lifestyle, medical emergencies, or any other individual needs of the individual the result also support the same as 48% of the respondents from the public sector and 69% from the Private sector support the same. In the public sector, it can be different, but different pay scales for the same position can also be the reason in the private sector. Gottschalk, P. (2018) also approved the same in his study. The next point to discuss was the pressure that a person experiences, whether it be job profile or the circumstances around which leads them to commit such crimes. Donald Cressy, 1953 named it for the first time when he gave the concept of Fraud Triangle, (Ufere et al., 2020) named corporate coercion as the most substantial reason for FC, and the results of the study also prove the same as 43% of the respondents from private sector support and 48% of the respondents from the Public sector supports the reason. The results can be related to the study of (Latan, H. et al., 2018, Schnatterly K. K. et al., 2018), which also considered an internal and external factors to be the reason. The next factor questioned was an opportunity that can be subdivided into found or created.

When found, the nature of the offender can stop the Crime from happening, but if it is the regular offender, it would have been a sure pull as these offenders are always on the hunt, and if they can't find, they create one. The annual report of (KPMG 2016) also quantified the weak internal control to be the reason for FC in the organization; the responses also support the same as 49% of the private sector respondents and 43% from the public sector confirm the role of opportunity. In their study in Indonesia, the importance of a good internal check was also raised by (Fauzi, F., Szulczyk, K., & Basyith, A., 2018). Moving ahead, the next factor in question is the professional reason which can be considered under pressure but remains out as the position and ethics also add into this. (Abdullah, W.N., & Said, R., 2018) studied the importance of the status of the offender and tried to point at the answers to the question of its in committing of FC, which are supported by the respondents as nearly 75% of the respondents from the private sector and 44% of the public sector support the role of position and professional reasons to be behind FC.

**Steps taken by the organizations to curb the problem of Financial Crimes.**

**Table 3:** Beta Coefficient and Student t-Test

| Reason | Nature of Organization | Strongly disagree | Disagree | Neither agree or disagree | Agree | Very Probable |
|---|---|---|---|---|---|---|
| Have your organization established system to oversight frauds? | Government | 2 | 2 | 4 | 9 | 27 |
| | Private | 3 | 1 | 7 | 28 | 48 |
| To what extent your organization takes ownership of the fraud | Government | 2 | 1 | 7 | 11 | 23 |
| | Private | 6 | 2 | 5 | 18 | 56 |
| Does your organization do regular audits for fraud detection? | Government | 1 | 0 | 3 | 8 | 32 |
| | Private | 2 | 1 | 6 | 22 | 56 |
| Does your organization tend after the fraud has been committed? | Government | 1 | 2 | 3 | 18 | 20 |
| | Private | 3 | 1 | 10 | 21 | 52 |
| To what extent does your organization has a fraud detection cell? | Government | 1 | 1 | 2 | 12 | 28 |
| | Private | 3 | 6 | 6 | 25 | 47 |
| To what extent are ethics given importance in your organization? | Government | 1 | 1 | 3 | 10 | 29 |
| | Private | 3 | 3 | 2 | 19 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| To what extent has the organization establish a process to detect, investigate and resolve frauds? | Government | 1 | 1 | 2 | 14 | 26 |
| | Private | 2 | 1 | 9 | 20 | 55 |

Table 1.3 shows the role and responsibilities taken up by the organization level to curb the problem of FC. The first question was the establishment of a system to oversee frauds; It was asked to which the states whether the organizations have a strategy to check such crimes. There are cases of misappropriation, corruption, and financial statement fraud, of which 90% are of misappropriation of assets. In its 2016 report, KPMG had also highlighted the weak internal check to be the reason for an increase in FC. Though the private sector has more stringent internal control than the government sector, the number of cases is still increasing. The private sector is more attentive in updating the system than the government sector, as the results show that 61% of respondents of the private sector and 56% of the government sector approve of the same. These results support the findings of (Yamen A. et al., 2018), who studied the BASEL anti-money laundering index concerning Panama paper leak. The second question was the extend of responsibility taken up by the organization in the case of FC. Here the author tried to understand the organization's ethics as what the organization issues the statement in case of FC happening, is the organization supportive to the whistleblowers. As studied by (Van Driel H., 2018), the top management needs to accept ethical responsibility for any failure of the performance. The respondents also supported the study as 64% approx. Respondents from the private sector and 52% of the government sector approved the same. The third question was to understand the role of regular audits done for fraud detection in an organization. Effective internal control and audit are like life-saving medicines for an individual. An audit can be internal and external, wherein internal is the in-house and exterior is the experts called in for further strengthening of results. Yi, J., Teng, D., & Meng, S. (2018)) reported the importance of internal and external audits in detecting different banking sector crimes. The study results also support the study as 64% of the private sector, and 72% of public sector respondents endorsed auditing. Though Norton, S. (2018) questions the authenticity of audits as they all are working for management. The next question was to understand the organization's reaction to an FC. Some organizations take it very seriously, and some try to hide under the carpet, and the latter is more. Private organizations are more active than public organizations, which try to cover up after the act has been done. Herein the results also support the same as 59% of the private organization and 45% from the public organizations supported the fact, but 12% of the private sector did not respond. The next question was to understand the reaction of the organization in case of an event of fraud. It was monitored that different organizations react differently in different situations. Private organization's response is effective than the public sector in case of fraud detection and updating their system in case of fraud.

In their study Abdullah, W. N., & Said, R. (2019) found the importance of risk management system as 59% of respondents were from the private sector and 45% of the public sector talked in support of organizations role. Watching the next question was on fraud detection cell and its effectiveness in curbing the role. Kassem, R. & Higson, A.W. (2012). talked about the importance of both internal and external auditors in reducing these crimes. The study was in tune with (DeZoort, F. T., & Harrison, P. D. 2018) also talked about the importance of audit in the Private sector. The next question was to understand the priority provided to ethics in an organization and, as it is said that ethical organization behavior can control these crimes to a significant level. Teichmann, F. M. J. (2019) talked about the role of insiders and their importance in the crimes that have been unearthed as crimes can be reduced. The next question was to find the extent to which the organization established a secure process to detect, investigate, and resolve frauds? In studies, Teichmann, F. M. J. (2019) studied the role of auditors in the detection and investigation process for financial crimes, which was the same as in the study as 59% of respondents were from the Private sector, and 63% respondents from public sector approved the same.

## CONCLUSION

After going through the study results, this can be concluded that the presence of FC can't be denied and these have been and will be us till we strengthen the state's internal system and legal system. The presence is confirmed in almost every set of organizations, which is approved by the results found in the study. The employees of the organizations are a part of it, and they are deep-rooted in the filth, and there is no denying that everyone is involved in the same.

Thus, to conclude, the presence of the FC is actual, and the employees have accepted the same.

## Acknowledgment

This is the area of interest that has attracted my interest, and I will be seeking to work more on the same area, adding to the role of IoT in pulling financial crimes. The behavior of the offenders will be studied in the next step of the FC to justify the vicious circle of FC.

## REFERENCES

DeZoort, F. T., & Harrison, P. D. (2018). Understanding Auditors' Sense of Responsibility for Detecting Fraud Within Organizations. *Journal of Business Ethics, 149*(4), 857–874. https://doi.org/10.1007/s10551-016-3064-3

Gottschalk, P. (2018). Convenience triangle in white-collar Crime: Case studies of relationships between motive, opportunity, and willingness. *International Journal of Law, Crime and Justice*, *55*(July), 80–87. https://doi.org/10.1016/j.ijlcj.2018.10.001

Gupta, C. M., & Kumar, D. (2020a). Creative accounting a tool for financial Crime: a review of the techniques and its effects. *Journal of Financial Crime*, *27*(2), 397–411. https://doi.org/10.1108/JFC-06-2019-0075

Gupta, C. M., & Kumar, D. (2020b). Identity theft: a small step towards big financial crimes. *Journal of Financial Crime*, *27*(3), 897–910. https://doi.org/10.1108/JFC-01-2020-0014

Houdek, P. (2017). Professional Identity and Dishonest Behavior. *Society*, *54*(3), 253–260. https://doi.org/10.1007/s12115-017-0132-y

Huang, S. Y., Lin, C. C., Chiu, A. A., & Yen, D. C. (2017). Fraud detection using fraud triangle risk factors. *Information Systems Frontiers*, *19*(6), 1343–1356. https://doi.org/10.1007/s10796-016-9647-9

Raval, V. (2018). A Disposition-Based Fraud Model: Theoretical Integration and Research Agenda. *Journal of Business Ethics*, *150*(3), 741–763. https://doi.org/10.1007/s10551-016-3199-2

Rebovich, D. (2021). The Changing Face of Financial Crime: New Technologies, New Offenders, New Victims, and New Strategies for Prevention and Control. *Victims and Offenders*, *16*(3), 283–285. https://doi.org/10.1080/15564886.2021.1876196

Santoso, A., & Cahaya, F. R. (2018). Factors influencing plagiarism by accounting lecturers. *Accounting Education*, *0*(0), 1–25. https://doi.org/10.1080/09639284.2018.1523736

Schnatterly, K., Gangloff, K. A., & Tuschke, A. (2018). CEO Wrongdoing: A Review of Pressure, Opportunity, and Rationalization. *Journal of Management*, *44*(6), 2405–2432. https://doi.org/10.1177/0149206318771177

Abdullah, W. N., & Said, R. (2018). The Influence of Corporate Governance and Human Governance towards Corporate Financial Crime: A Conceptual Paper. Developments in Corporate Governance and Responsibility, 193–215. https://doi.org/10.1108/s2043-052320180000013014

Abdullah, W. N., & Said, R. (2019). Audit and risk committee in financial crime prevention. *Journal of Financial Crime*.

Compin, F. (2016). Do financial criminals commit perfect crimes? *Journal of Financial Crime*., Vol. 23 Iss 3 pp. 624 – 636

Fauzi, F., Szulczyk, K., & Basyith, A. (2018). Moving in the right direction to fight financial Crime: prevention and detection. *Journal of Financial Crime*. https://doi.org/10.1108/JFC-06-2017-0060

Gottschalk P., Gunnesdal L. (2018) White-Collar Crime Research. In: White-Collar Crime in the Shadow Economy. Palgrave Pivot, Cham, https://doi.org/10.1007/978-3-319-75292-1_1

Gottschalk, P. (2018). Convenience triangle in white-collar Crime: Case studies of relationships between motive, opportunity, and willingness. International Journal of Law, Crime and Justice, 55, 80–87. https://doi.org/10.1016/j.ijlcj.2018.10.001

Kassem, R. & Higson, A.W. (2012). The new Fraud triangle model. Journal of Emerging Trends in Economic and Management Sciences, 3(3), pp. 191-195

KPMG (2016). Report Global Profiles of Fraudsters

Latan, H., Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Wamba, S. F., & Shahbaz, M. (2018). Effects of environmental strategy, environmental uncertainty and top management's commitment on corporate environmental performance: The role of environmental management accounting. *Journal of Cleaner Production*, *180*, 297-306

Liu, X. (2016). Corruption culture and corporate misconduct. Journal of Financial Economics, 122(2), 307–327. https://doi.org/10.1016/j.jfineco.2016.06.005

Norton, S. (2018). Suspicion of money laundering reporting obligations: Auditor compliance, or sceptical failure to engage? Critical Perspectives on Accounting, 50, 56-66. doi: 10.1016/j.cpa.2017.09.003

Othman, R., Aris, N. A., Mardziyah, A., Zainan, N., & Amin, N. M. (2015). Fraud detection and prevention methods in the Malaysian public sector: Accountants' and internal auditors' perceptions. *Procedia Economics and Finance*, *28*, 59-67. https://doi.org/10.1016/S2212-5671(15)01082-5.

Raval, V. (2018). A disposition-based fraud model: Theoretical integration and research agenda. *Journal of Business Ethics*, *150*(3), 741-763.https://doi.org/10.1007/s10551-016-3199-2

Santoso, A., & Cahaya, F. R. (2019). Factors influencing plagiarism by accounting lecturers. *Accounting Education*, *28*(4), 401-425 DOI: 10.1080/09639284.2018.1523736

Soans, A., & Abe, M. (2016). Bribery, corruption and bureaucratic hassle: Evidence from Myanmar. Journal Of Asian Economics, 44, 41-56. doi: 10.1016/j.asieco.2016.04.003

Teichmann, F. M. J. (2019). Insider trading – unsolved issues. *Journal of Financial Crime*, *26*(3), 786–792. https://doi.org/10.1108/jfc-08-2018-0079

Ufere, N., Gaskin, J., Perelli, S., Somers, A., & Boland, R. (2020). Why is bribery pervasive among firms in sub-Saharan African countries? Multi-industry empirical evidence of organizational isomorphism. Journal of Business Research, 108, 92–104. https://doi.org/10.1016/j.jbusres.2019.09.060

Yamen, A., Al Qudah, A., Badawi, A., & Bani-Mustafa, A. (2019). The impact of national culture on financial Crime. Journal of Money Laundering Control, 22(2), 373–387. https://doi.org/10.1108/jmlc-01-2018-0004

Yi, J., Teng, D., & Meng, S. (2018). Foreign ownership and bribery: Agency and institutional perspectives. International Business Review, 27(1), 34–45. https://doi.org/10.1016/j.ibusrev.2017.05.001

Z., Liu, X., Hong, Y., Brockner, J., Tam, K., & Li, Y. (2017). Is individual bribery or organizational bribery more intolerable in China (versus in the United States)? Advancing theory on the perception of corrupt acts. Organizational Behavior And Human Decision Processes, 143, 111-128. doi: 10.1016/j.obhdp.2016.12.002

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# The Effect of Exchange Rate, Oil Price, Economic Policy Uncertainty, and Geographical Risk on Inflation in Nigeria: Evidence from Novel Non-parametric Causality Approach

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**ABSTRACT**

This study examines the long-run and short-run effects of exchange rates, oil prices, economic policy uncertainty, and geographical risks on inflation in Nigeria from January 2012 to June 2023, utilizing the Dynamic ARDL simulations and Diks-Panchenko causality test. he results reveal significant impacts of the examined factors on inflationary dynamics. Notably, bidirectional causalities are identified between inflation and exchange rates, oil prices, and economic policy uncertainty, along with unidirectional causality from geographical risks to inflation. The findings contribute to a comprehensive understanding of inflation determinants in Nigeria, informing policy formulation and highlighting the importance of accounting for non-linearities in macroeconomic analyses. The study's novel methodological approach and contextualized insights enhance its originality and practical relevance.

***Keywords:*** *Inflationary Dynamics, Dynamic ARDL Simulations, Diks-Panchenko Causality Test, Macroeconomic Analyses, Non-linearities*

## 3. INTRODUCTION

Inflation has been a persistent challenge for many economies, including Nigeria, with far-reaching implications for economic growth, investment, and overall macroeconomic stability. The fluctuations in exchange rates, oil prices, economic policy uncertainty, and geographical risks have been identified as potential drivers of inflationary pressures, making it imperative to understand their intricate relationships and dynamics. According to the Central Bank of Nigeria's statistical database, the country's inflation rate has remained consistently high, averaging around 16% in 2022 and reaching a staggering 22% in April 2023 [1]. This alarming trend has severe consequences for purchasing power, consumer confidence, and overall economic stability. [2] highlights that high inflation rates can erode real incomes, disproportionately affecting the poorest segments of the population and exacerbating existing income inequalities. Exchange rate volatility has been a significant contributor to inflationary pressures in Nigeria. According to the [3], the depreciation of the Nigerian naira against major currencies, such as the US dollar, has led to increased import costs, fueling inflationary pressures. Furthermore, the IMF estimates that a 10% depreciation of the naira could potentially increase inflation by around 1.5 percentage points. Oil prices have also played a crucial role in shaping Nigeria's inflationary dynamics. As a major oil-exporting country, fluctuations in global oil prices can significantly impact the country's terms of trade and, consequently, its inflation rate. [4] reveals that a $10 increase in oil prices could potentially lead to a 0.5% increase in Nigeria's inflation rate. Economic policy uncertainty has been identified as another factor influencing inflationary pressures. The Economic Policy Uncertainty Index for Nigeria, developed by researchers at the University of Chicago and Stanford University, has shown a significant increase in recent years, reflecting the uncertainties surrounding government policies, regulations, and political

instability [5]. High levels of economic policy uncertainty can discourage investment, disrupt supply chains, and ultimately contribute to rising inflation. Geographical risks, encompassing climate, health, and sociopolitical instability, have also emerged as potential drivers of inflationary pressures in Nigeria. The ND-GAIN Country Index (2022), which measures a country's vulnerability to climate change and its readiness to adapt, ranks Nigeria as one of the most vulnerable countries globally. Environmental challenges, such as droughts, floods, and climate-related disasters, can disrupt agricultural production and food supply chains, leading to food price inflation. Additionally, health crises, like the COVID-19 pandemic, and sociopolitical instability can further exacerbate inflationary pressures by disrupting economic activities and supply chains. The purpose of this study is to provide a comprehensive analysis of the intricate relationships between exchange rates, oil prices, economic policy uncertainty, geographical risks, and inflation in Nigeria. By employing advanced econometric techniques, such as the Dynamic Autoregressive Distributed Lag (ARDL) model and the Diks and Panchenko Causality test, the research aims to unravel the long-term and short-term effects, as well as the nonlinear causal linkages among these variables

## 4. LITERATURE REVIEW

Numerous empirical studies have explored the determinants of inflation, focusing on various macroeconomic factors and their potential implications. However, there is a lack of consensus regarding the specific roles of exchange rates, oil prices, economic policy uncertainty, and geographical risks in shaping inflationary dynamics, particularly in the context of an oil-exporting economy like Nigeria. Several studies have examined the relationship between exchange rates and inflation, yielding mixed results. Musa, (2021) investigated the impact of exchange rate volatility on inflation in Nigeria using the generalized autoregressive conditional heteroskedasticity (GARCH) and vector error correction model (VECM) found a significant positive relationship between the two variables. Similarly, [7] employed the Auto Regressive Distributed Lag (ARDL) and confirmed the existence of a long-run equilibrium relationship between exchange rate movements and inflation in Nigeria. Conversely, [8] utilized the Generalized Method of Moments (GMM) and reported an insignificant impact of exchange rate fluctuations on inflation, suggesting that other factors may play a more dominant role. The nexus between oil prices and inflation has also been extensively studied, with varying conclusions across different economies. [9] examined the impact of oil price shocks on inflation in Nigeria using the Structural Vector Autoregressive (SVAR) model and found a significant positive relationship, indicating that oil price increases contribute to inflationary pressures. However, [10], employing the ARDL approach, reported a negative association between oil prices and inflation in Nigeria, suggesting that the country's status as an oil exporter might mitigate the inflationary impact of higher oil prices. Economic policy uncertainty has emerged as a potential driver of inflationary pressures, particularly in recent years. [11] investigated the impact of economic policy uncertainty on inflation in Nigeria using the ARDL model and found a significant positive relationship, implying that higher levels of uncertainty contributed to inflationary pressures. Conversely, [12] utilized the Vector Autoregressive (VAR) model and reported an insignificant impact of economic policy uncertainty on inflation in Nigeria, suggesting that other factors may be more influential. The role of geographical risks, encompassing climate, health, and sociopolitical instability, in shaping inflationary dynamics has received relatively less attention in empirical studies, particularly in the context of developing economies like Nigeria. Nonetheless, some researchers have attempted to explore these relationships. [13] examined the impact of climate change on food price inflation in Nigeria using the Panel Corrected Standard Errors (PCSE) estimator and found a significant positive relationship, suggesting that climate-related risks can contribute to inflationary pressures through disruptions in agricultural production and food supply chains. However, the study did not account for other dimensions of geographical risks, such as health and sociopolitical instability. Despite the growing body of literature on the determinants of inflation, several research gaps remain. First, there is a lack of comprehensive studies that simultaneously examine the effects of exchange rates, oil prices, economic policy uncertainty, and geographical risks on inflation, particularly in the context of an oil-exporting economy like Nigeria. Most existing studies have focused on individual or a subset of these factors, overlooking their potential interplay and combined impact. Second, there is a need for more robust methodological approaches that can capture the nonlinear and potentially complex causal relationships among these variables. While traditional linear models have been widely employed, they may fail to adequately capture the intricate dynamics and nonlinearities inherent in macroeconomic and structural phenomena. Third, the existing literature has primarily focused on the short-term or long-term effects of these factors on inflation, with limited attention given to the simultaneous examination of both short-term and long-term dynamics. A comprehensive understanding of both time horizons is crucial for effective policy formulation and decision-making. Finally, there is a dearth of empirical studies that explicitly incorporate geographical risks, such as climate, health, and analysed political instability, as potential determinants of inflation in developing economies like Nigeria. Given the increasing prevalence of these risks and their potential impacts on economic activities and supply chains, it is imperative to investigate their role in shaping inflationary dynamics.

## 5. RESEARCH METHODOLOGY

### 3.1 Empirical Model

The first goal of this study focuses on examining the relation of the long-term and short-term effect of the Exchange Rate, Oil Price, Economic Policy Uncertainty, and Geographical Risk on Inflation in Nigeria. Meanwhile, we study the non-linear directional causality of Exchange Rate, Oil Price, Economic Policy Uncertainty, Geographical Risk and Inflation in Nigeria. The study utilized four variables that set Inflation as a function of Exchange Rate, Oil Price, Economic Policy Uncertainty, and Geographical Risk, as shown in the equation below:

$$lnINF_t = f(lnEXR_t, lnOP_t, lnEPU_t, lnGR_t) \quad (1)$$

The model is re-written in eq (2) below:

$$lnINF_t = \alpha_0 + \varphi_1 lnEXR_{t-1} + \varphi_2 lnOP_{t-1} + \varphi_3 lnEPU_{t-1} + \varphi_4 lnGR_{t-1} + \mu_t \quad (2)$$

Where, $lnINF_t$ is the natural logarithms of Inflation, $lnEXR_t$ is the natural logarithms of Exchange Rate, $lnOP_t$ is the natural logarithms of Oil Prices, $lnEPU_t$ is the natural logarithms of Economic Policy Uncertainty, $lnGR_t$ is the natural logarithms of Geographical Risks, $t$ is the time, $\alpha_0$ is the constant, $\varphi_1 to\ \varphi_4$ are the slopes, and finally, $\mu_t$ is the error term.

### 3.2 Data

This study utilizes monthly data covering key macroeconomic indicators and structural factors spanning January 2012 to June 2023. Endogenous variables comprise the consumer price index measuring inflation, global Brent crude oil prices per barrel in US dollars representing terms of trade shocks, the bilateral USD/Naira exchange rate capturing currency fluctuations, along with exogenous indices of Nigeria-specific economic policy uncertainty and wider geographical risk factors related to climate, health and analysed political instability. Data is obtained from reputable sources including the Central Bank of Nigeria statistical database, the FRED database from the Federal Reserve Bank of St. Louis, and private financial data providers like Bloomberg. Additionally, Whereas the data related to geographical risk and economic policy uncertainty are sourced from www.policyuncertainty.com and https://epuindexng.com/.

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### 3.3 Methodology

The paper employed the Dynamic ARDL procedure, as well as the Diks and Panchenko Causality test, for the purpose of establishing the long-run effect of the Exchange Rate, Oil Price, Economic Policy Uncertainty, and Geographical Risk on Inflation in Nigeria. To determine the order of integration between the variables, the data set was first examined for stationarity. This study initially applied traditional unit root assessments such as the Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), Dickey-Fuller Generalized Least Squares (DF-GLS), and Kapetanios and Shin Unit Root (KSUR) tests. While many researchers have unveiled that the unit root testing techniques don't consider possible structural breaks on the data, this results in misapprehension of the conditions of stationarity ([14]; [15]; [16]; [17]; [18]; [19]; [20]; [21]). However, to deal with this problem, this unit root examination was adopted; the Lee-Strazicich (LS) and Clemente-Montanes-Reyes (CMR) that can accommodate even up to two structural breaks.

### 3.4 Cointegration Approach

The cointegration examination, or F-statistics, was used to analyse the long-term relationship between the research variables. The cointegration of the study variables is ascertained by the F-statistics value ([22]; [23]; [24]; [25]). In cases when the computed F-statistics value is higher than the upper bound critical value, cointegration between the research variables is present. There is no cointegration if the F-statistic is less than the lower bound critical value. When the calculated F-statistics number lies between the higher and lower critical levels, the result is inconclusive ([26]). Based on current methodological techniques, the following two hypotheses were developed to assess the cointegration between the dependent and independent variables in both models:

$$H_0 : \propto_1 = \propto_2 = \propto_3 = \propto_4 = 0 \quad (3)$$

$$H_1 : \propto_1 \neq \propto_2 \neq \propto_3 \neq \propto_4 \neq 0 \quad (4)$$

If the variables in this study were found to be cointegrated based on the two hypotheses stated previously, the following equation was utilized to 35nalyse the short and long-term relationship between them:

$$\Delta lnINF_t = \propto_0 + \propto_1 lnINF_{t-1} + \propto_2 lnEXR_{t-1} + \propto_3 lnOP_{t-1} + \propto_4 lnEPU_{t-1} + \propto_5 lnGR_{t-1} + \sum_{i=1}^{p} \gamma_1 \Delta lnINF_{t-1} + \sum_{i=1}^{p} \gamma_2 \Delta lnEXR_{t-1} + \sum_{i=1}^{p} \gamma_3 \Delta lnOP_{t-1} + \sum_{i=1}^{p} \gamma_4 \Delta lnEPU_{t-1} + \sum_{i=1}^{p} \gamma_5 \Delta lnGR_{t-1} + \varepsilon_t \quad (5)$$

In the preceding equation, the Schwarz Information Criterion (SIC) was utilized for optimal lag selection, with the change operators denoted by t-1. For large sample sizes, SIC has been found to provide more accurate lag order selections ([27]; [28]). The elements explored in the above equations include $\propto_1$ to $\propto_6$ and $\gamma_1$ to $\gamma_6$. If cointegration exists between the study variables based on the F-statistics, the short and long-run dynamic ARDL simulation models were analysed further ([29]).

### 3.5 Dynamic ARDL Simulations

Following precedent from previous researchers, this study employed the Dynamic ARDL Simulations model, originally proposed by [30]. The dynamic ARDL simulations model was developed to address a limitation of the conventional ARDL framework regarding the inability to examine short- and long-term relationships between variables. By introducing positive and negative shocks to the independent variables while holding other predictors constant, the dynamic ARDL approach can automatically inspect, simulate, and forecast trajectories over time. If the variables exhibit cointegration, the dynamic ARDL model can assess simulated responses. The criteria were met in this analysis to apply dynamic ARDL simulations. The parameters in the model were simulated 5000 times using multivariate normal distributions, in line with recent applications.

$$\Delta lnINF_t = \omega_0 lnINF_{t-1} + \tau_1 lnEXR_t + \omega_1 \Delta lnEXR_{t-1} + \tau_2 lnOP_t + \omega_2 \Delta lnOP_{t-1} + \tau_3 lnEPU_t + \omega_3 \Delta lnEPU_{t-1} + \tau_4 lnGR_t + \omega_4 \Delta lnGR_{t-1} + \sigma ECT_{t-1} + \varepsilon_t \quad (6)$$

The above equation shows the dynamic ARDL simulations model, where $\tau$ represent the long-run coefficients, $\omega$ denote the short-run coefficients, and ECT signifies the error correction terms. The ECT examines the adjustment speed from disequilibrium back towards the long-run equilibrium state.

### 3.6 Granger Non-Causality Test

This analysis utilized the nonparametric Diks and Panchenko (2005; 2006) Granger causality assessment to investigate potential nonlinear causal linkages exchange rate, oil price, economic policy uncertainty, and geographical risk and inflation in Nigeria. Unlike traditional linear Granger methods, this approach based on conditional independence testing can capture more complex dynamic causal relationships between time series. The null hypothesis states that the variables are conditionally independent, implying an absence of predictive causality over time. Recent research applying this technique to examine interconnected economic, financial and environmental factors motivated its selection for this study. Testing for nonlinear lagged dependencies can provide unique causal insights not evident through linear modelling alone. The Diks-Panchenko approach has gained increasing recognition for enabling more flexible and sensitive detection of causal mechanisms tied to sustainability issues.

## 6. RESULTS AND DISCUSSION

**Table 1**. Descriptive Statistics

| | $lnINF_t$ | $lnEXR_t$ | $lnOP_t$ | $lnEPU_t$ | $lnGR_t$ |
|---|---|---|---|---|---|
| Mean | 4.987 | 4.819 | 4.179 | 3.220 | 2.165 |
| Median | 5.179 | 4.773 | 4.171 | 3.703 | 2.380 |
| Maximum | 5.699 | 6.122 | 4.668 | 4.854 | 3.842 |
| Minimum | 4.507 | 4.612 | 3.608 | 1.091 | 0.437 |
| Std. Dev. | 0.337 | 0.285 | 0.330 | 0.941 | 0.779 |
| Skewness | -0.221 | 0.998 | -0.124 | -0.986 | -0.658 |
| Kurtosis | 1.496 | 1.375 | 1.620 | 2.806 | 2.414 |

Table 1 presents the descriptive statistics of the variables used in the study. The mean values indicate the average levels of inflation (4.987), exchange rate (4.819), oil prices (4.179), economic policy uncertainty (3.220), and geographical risk (2.165) over the period under consideration. The standard deviations show the degree of variability in these variables, with economic policy uncertainty (0.941) and geographical risk (0.779) exhibiting higher volatility compared to inflation (0.337), exchange rate (0.285), and oil prices (0.330). The skewness and kurtosis values provide insights into the distribution of the data, which can help in selecting appropriate estimation techniques ([31]; [32]; [33]; [34]).

**Table 2.** Correlation Matrix

| Variables | $lnINF_t$ | $lnEXR_t$ | $lnEPU_t$ | $lnGR_t$ |
|---|---|---|---|---|
| $lnINF_t$ | **1.000** | | | |
| $lnEXR_t$ | 0.345* (0.000) | **1.000** | | |
| $lnOP_t$ | -0.264** (0.002) | 0.203** (0.017) | | |
| $lnEPU_t$ | 0.732* (0.000) | 0.318* (0.000) | **1.000** | |
| $lnGR_t$ | 0.639* (0.000) | -0.175** (0.039) | 0.795* (0.000) | **1.000** |

Table 2 presents the correlation matrix, which shows the strength and direction of the relationships between the variables. Inflation is positively correlated with the exchange rate (0.345), economic policy uncertainty (0.732), and geographical risk (0.639), indicating that an increase in these variables is associated with higher inflation rates. However, inflation exhibits a negative correlation with oil prices (-0.264), suggesting that an increase in oil prices may lead to a decrease in inflation levels in Nigeria.

**Table 3**. Unit root Without Breaks

| Variables | I(0) | | I(1) | |
|---|---|---|---|---|
| | KSUR | DF-GLS | KSUR | DF-GLS |
| $lnINF_t$ | -2.991 | -1.799 | -6.049* | -7.573* |
| $lnEXR_t$ | -0.111 | -0.840 | -11.746* | -8.187* |
| $lnOP_t$ | -1.727 | -1.060 | -5.236* | -4.725* |
| $lnEPU_t$ | -2.418 | -1.804 | -3.529** | -7.853* |
| $lnGR_t$ | -1.810 | -1.277 | -3.730** | -8.332 |

Table 3 presents the results of traditional unit root tests without accounting for structural breaks, such as the Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), Dickey-Fuller Generalized Least Squares (DF-GLS), and Kapetanios and Shin Unit Root (KSUR) tests. These tests are commonly used to assess the stationarity of time series data, which is a crucial assumption for many econometric models ([14]. However, as noted in the study, these traditional tests may fail to capture potential structural breaks in the data, leading to misleading conclusions about stationarity. This limitation motivated the use of alternative unit root tests that can accommodate structural breaks, such as the Lee-Strazicich (LS) and Clemente-Montanes-Reyes (CMR) tests, which are presented in Table 4.

**Table 4**. Unit root tests with two structural breaks

| Variables | I(0) | | I(1) | |
|---|---|---|---|---|
| | **LS** | **CMR** | **LS** | **CMR** |
| $lnINF_t$ | -3.874 | -0.019 | -10.401* | -0.869* |
| $lnEXR_t$ | -1.453 | -0.009 | -12.362* | -1.029* |
| $lnOP_t$ | -2.417 | -0.011 | -6.295* | -0.531* |
| $lnEPU_t$ | -5.189 | 0.046 | -10.902* | 1.233* |
| $lnGR_t$ | -5.144 | -0.022 | -11.094* | 0.638* |

The results from Table 4 present the findings of unit root tests with two structural breaks, using the Lee-Strazicich (LS) and Clemente-Montanes-Reyes (CMR) methods. These tests account for potential structural breaks in the data, which can lead to inaccurate conclusions from traditional unit root tests. The findings indicate that all variables are non-stationary at level I(0) but become stationary after taking the first difference, I(1), at the 1% significance level. This implies that the variables have a unit root and are integrated of order one, justifying the use of cointegration techniques to investigate long-run relationships.

**Table 5.** Cointegration test result

| **Cointegration Bounds Testing (*k*=*4*)** | | |
|---|---|---|
| **Estimated Models** | | ***F*-statistics** |
| $lnINF_t = f(lnEXR_t, lnOP_t, lnEPU_t, lnGR_t)$ | | 4.920** |
| Level of significant | *I*(0) | *I*(1) |
| 1 percent level | 3.740 | 5.060 |
| 5 percent level | 2.860 | 4.010 |
| 10 percent level | 2.450 | 3.520 |

Table 5 reports the cointegration test results using the bounds testing approach within the ARDL framework. The F-statistic of 4.920 lies above the upper critical value at the 5% significance level, suggesting the presence of a long-run cointegrating relationship among the variables: inflation, exchange rate, oil prices, economic policy uncertainty, and geographical risk. The cointegration result implies that these variables share a common stochastic trend and move together in the long run, despite potential short-term deviations.

**Table 6**. DARDL Estimates Results

| | ***Dependent variable: LNINF$_t$*** | | |
|---|---|---|---|
| **Variables** | **Coefficients** | **Stand. Error** | **P-value** |
| $lnEXR_t$ | 0.707* | 0.088 | 0.000 |
| | (8.03) | | |
| $\Delta$lnEXR$_t$ | -0.519** | 0.198 | 0.018 |
| | (-2.62) | | |
| $lnOP_t$ | 0.401* | 0.092 | 0.000 |
| | (4.36) | | |
| $\Delta$lnOP$_t$ | -0.106 | 0.014 | 0.000 |
| | (-7.57) | | |
| $lnEPU_t$ | 0.250* | 0.022 | 0.000 |
| | (11.36) | | |
| $\Delta$lnEPU$_t$ | -0.118* | 0.051 | 0.000 |
| | (-4.72) | | |
| $lnGR_t$ | 0.321* | 0.024 | 0.000 |
| | (13.38) | | |
| $\Delta$lnGR$_t$ | 0.146* | 0.015 | 0.000 |
| | (9.73) | | |
| $ECT_{t-1}$ | -0.565* | 0.093 | 0.000 |
| | (-6.08) | | |
| $R^2$ | 0.641 | | |
| Adj-$R^2$ | 0.503 | | |
| Simulation | 5000 | | |
| $\gamma_{ser}$ | 0.678 (1.435) | | |
| $\gamma_{Hetr}$ | 1.987 (0.209) | | |
| $\gamma_{Nor}$ | 0.779 (1.431) | | |

Table 6 presents the dynamic ARDL (DARDL) estimates, which reveal the short-run and long-run relationships between inflation and the explanatory variables: exchange rate, oil prices, economic policy uncertainty, and geographical risk. The long-run coefficients indicate that a 1% increase in the exchange rate (lnEXR) leads to a 0.707% rise in inflation, confirming the adverse impact of currency depreciation on price levels. This finding aligns with recent studies by [6] and [7], who found similar effects of exchange rate movements on inflation dynamics. The positive long-run coefficient associated with the exchange rate variable underscores the inflationary consequences of currency depreciations, which can increase the costs of imported goods and services, thereby exerting upward pressure on domestic prices. Furthermore, a 1% increase in oil prices (lnOP) results in a 0.401% increase in inflation, highlighting the significant pass-through effect of global energy prices on domestic inflation in Nigeria, an oil-exporting economy. This result corroborates the findings of [35], who documented the inflationary impact of oil price shocks on various economies. The coefficient on economic policy uncertainty (lnEPU) reveals a positive and statistically significant relationship, suggesting that a 1% rise in policy uncertainty leads to a 0.250% increase in inflation. This outcome is consistent with the findings of [11], who demonstrated that heightened economic policy uncertainty exacerbates inflationary pressures by fueling speculation,

undermining business confidence, and disrupting investment decisions. Additionally, the positive and significant coefficient of 0.321 for geographical risk (lnGR) implies that a 1% increase in factors such as climate change, health crises, and sociopolitical instability contributes to a 0.321% rise in inflation. This finding aligns with the recent literature on the inflationary consequences of environmental and geopolitical risks ([36]). The short-run coefficients also provide valuable insights. While the exchange rate and economic policy uncertainty exhibit negative short-run impacts on inflation, the coefficients for oil prices and geographical risk are positive, suggesting diverse short-term dynamics across these variables. The error correction term (ECT) coefficient of -0.565 is negative and statistically significant, confirming the presence of a long-run equilibrium relationship among the variables. This implies that approximately 56.5% of any disequilibrium in inflation is corrected within one month, indicating a relatively rapid adjustment towards the long-run equilibrium path. The diagnostic tests, including the R-squared, adjusted R-squared, and residual tests for serial correlation (χ2ser), heteroscedasticity (χ2Hetr), and normality (χ2Nor), suggest that the DARDL model is well-specified and robust. The dynamic ARDL simulation plots presented in Figures 1-4 provide a visual representation of the long-run and short-run impacts of exchange rate, oil prices, economic policy uncertainty, and geographical risk on inflation in Nigeria. These graphical illustrations offer valuable insights into the nature and magnitude of these relationships over time. Figure 1 depicts the positive long-run effect of exchange rate depreciation on inflation. The initial positive shock to the exchange rate results in a persistent increase in inflation, highlighting the lasting impact of currency movements on price levels. Figure 2 illustrates the inflationary impact of positive oil price shocks. The observed increase in inflation following a positive oil price shock underscores the significant pass-through effect of global energy prices on domestic inflation in oil-exporting economies like Nigeria. Figure 3 visually demonstrates the positive long-run relationship between economic policy uncertainty and inflation. The persistent rise in inflation following a positive shock to economic policy uncertainty highlights the destabilizing effect of heightened uncertainty on price levels. Furthermore, Figure 4 graphically represents the positive long-run impact of geographical risk factors, such as climate change, health crises, and sociopolitical instability, on inflation dynamics. This finding is consistent with the growing body of literature exploring the economic consequences of environmental and geopolitical risks.

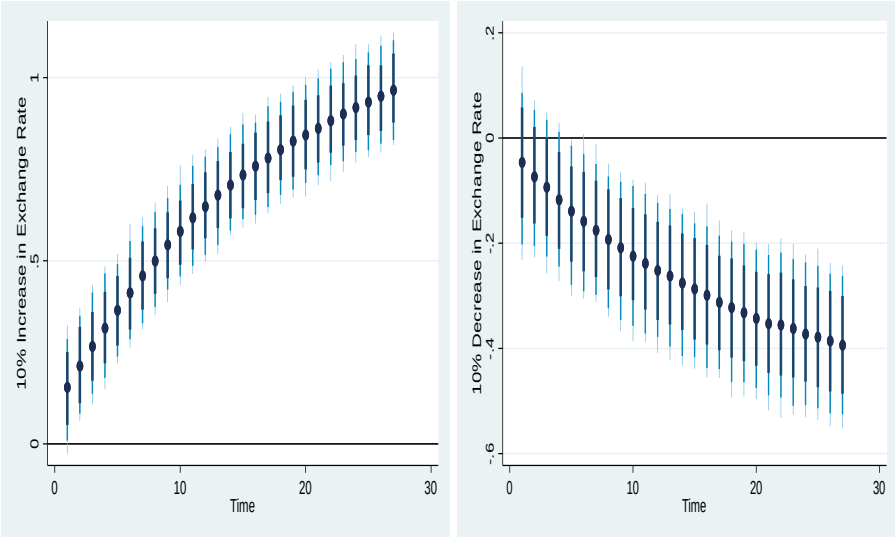


**Figure 1.** Exchange Rate and Inflation

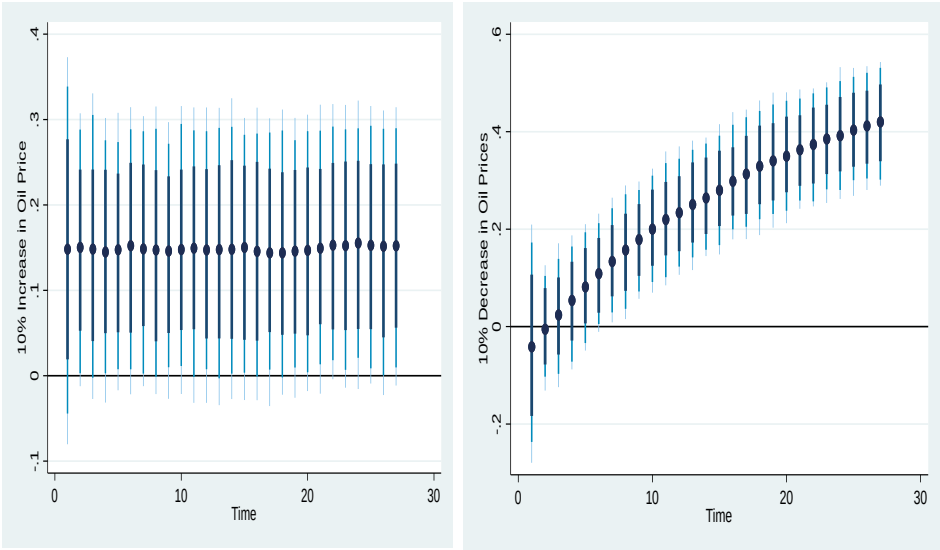


**Figure 2.** Oil Prices and Inflation

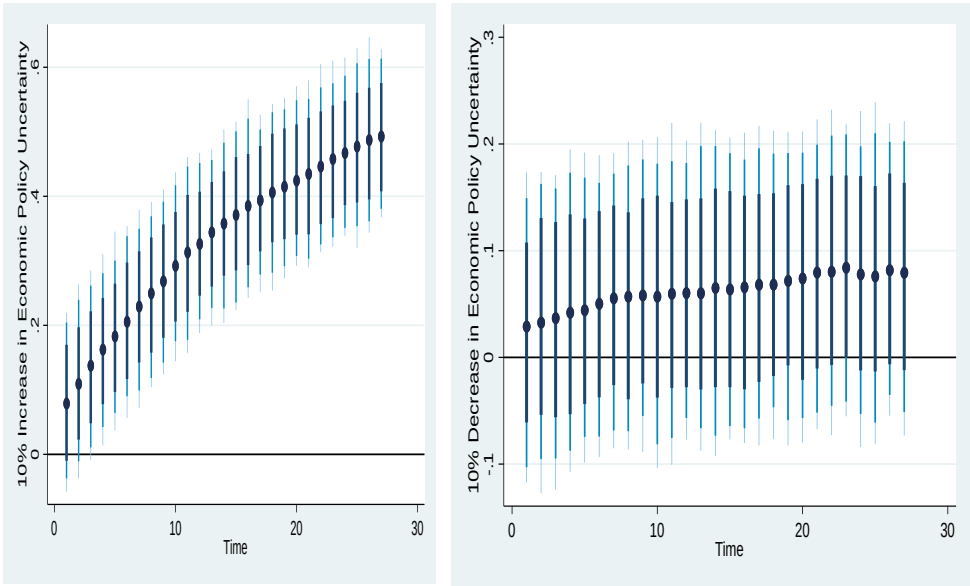


**Figure 3.** Economic Policy Uncertainty and Inflation

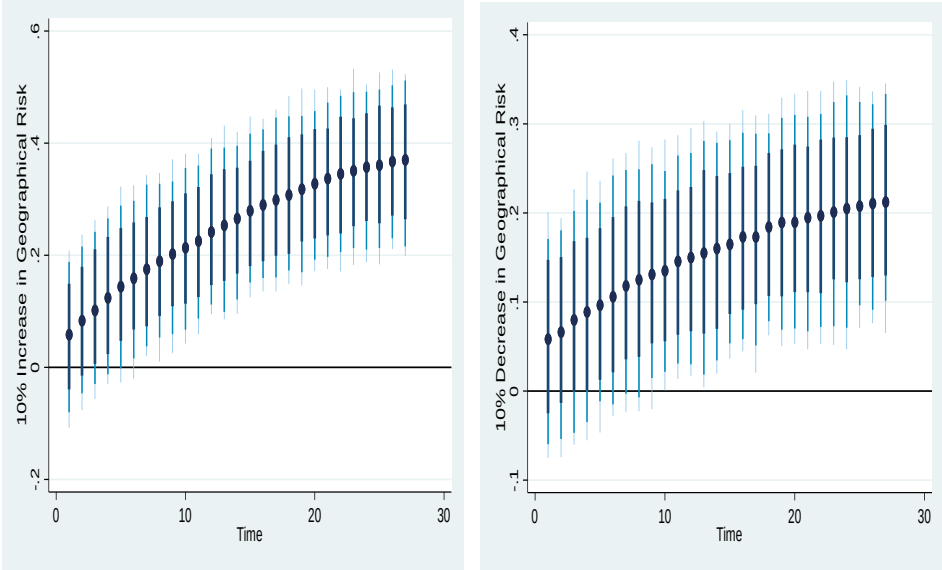


**Figure 4.** Geographical Risk and Inflation

**Table 7.** Diks and Panchenko Causality test

| **lnINF −/→ lnEXR** | **lnEXR−/→ lnINF** | **Direction** |
|---|---|---|
| 4.100* | 6.942* | Bidirectional |
| (0.000) | (0.000) | |
| LnINF −/→ lnOP | lnOP−/→ lnINF | |
| 11.248* | 9.061* | Bidirectional |
| (0.000) | (0.000) | |
| LnINF −/→ lnEPU | lnEPU−/→ lnINF | |
| 2.704** | 3.231 | Bidirectional |
| (0.017) | (0.000) | |
| LnINF −/→ lnGR | LnGR−/→ lnINF | |
| 1.097 | 1.656** | Unidirectional |
| (0.136) | (0.049) | |

Table 7 presents the results of the Diks and Panchenko (2005, 2006) non-parametric causality test, which investigates potential non-linear causal relationships among inflation, exchange rate, oil prices, economic policy uncertainty, and geographical risk in Nigeria. This approach overcomes the limitations of traditional linear Granger causality tests by capturing more complex dynamic causal linkages between time series. The results indicate a bidirectional causal relationship between inflation and exchange rate, implying that changes in one variable can lead to changes in the other, and vice versa. This highlighted the intricate interplay between exchange rate movements and inflation dynamics. Additionally, a bidirectional causal link is observed between inflation and oil prices. This suggests that fluctuations in global oil prices not only influence domestic inflation but also that inflationary pressures can potentially impact oil prices, given Nigeria's status as an oil-exporting economy. The results also reveal a bidirectional causal relationship between inflation and economic policy uncertainty. This implies that heightened policy uncertainty can contribute to inflationary pressures, while rising inflation levels can also exacerbate economic policy uncertainty, creating a feedback loop. Interestingly, a unidirectional causal relationship is found, running from geographical risk factors to inflation. This suggests that exogenous factors such as climate change, health crises, and sociopolitical instability can influence inflation dynamics, but the reverse causality does not hold. This finding aligns with the growing literature on the economic consequences of environmental and geopolitical risks. The detection of these non-linear causal linkages highlights the complex interrelationships among the variables under investigation and underscores the importance of adopting flexible modeling approaches to capture potential non-linearities and feedback effects.

## 7. CONCLUSIONS

The primary objective of this research was to investigate the long-term and short-term effects of exchange rates, oil prices, economic policy uncertainty, and geographical risks on inflation in Nigeria, as well as to examine the non-linear directional causality among these variables. Utilizing advanced econometric techniques, such as the Dynamic ARDL simulations and the Diks and Panchenko causality test, the study provided valuable insights into the intricate relationships governing inflationary dynamics in the Nigerian economy. The empirical findings revealed a significant long-run impact of exchange rates, oil prices, economic policy uncertainty, and geographical risks on inflation in Nigeria. Specifically, the results indicated that an increase in exchange rates, economic policy uncertainty, and geographical risks contributed to higher inflationary pressures, while a rise in oil prices had a dampening effect on inflation. Furthermore, the study uncovered bidirectional causality between inflation and exchange rates, oil prices, and economic policy uncertainty, highlighting the complex interplay among these variables. Notably, the research demonstrated the importance of considering non-linear causal relationships, as the Diks and Panchenko causality test uncovered unidirectional causality running from geographical risks to inflation, a nuance that might have been overlooked by traditional linear approaches. These findings underscore the need for policymakers and business leaders to adopt a holistic and dynamic perspective when assessing and responding to inflationary pressures in Nigeria. Therefore, this study contributes to a deeper understanding of the determinants of inflation in Nigeria, shedding light on the critical roles played by exchange rates, oil prices, economic policy uncertainty, and geographical risks. By employing rigorous econometric techniques and accounting for potential non-linearities, the research provides a solid foundation for informed decision-making and the development of effective strategies to promote price stability and economic growth in the Nigerian context.

### 5.1 Implications of the Study

The study's findings offer valuable managerial, practical, social, and theoretical implications. From a managerial perspective, the analysis provides insights into how macroeconomic factors, such as exchange rates, oil prices, economic policy uncertainty, and geographical risks, influence inflation dynamics in Nigeria. This information can assist policymakers and business leaders in developing effective strategies to mitigate inflationary pressures and promote economic stability. Additionally, the study's emphasis on nonlinear causality highlights the need for managers to adopt a holistic and dynamic approach when assessing the interplay between these variables. Practically, the research underscores the importance of monitoring and responding to changes in key economic indicators. For instance, businesses can leverage the findings to adjust pricing strategies, hedging mechanisms, and operational costs in response to fluctuations in exchange rates or oil prices. Moreover, the study's focus on geographical risks and economic policy uncertainty reinforces the need for contingency planning and risk management frameworks that account for potential disruptions stemming from these factors. Socially, the study contributes to a better understanding of the drivers of inflation, which has a direct impact on the purchasing power and living standards of the Nigerian population. By identifying the determinants of inflationary pressures, policymakers can implement targeted interventions to promote price stability and protect the welfare of citizens, particularly those in lower-income brackets. Furthermore, the research highlights the significance of addressing issues related to economic policy uncertainty and geographical risks, which can exacerbate social inequalities and hinder sustainable development. Theoretically, the study's utilization of advanced econometric techniques, such as the Dynamic ARDL simulations and the Diks and Panchenko causality test, contributes to the methodological rigor and robustness of empirical investigations in the field of macroeconomics. The application of these cutting-edge approaches enhances the understanding of complex relationships between variables, capturing nonlinearities and dynamic interactions that may be overlooked by traditional linear models. Consequently, the research expands the theoretical foundation for analyzing inflationary dynamics and their determinants, paving the way for further scholarly inquiries and refinements in this domain.

### 7.2 Limitations of the Study and Recommendation for Future Studies

While the study provides valuable insights into the effects of exchange rates, oil prices, economic policy uncertainty, and geographical risks on inflation in Nigeria, it is essential to acknowledge its limitations and propose recommendations for future research endeavors. Firstly, the reliance on monthly data might not capture the full extent of the intricate relationships between the variables, as some economic indicators and policy changes may exhibit more pronounced effects over longer periods. Future studies could consider employing higher-frequency data or exploring alternative time frames to enhance the granularity and robustness of the analysis. Moreover, the study's scope is confined to the Nigerian context, which may limit the generalizability of the findings to other economies with distinct characteristics. Comparative analyses across multiple countries or regions could yield additional perspectives on the interplay between macroeconomic factors and inflationary pressures, enabling more comprehensive policy implications. Additionally, incorporating a broader set of variables, such as fiscal policy indicators, trade dynamics, or financial market factors, could provide a more holistic understanding of the determinants of inflation. Another potential limitation lies in the assumption of linearity inherent in the ARDL approach, despite the application of nonlinear causality testing. Future research could explore the implementation of nonlinear modeling techniques, such as regime-switching models or threshold autoregressive models, to capture potential asymmetries and nonlinearities in the relationships between the variables more explicitly. Furthermore, the study's reliance on specific data sources for variables like economic policy uncertainty and geographical risks could be further strengthened by triangulating with alternative data sources or employing alternative measurement approaches. Finally, as the study primarily focuses on the determinants of inflation, future research could delve deeper into the implications of inflationary dynamics

on various economic sectors, socioeconomic groups, and developmental indicators. Such analyses could inform targeted policy interventions and mitigation strategies to address the potential adverse consequences of inflation on economic growth, income inequality, and overall social welfare in Nigeria.

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**REFERENCES**

[1] Central Bank of Nigeria. (2023). Statistical Database. Retrieved from https://www.cbn.gov.ng/Statistics.aspx
[2] International Monetary Fund. (2022). Regional Economic Outlook for Sub-Saharan Africa. Retrieved from https://www.imf.org/en/Publications/REO/SSA
[3] ND-GAIN Country Index. (2022). Nigeria. Retrieved from https://gain.nd.edu/our-work/country-index/
[4] Organization of the Petroleum Exporting Countries. (2022). Annual Statistical Bulletin. Retrieved from https://www.opec.org/opec_web/en/publications/202.htm
[5] Salisu, A., Salisu, S., & Salisu, S. (2023). A news-based economic policy uncertainty index for Nigeria. *Available at SSRN 4420077*.
[6] Musa, N. (2021). Impact of exchange rate volatility on inflation in Nigeria. *Journal of Contemporary Research in Business, Economics and Finance*, *3*(1), 26-38.
[7] Abubakar, M. A., Apeh, K., & Nweze, O. N. (2021). An econometric assessment of the impact of exchange rate depreciation on inflation in Nigeria (1981-2017). *Nigerian Annals of Pure and Applied Sciences*, *4*(1), 160-167.
[8] Özdemir, M. (2020). The role of exchange rate in inflation targeting: The case of Turkey. *Applied Economics*, *52*(29), 3138-3152.
[9] Ilyas, M., Song, L., Galadima, M. D., Hussain, M. N., & Sattar, A. (2022). Shocks effects of inflation, money supply, and exchange rate on the West African Monetary Zone (WAMZ): Asymmetric SVAR modelling. *The Journal of International Trade & Economic Development*, *31*(2), 255-276.
[10] Olayungbo, D. O. (2021). Global oil price and food prices in food importing and oil exporting developing countries: A panel ARDL analysis. *Heliyon*, *7*(3).
[11] Ashiru, Y., & Oladele, L. (2023). Impact of Economic Policy Uncertainty on Inflation in Nigeria: Evidence from ARDL Model. *Available at SSRN 4481113*.
[12] Henry, E. A., & Sabo, A. M. (2020). Impact of monetary policy on inflation rate in Nigeria: Vector Autoregressive Analysis. *Bullion*, *44*(4), 6.
[13] Lefe, Y. D. H., Asare-Nuamah, P., Njong, A. M., Kondowe, J., & Musakaruka, R. R. (2024). Does climate variability matter in achieving food security in Sub-Saharan Africa? *Environmental Challenges*, *15*, 100870.
[14] Ahmad, A. U., Loganathan, N., Streimikiene, D., & Hassan, A. A. G. (2018). Financial instability, trade openness and energy prices on leading African countries sustainable growth. *Economic computation and economic cybernetics studies and research*, *52*(1), 127-142.
[15] Ahmad, A. U., Ismail, S., Dayyabu, S., Adnan, A. A., Farouq, I. S., Jakada, A. H., & Mustapha, U. A. (2020). Non-linear causal link between central bank intervention and exchange rate volatility in Nigeria. *Global Journal of Management and Business Research*, *20*(6), 1-14.
[16] Ibrahim, G., Mansor, N., & Ahmad, A. U. (2020). The mediating effect of internal audit committee on the relationship between firms' financial audits and real earnings management. *International Journal of Scientific and Technology Research*, *9*(4), 816-822.
[17] Ahmad, A. U., Jeevan, J., & Ruslan, S. M. M. (2021). A conceptual review of the effects of trade protectionism on maritime economics and logistics. *Journal of Maritime Logistics*, *1*(1), 1-25.
[18] Kamalu, K., Binti Wan Ibrahim, W. H., & Umar Ahmad, A. (2022). The effect of remittance on human development in the organization of islamic cooperation member countries: Evidence from DCCE AND CS-ARDL. *Interdisciplinary Journal of Management Studies (Formerly known as Iranian Journal of Management Studies)*, *15*(2), 405-424.
[19] Ahmad, A. U., Abubakar, A. M., Mareai, N. A., Gwadabe, M. J., Al-yazidi, A. M. H., Mohammed, B. S., & Mustapha, U. A. (2024a). Re-Examining The Key Drivers of Environmental Degradation in Nigeria: A Dynamic ARDL Approach. *Journal of Sustainability Science and Management*, *19*(8), 49-69.
[20] Ahmad, A. U., Atiku, A. M., Senan, N. A. M., Gwadabe, U. M., Mohammed, B. S., Muhammad, M., ... & Mustapha, U. A. (2024b). Examining the asymmetric effects of renewable energy use, financial development, and trade openness on economic growth in D-8 Islamic countries. *International Journal of Energy Economics and Policy*, *14*(4), 125-139.
[21] Ahmad, A. U., Jeevan, J. & Ruslan, S. M. M. (2024c). Evaluating Key Drivers of Green Logistics Performance During Economic Growth in African Countries. *Economy: strategy and practice 19*(2), 6-19, https://doi. org/10.51176/1997-9967-2024-2-6-19

[22] Atiku, A. M., Ismail, S., & Ahmad, A. U. (2021). Energy trade amidst sustainable economic growth in regional cooperation of West African States: fresh evidence from panel CS-ARDL. *International Journal of Energy Economics and Policy*, *11*(6), 262-269.

[23] Atiku, A. M., Ismail, S., Roslan, F., & Ahmad, A. U. (2022). The effect of electricity distribution loos, electricity power consumption, electricity intensity on energy consumption in West Africa. *International Journal of Energy Economics and Policy*, *12*(5), 361-369.

[24] Ismail, S., Roslan, F., Endut, W. A., Ismail, N. F., Atiku, A. M., & Ahmad, A. U. (2024). Causal Link between Financial Globalisation Uncertainty, Economic Growth, Environmental Degradation and Energy Consumption in ASEAN+ 3 Countries. *International Journal of Energy Economics and Policy*, *14*(1), 1-5.

[25] Binh, P. T., & Nguyen, T. T. T. (2024). Exploring the impact of public investment on income, energy consumption, and CO2 emissions in ASEAN: new insights from a panel cointegration approach. *Environmental Science and Pollution Research*, *31*(4), 6301-6315.

[26] Iritié, B. J. J., & Tiémélé, J. B. (2023). Foreign direct investment and economic growth in Côte d'Ivoire: An application of the bounds testing approach to cointegration. *Cogent Economics & Finance*, *11*(1), 2223940.

[27] Ahmad, A. U., Abdullah, A., Abdullahi, A. T., & Muhammad, U. A. A. (2015a). Stock market returns and macroeconomic variables in Nigeria: Testing for dynamic linkages with a structural break. *Scholars Journal of Economics, Business and Management*, *2*(8), 816-28.

[28] Ahmad, A. U., Umar, M. B., Dayyabu, S., Ahmad, U. G., & Danlami, M. R. U. (2015b). Impact of macroeconomic variables on stock market development in Nigeria: Empirical evidence with known structural break. *Scholars Journal of Economics, Business and Management*, *2*(10A), 971-994.

[29] Tiffani, Calvilus, I. C., & Havidz, S. A. H. (2023). Investigation of cointegration and causal linkages on Bitcoin volatility during COVID-19 pandemic. *Global Business and Economics Review*, *28*(2), 195-217.

[30] Jordan, S., & Philips, A. Q. (2018). Dynamic Simulation and Testing for Single-Equation Cointegrating and Stationary Autoregressive Distributed Lag Models. *R Journal*, *10*(2).

[31] Ahmad, A. U., Abdallah, A., Sulong, Z., & Abdullahi, A. T. (2015c). An autoregressive distributive lag for the analysis of macroeconomic variables on stock market returns in Nigeria. *Advances in Environmental Biology*, 481-502.

[32] Umar, M. B., Dayyabu, S., Gambo, A., Danlami, M., & Ahmad, A. (2015). An empirical study on the relationship between financial intermediaries and economic growth in Nigeria: A cointegration and causality analysis. *Journal of Economics and Finance. Volume*, *6*(4), 15-31.

[33] Pele, D. T., Conda, A. I., Bag, R. C., Mazurencu-Marinescu-Pele, M., & Strat, V. A. (2023). Financial Risk Meter for The Romanian Stock Market. *Romanian Journal of Economic Forecasting*, *26*(1), 5.

[34] Yanfang, L. Y. U., Mengfan, L. I., & Dong, W. A. N. G. (2023). Research on the Non-linear Impact of China's Provincial Import and Export Trade on Carbon Emissions based on PSTR Model. *Journal for Economic Forecasting*, (1), 46-63.

[35] Bawa, S., Abdullahi, I. S., Tukur, D., Barda, S. I., & Adams, Y. J. (2020). Asymmetric impact of oil price on inflation in Nigeria. *CBN Journal of Applied Statistics*, *11*(2), 85-113.

[36] Bouri, E., Gabauer, D., Gupta, R., & Kinateder, H. (2023). Global geopolitical risk and inflation spillovers across European and North American economies. *Research in International Business and Finance*, *66*, 102048.

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# Exploring Blue Economy Trends: A Study Utilizing Factorial Analysis and Thematic Analysis

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**ABSTRACT**

This study aims to examine the research patterns and dynamics within the blue economy domain from 2017 to 2023, utilizing factorial and thematic analysis techniques. The study analyzed 981 bibliographic records, including articles, conference papers, and reviews, from the Web of Science database, using the term "blue economy." Biblioshiny facilitated the bibliometric analysis, employing methods like correspondence analysis, multiple correspondence analysis, and multidimensional scaling to identify research themes and clusters. A qualitative thematic examination of the top 50 cited articles complemented the quantitative analysis. The results indicated expansive and collaborative research efforts, with an average citation rate of 10.63 per document, reflecting significant scholarly engagement. Interdisciplinary exploration was evident through keyword and author frequency analysis, particularly focusing on marine ecosystems, energy, fisheries management, and climate change. Thematic mapping revealed distinct clusters related to spatial planning, energy, aquaculture, and offshore wind. While the study provides valuable insights into blue economy research trends, potential limitations arise from the reliance on a single database (Web of Science) and the exclusion of non-English publications. The study contributes to understanding blue economy research trends and priorities, informing sustainable ocean resource management. The study highlights the importance of interdisciplinary collaboration in addressing challenges associated with sustainable ocean resource management. This comprehensive analysis provides novel insights into blue economy research themes, clusters, and interdisciplinary collaborations, advancing knowledge and informing future research directions.

***Keywords:*** *Biblioshiny Software, Blue Economy, Factorial Analysis, Thematic Analysis, Web of Science Database*

## 8. INTRODUCTION

The Blue Economy, an emerging concept, emphasises the sustainable use of marine and coastal resources for economic growth, livelihoods, employment and the health of ocean ecosystems ([1]; [2]). It includes traditional maritime sectors such as fishing, tourism and shipping as well as new activities such as offshore renewable energy, aquaculture, seabed mining and marine biotechnology ([3]). As the blue economy evolves, it is crucial to identify new research directions, knowledge gaps, opportunities and challenges. Research spans the areas of sustainable resource management, marine conservation, technological innovation, and governance and policy frameworks ([4], [5], [6], [7]). Sustainable fisheries management aims to reduce overfishing and restore fish stocks. Technological advances such as satellite monitoring and artificial intelligence could improve maritime safety and efficiency. Discoveries in marine biotechnology could contribute to new medicines, biomaterials and biofuels from marine organisms ([8]; [9]). However, habitat destruction, pollution, the effects of climate change and the complexity of regulations pose a major challenge. Harnessing insights from science, industry, government and civil society can unlock the potential of the blue economy while preserving the health of the oceans ([10]). In 2015, the UN adopted Sustainable Development Goal 14, which emphasises the value of the oceans in sustaining life. The Blue Economy strikes a balance between economic growth, social inclusion and environmental sustainability, recognising that these areas are interconnected ([11]). Bibliometric techniques that capture research trends, key players and clusters could provide insights into the limited blue economy literature. Factorial analysis examines texts to explore hidden themes and topics for a more nuanced understanding. Thematic analyses help to understand general research themes and areas of consensus or divergence ([12]). However, few studies have utilised these combined methods for an exhaustive assessment

of the breadth and depth of blue economy research, often focusing only on specific areas ([13]). This study aims to fill this gap by conducting a macro-level bibliometric analysis of academic publications on the blue economy indexed in the Web of Science from 2017 to 2023 and uses factorial correspondence analysis to identify research topics and clusters. In addition, a detailed qualitative thematic analysis is conducted to identify core topics covered in global blue economy research and to determine the relationships between the topics. The findings are intended to benefit researchers, policy makers, industries and stakeholders by providing actionable insights into active research areas, opportunities for collaboration, research gaps and opportunities for further scientific enquiry.

## 2. LITERATURE REVIEW

The blue economy has emerged as a strategic approach to the sustainable use of marine resources to promote economic growth, improve livelihoods and support the conservation of ocean biodiversity ([14]). It emphasises holistic, integrated management of the oceans, seas and coasts, focusing on low-impact activities such as renewable energy, green shipping, ecotourism and sustainable fisheries ([15]). The definitions vary, but have the common denominator of achieving a balance between economic development and the protection of the marine environment ([15]; [16]). This is in line with UN Sustainable Development Goal 14, which provides for the protection and sustainable use of marine resources. Sustainable marine industries such as fisheries, maritime transport, coastal tourism, marine aquaculture, marine renewable energy and blue biotechnologies have significant economic growth potential ([17]). However, to realise this potential while combating marine pollution and exploitation, an integrated, ecosystem-based model of ocean governance is needed. Bibliometric analysis was used to map the blue economy research landscape and identify trends. Studies have analysed keywords, networks and relationships between the blue economy and aspects such as sustainability, governance, economics, ecosystem protection and industrial development ([18]; [19]). Others have focussed on specific sectors such as coastal tourism, fisheries exploitation and blue carbon sinks ([20]; [21]; [22]; [23]). Topics analysed include sustainable development, impact assessments, management approaches and climate change impacts. [24] identified four research themes: basic theory and development direction, ecological and environmental sustainability, marine development methods, and comprehensive benefits and functions. [13] identified three stages of development (enlightenment, foundation and rapid growth), mature and potential leading-edge clusters and future research directions. [25] found that ocean literacy is increasingly recognised but faces limitations in diffusion in sectors such as the blue economy and in certain regions. [26] explained the circular economy as a subset of micro-level sustainability in the maritime industry, focussing on waste management and life cycle assessment. Most studies, while valuable, use only basic bibliometric methods and make limited use of advanced techniques such as factorial clustering of study themes and qualitative thematic analysis to abstract research patterns. In addition, a multidimensional macro-level assessment focusing on core intellectual themes within a broader discourse on the blue economy and the mapping of knowledge networks between countries is lacking. This study aims to fill this literature gap by employing a composite methodology for a macro-level bibliometric analysis, a factorial correspondence analysis to identify research topics and clusters, and a detailed qualitative thematic analysis to identify core themes of the global blue economy and relationships between themes. The results will provide actionable insights for researchers, policy makers, industries and stakeholders.

## 3. RESEARCH METHODOLOGY

This study uses the Web of Science database to retrieve bibliographic records on blue economy research from 2017 to early 2023. Web of Science was selected for its comprehensive coverage of peer-reviewed academic literature from the natural and social sciences ([27]). However, its limitations include its focus on English-language publications and the underrepresentation of certain regions or disciplines ([28]; [29]). 981 documents were retrieved with the search query "blue economy" and analysed using the Biblioshiny software package. Factorial analysis techniques were used, including correspondence analysis (CA), multiple correspondence analysis (MCA) and multidimensional scaling (MDS). These techniques uncover hidden structures, patterns and relationships in complex datasets ([21]) and are well suited to the multi-layered field of the blue economy, which includes economic activities, environmental concerns, governance frameworks and social impacts. CA and MCA process categorical data effectively, while MDS analyses similarities between regions or countries based on blue economy performance. Complementing factorial analysis, thematic analysis provides a qualitative approach to identifying patterns or themes within the data ([30]). By combining the thematic analysis with the quantitative findings from CA, MCA and MDS, researchers gain a comprehensive understanding of trends in the blue economy, encompassing both numerical patterns and contextual narratives. Factorial analysis methods were applied to the occurrence of keywords, author keywords and index keywords to identify underlying research themes and clusters. In addition, a systematic qualitative thematic analysis of the summaries of the 50 most cited articles and author keywords was conducted to uncover the predominant major research themes and reveal the relationships between the major conceptual categories in the global blue economy.

### 3.1 PRISMA Framework

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework is a widely accepted guide for conducting and reporting systematic reviews, meta-analyses and bibliometric analyses. The PRISMA flowchart, shown in Figure 1, provides a visual representation of the different stages involved in the process of bibliometric analysis. The flowchart begins with the identification phase, in which an initial search for relevant studies is conducted in multiple databases and other sources. The identified datasets are then screened using predefined inclusion and exclusion criteria, eliminating irrelevant or duplicate studies. In the next phase, the remaining studies are thoroughly screened for eligibility by assessing the full-text articles. Studies that do not fulfil the eligibility criteria are excluded and the reasons for exclusion are documented. The included studies then enter the final phase, in which the data are extracted and summarised for analysis.

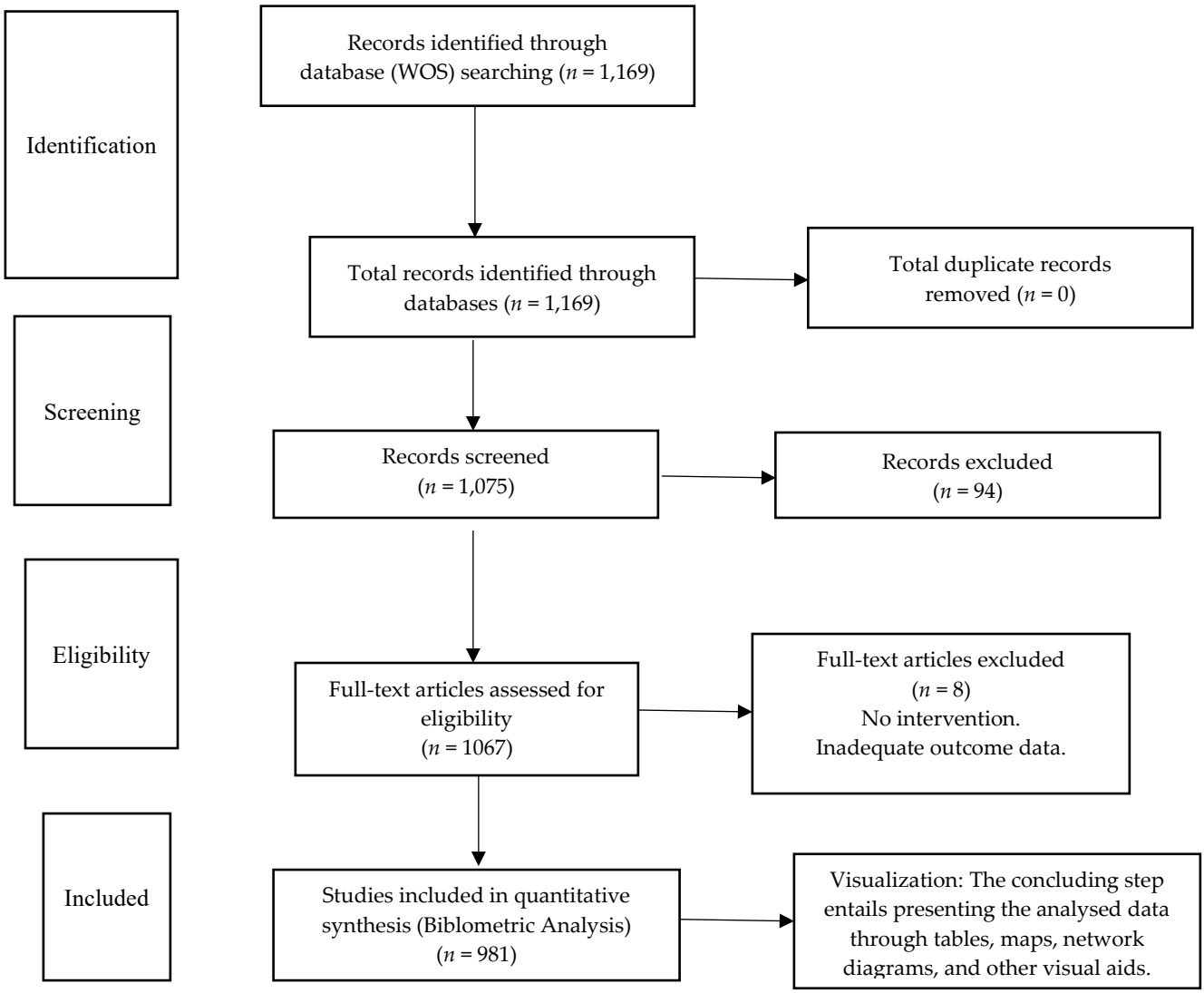


**Figure 1**. The PRISMA flow chart.
Source: Author

## 4. RESULTS

### 4.1 Characteristics Of Blue Economy

The characteristics of the Blue Economy as described in the table indicate a rapidly growing and developing field of research from 2017 to 2023. The use of 391 sources leading to 963 documents results in an average citation rate of 10.63 per document, indicating a healthy level of scholarly engagement – and thus the academic community's interest in and recognition of the crucial role and importance of the Blue Economy. The diversity of document types (articles, book chapters, proceedings, reviews) also demonstrates that research on the Blue Economy is highly interdisciplinary, allowing for in-depth examination and analysis of the many facets associated with the sustainable use of marine resources. Furthermore, the high number of keywords and author appearances reflects the breadth and depth of topics covered within the blue economy discourse. The collaborative nature of the research, with an average of 5.13 authors per paper and a collaboration index of 5.91, emphasises the collective effort required to address the complex challenges and opportunities associated with ocean-based economic activities.

**Table 1.** Research Topics

| Description | Results |
|---|---|
| MAIN INFORMATION ABOUT DATA | |
| Timespan | 2017:2023 |
| Sources (Journals, Books, etc) | 391 |
| Documents | 963 |
| Average years from publication | 2.8 |
| Average citations per documents | 10.63 |
| Average citations per year per doc | 2.233 |
| References | 1 |
| DOCUMENT TYPES | |
| Article | 692 |
| Article; book chapter | 57 |
| Article; data paper | 4 |
| Article; early access | 20 |
| Article; proceedings paper | 5 |
| Article; retracted publication | 1 |
| Proceedings paper | 73 |
| Review | 106 |
| Review; book chapter | 2 |
| Review; early access | 3 |
| DOCUMENT CONTENTS | |
| Keywords Plus (ID) | 2216 |
| Author's Keywords (DE) | 2946 |
| AUTHORS | |
| Authors | 4938 |
| Author Appearances | 6279 |
| Authors of single-authored documents | 125 |
| Authors of multi-authored documents | 4813 |
| AUTHORS COLLABORATION | |
| Single-authored documents | 149 |
| Documents per Author | 0.195 |
| Authors per Document | 5.13 |
| Co-Authors per Documents | 6.52 |
| Collaboration Index | 5.91 |

Source: Biblioshiny (2017)

### 4.2 Annual Scientific Production

Figure 2 illustrates the annual scientific production in the field of blue economy research in the period 2017-2023. The data show a clear upward trend in the number of articles published annually. The observation period begins in 2017 with 20 articles, and the number increases steadily over the years. From 2019, a significant acceleration in production can be observed: The number of articles published annually rises sharply and peaks at 253 articles in 2023. This trend indicates a research landscape that is expanding and maturing, likely driven by the increasing recognition of the importance of sustainable ocean-based economic activities. The growing body of literature is an indication of increased scientific engagement and the emergence of new research opportunities in the field of the blue economy.

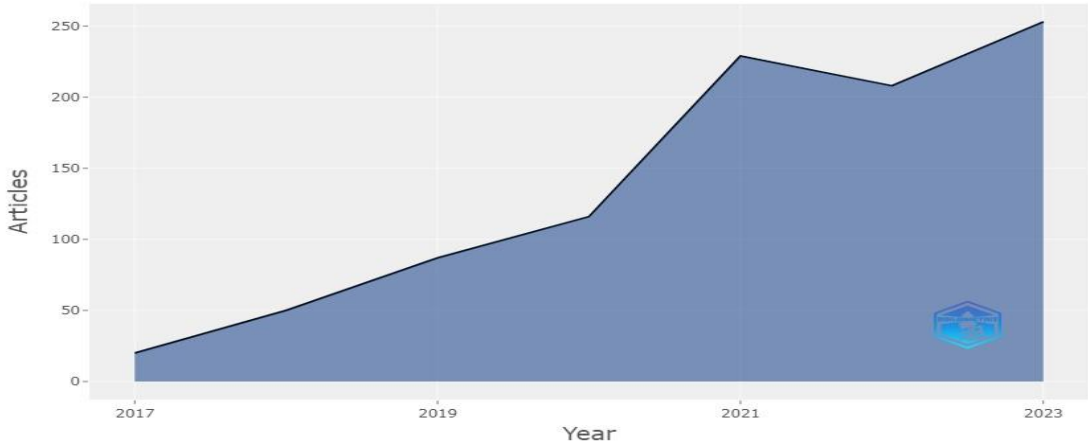


**Figure 2**. Annual Scientific Production
Source: Biblioshiny (2017)

Figure 3 illustrates the scientific production of countries in the context of the blue economy in different countries and regions. The United States tops the list with a remarkable frequency of 728 articles, indicating its significant contribution to blue economy research. It is closely followed by Australia and the United Kingdom with 369 and 342 articles respectively, demonstrating their active engagement in this area. Several factors probably influence the distribution of scientific production across countries. Geographical location and proximity to the marine environment may play a role, as evidenced by the high output of coastal nations such as Italy, Spain and Portugal. Economic factors, research infrastructure and government policies to support marine research can also affect a country's scientific output in the blue economy. Emerging economies in particular, such as China and Brazil, are also active in blue economy research, with 191 and 76 articles respectively. This shows that they are increasingly recognising the economic potential and environmental importance of marine resources. Countries with a lower scientific output, such as African countries and some island states, may face challenges in terms of research funding, infrastructure and capacity building. However, their participation in blue economy research is crucial for addressing local challenges, promoting sustainable development and engaging in the global discourse on ocean management and conservation.

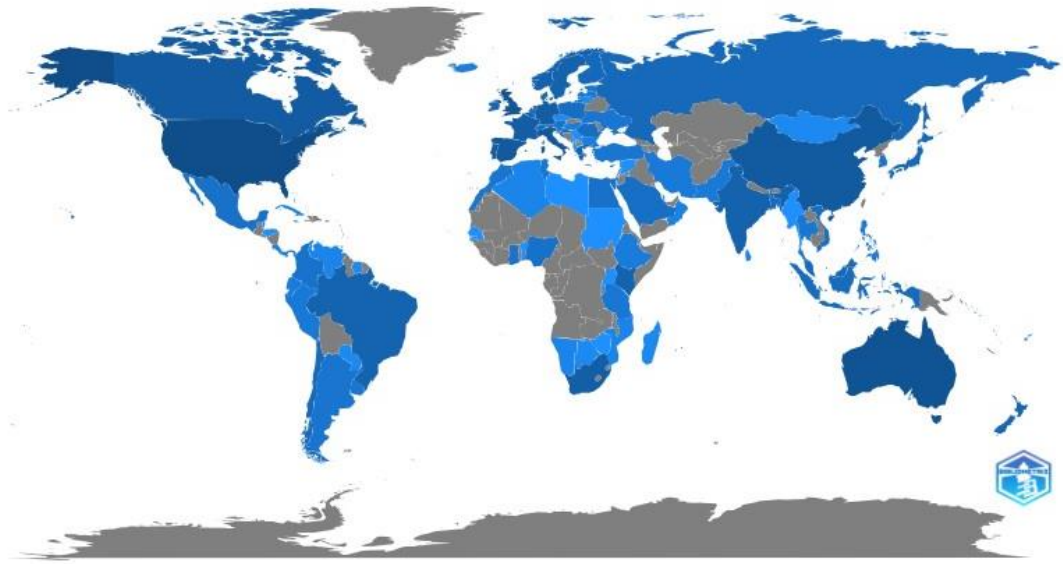

**Figure 3.** Countries Scientific Production
Source: Biblioshiny (2017)

### 4.3 TREEMAP

Figure 4 shows the treemap of the various aspects of the blue economy and the associated concepts. The largest rectangle in Figure 4 is the "blue economy"," which is mentioned 387 times and accounts for 35% of the total mentions. The blue economy encompasses the sustainable use of marine resources for economic growth, better living conditions and jobs while maintaining the health of marine ecosystems. Its dominance in the tree map shows that it is the central theme of the document. Next to the "blue economy" are the terms "aquaculture"," "sustainability" and "sustainable development" with 46 mentions each, representing 4% of the occurrences. Although they appear to the same extent as the term "blue economy'," it is clear that both "aquaculture" and "sustainability" are essential components in the wider context of marine and coastal economic activities. Aquaculture refers to the breeding, rearing and harvesting of fish, shellfish, algae and other organisms in all types of waters. This means that the inclusion of aquaculture in the diagram shows that the focus is on finding sustainable marine farming methods that pave the way for an industrial blue economy without jeopardising the environment. Meanwhile, sustainability and sustainable development can be seen to overlap with the blue economy at numerous points, as both revolve around the concept of promoting economic practises that meet the needs of people while balancing the needs of future generations. The document discusses the blue economy from a sustainability perspective. The term "blue growth" mentioned in 56. and 5. seems to be a strategy to support sustainable growth in the maritime sector as a whole. It is a more specific aspect of the blue economy that explores the potential to promote economic growth based on the sustainable use of marine resources. Other terms such as "marine spatial planning"," "ocean governance"," "climate change" and "fisheries" indicate a wide range of topics related to governance, challenges and activities within the blue economy. "Marine spatial planning" with 33 mentions (3%) and "ocean governance" with 31 mentions (3%) indicate the structured process of analysing and allocating parts of the marine space to achieve environmental, economic and social goals. "Climate change"," also with 3%, emphasises the impact of environmental changes on the marine economy. "Fisheries", with 29 mentions (3%), emphasises the importance of sustainable management of fish stocks. Smaller rectangles represent niche topics such as "Tourism"," "Equity"," "Sustainable Development Goals (SDGs)"," "Algae" and geographical areas such as "South Africa"," "Bay of Bengal"," "Bangladesh"," "China" and "Seychelles" These terms may refer to specific case studies, regional analyses or aspects of the blue economy such as the role of tourism, social justice issues, alignment with the SDGs and the importance of certain marine products like seaweed.

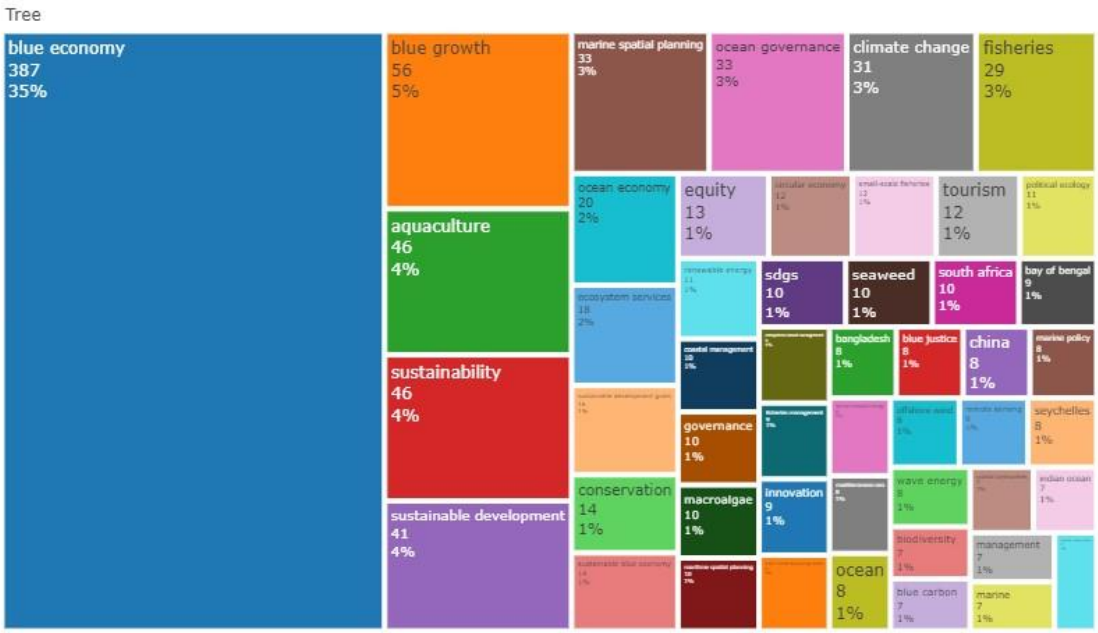


**Figure 4**. Treemap
Source: Biblioshiny (2017)

### 4.4 Most Cited Countries

Table 2 provides an insight into the most frequently cited countries in Blue Economy research and shows both the total number of citations and the average number of citations per article. Australia tops the list with 2,245 citations, reflecting the importance of its research contributions in this area. Canada follows closely behind with 1,056 citations and has the highest average number of article citations at 25,143. This indicates the high quality and influence of his publications on the blue economy. Despite having the second highest number of citations at 1,066, The US has a slightly lower average citation per article compared to Australia and Canada, but this still indicates a significant reach of its blue economy research. Interestingly, countries such as Bangladesh and South Africa have very high average article citations. Even though the total number of citations is lower in these countries, the individual research papers still have a large impact. The fact that China, India and Brazil are among the most cited countries illustrates the global reach and interest in blue economy research and shows that emerging economies will play a fundamental role in influencing sustainable ocean-based economic activity in the coming decades. Among the leaders in the ranking are the Netherlands, which has one of the highest average article citations over the five-year period with an average of 28.4. This is a key indicator of how influential and high quality the research findings are in relation to the number of citations they receive.

**Table 2**. Most Cited Countries

| Countries | **Number of citations** | **Average article citations** |
|---|---|---|
| Australia | 2245 | 23.385 |
| USA | 1066 | 10.057 |
| Canada | 1056 | 25.143 |
| United Kingdom | 996 | 11.067 |
| China | 575 | 9.914 |
| Italy | 522 | 9 |
| Germany | 371 | 14.84 |
| Spain | 338 | 6.76 |
| South Africa | 251 | 8.097 |
| Bangladesh | 210 | 13.125 |
| Sweden | 192 | 9.143 |
| India | 188 | 6.714 |
| Kenya | 150 | 7.5 |
| Brazil | 145 | 8.529 |
| Netherlands | 142 | 28.4 |
| Norway | 138 | 9.857 |
| Portugal | 133 | 4.586 |
| Korea | 132 | 44 |
| Saudi Arabia | 101 | 14.429 |
| Ireland | 92 | 10.222 |

Source: Biblioshiny (2017)

### 4.5 Co-Occurrence Analysis

Fig. 5 shows an analysis of the co-occurrence of key terms in blue economy research, highlighting clusters of related concepts and their importance within the discourse. Several prominent nodes are identified within the network, each representing a specific theme or theme relevant to the blue economy. The "Blue Economy" node proves to be the most central, with high scores for interconnectedness, proximity and PageRank, emphasising its importance and centrality within the network. It essentially acts as a central node that connects to a variety of other concepts and themes within the blue economy discourse. As it turns out, the other nodes that are closely linked to “blue economy” include concepts such as “aquaculture",” “sustainability",” “fisheries",” “marine spatial planning” and “climate change",” demonstrating the multifaceted nature of blue economy research. These interlinked concepts emphasise the complex and interdisciplinary nature of sustainable ocean-based economic activities. In addition, the analysis identified several distinct clusters, including 'blue growth' and 'sustainable development', which represent specific sub-themes within the broader blue economy context and encompass concepts such as 'sustainable development goals',” 'marine governance' and 'coastal management',” suggesting a focus on holistic approaches to economic growth without jeopardising environmental health and ensuring that the new economy benefits all groups in society. Nodes relating to governance and policy, such as 'ocean governance' and 'equity',” suggest that effective governance frameworks and the equitable distribution of benefits are key to the success of the blue economy, which is synonymous with sustainable development.

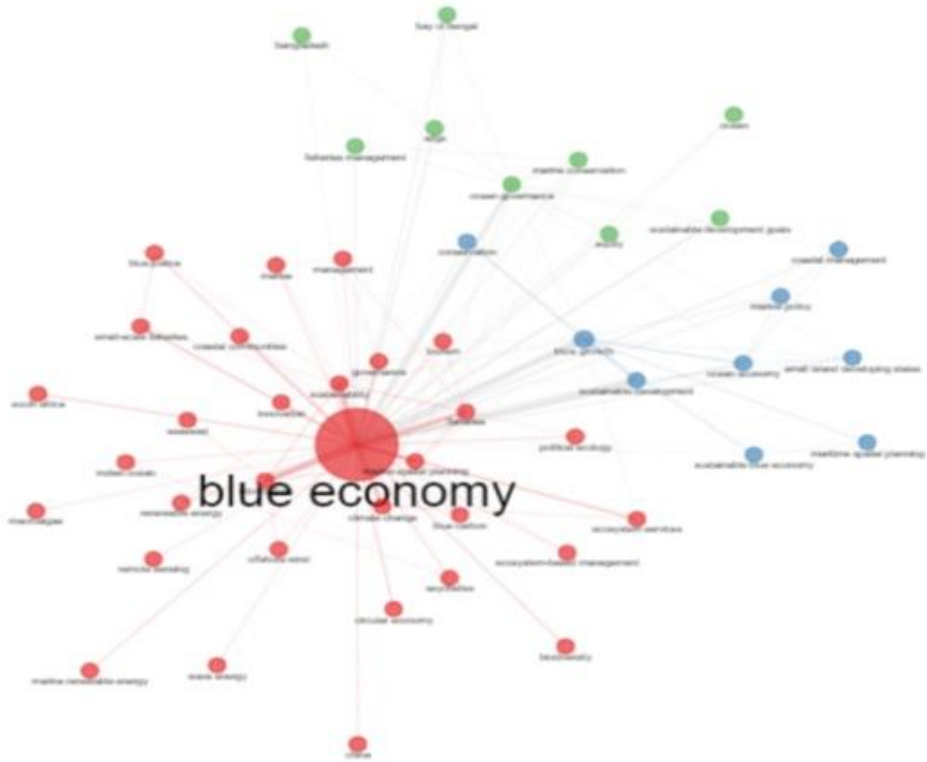


**Figure 5.** Co-Occurrence Analysis
Source: Biblioshiny (2017)

### 4.6 Authors' Collaboration Networks

In examining author collaboration networks within blue economy research, Figure 6 shows the patterns within which authors collaborate and the centrality of certain key authors within these networks. Each node in Figure 6 corresponds to an author, and the data includes betweenness, closure and PageRank, which help to capture the relative importance and influence of authors in their respective clusters. Notable authors are Danovaro R, Bianchelli S and Verdura J, who are in cluster 1. This suggests that these authors collaborate within their research community, as they have low betweenness and low closeness but moderate PageRank, indicating that they have moderate influence within their cluster. Authors in Cluster 2, e.g. Cisneros-Montemayor AM, Singh GG, who have higher Betweenness and PageRank scores, may be more important for connecting and disseminating information within their collaborative network. Their central role in their respective clusters suggests that they may be involved in coordinating knowledge exchange and research on the integration of ecological, social and economic research in aquatic systems. Authors in clusters 3, 4, and 5 have negligible Betweenness, Closeness, and PageRank scores, suggesting that they are less central or influential to the collaborative network in which they are located; however, it is important to remember that they may still contribute valuable insights and expertise to their collaborative research efforts. Clusters 6 to 12 consist of authors with different Betweenness, Closure and PageRank scores, suggesting different patterns of collaboration and influence within blue economy research. Authors with higher scores may act as central figures or key connectors within their collaborative networks, facilitating knowledge exchange and promoting joint research initiatives.


**Figure 6**. Authors' Collaboration Networks
Source: Biblioshiny (2017)

### 4.7 Trend Topic

Table 3 shows the trending topics related to blue economy research. This table shows the number of articles in which these trending topics are mentioned and gives an insight into the development and frequency of these themes over time. These trends are indicative of the changing and emerging focus and areas of interest in this field. The blue economy is the most important topic with 387 mentions across all publications. This trend topic peaked in 2020 and is also predominant in 2021 and 2022. This shows that scientific activity to explore the economic potential of marine resources and promote sustainable economic activities at sea will continue. Aquaculture and sustainability are also important topics that show an increasing frequency over the years, indicating that more and more attention is being paid to the development of sustainable aquaculture and the broader studies on sustainability in the blue economy literature. Similarly, the frequency of 'blue growth' increases markedly from 2019to 2022, indicating an increasing exploration of potential ways to promote economic growth in the marine sector in a way that is compatible with the identity of environmental sustainability. Similarly, the themes of 'marine renewable energy', 'marine spatial planning' and 'ocean governance', which are particularly prevalent in 2019-2022, all relate to energy needs, a planning framework and a set of governance beliefs that are prerequisites for successful sustainable ocean development in the 21st century. In 2019-2022, 'fisheries management' and 'fisheries' are recurrent themes – a reminder of the ongoing efforts to 'green' management and solve the 'wicked problem' that has so far prevented further progress towards sustainable fisheries. Topics such as "climate change'," "sustainable development' and "ecosystem services' are gaining prominence in recent years of analysis, highlighting the increasing recognition of climate change impacts, sustainable development goals and ecosystem-based approaches in blue economy research. In addition, emerging topics such as "circular economy'," "offshore wind energy" and "social-ecological systems" show a growing interest in innovative solutions and interdisciplinary approaches to address the complex challenges of marine sustainability.

**Table 3**. Trend Topic

| Item | Freq | Year_q1 | Year_med | Year_q3 |
|---|---|---|---|---|
| Marine Conservation | 7 | 2018 | 2019 | 2020 |
| Education | 5 | 2018 | 2019 | 2021 |
| Blue Growth | 56 | 2019 | 2020 | 2022 |
| Political Ecology | 11 | 2019 | 2020 | 2022 |
| Fisheries Management | 9 | 2020 | 2020 | 2021 |
| Marine Renewable Energy | 8 | 2020 | 2020 | 2022 |
| Blue Economy | 387 | 2020 | 2021 | 2022 |
| Aquaculture | 46 | 2020 | 2021 | 2023 |
| Marine Spatial Planning | 33 | 2019 | 2021 | 2022 |
| Ocean Governance | 33 | 2020 | 2021 | 2022 |
| Fisheries | 29 | 2019 | 2021 | 2022 |
| Sustainability | 46 | 2021 | 2022 | 2023 |
| Sustainable Development | 41 | 2020 | 2022 | 2023 |
| Climate Change | 31 | 2020 | 2022 | 2023 |
| Ecosystem Services | 18 | 2020 | 2022 | 2023 |
| Conservation | 14 | 2020 | 2022 | 2023 |
| Circular Economy | 12 | 2021 | 2023 | 2023 |
| Coastal Communities | 7 | 2022 | 2023 | 2023 |
| Ocean Sustainability | 7 | 2022 | 2023 | 2023 |
| Offshore Wind Energy | 6 | 2022 | 2023 | 2023 |
| Social-Ecological Systems | 6 | 2020 | 2023 | 2023 |

Source: Biblioshiny (2017)

### 4.8 Factorial Analysis

In this study, we used three bibliometric factorial analysis techniques: correspondence analysis, multiple correspondence analysis and multidimensional scaling analysis. These methods aimed to assess the proximity between keywords and the overarching theme. The expectation was that this approach would reveal a significant relationship. The conceptual structure maps (Figures 7–9) provide a nuanced perspective on proximity and disparity within the research area. The results of the correspondence analysis revealed a large cluster and a smaller cluster of themes (Figure 7). The red cluster includes keywords such as 'space, planning, data, south, sea, maritime, region, ocean, coast, energy, analysis, wind, offshore, aquaculture, economy and green',” while the blue cluster is centred around the keyword 'fish' The correlation between keywords within the theme "blue economy' is relatively weak. Nevertheless, it is noticeable that keywords such as “space, planning, data, south, sea, maritime, region, ocean, coast, energy, analysis, wind, offshore and aquaculture” show close connections. Conversely, the keyword “economy and green” appears to be clearly distant from the other keywords in the same cluster, indicating a weaker relationship with the other keywords.

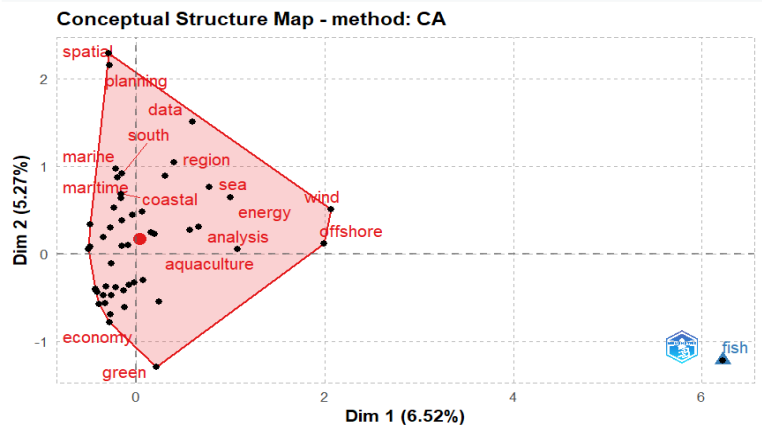


**Figure 7**. Correspondence Analysis (CA)
Source: Biblioshiny (2017)

The results of the multiple correspondence analysis are shown in Figure 8, where the positions of the points and their distribution across the dimensions provide an insight into the results. The analysis revealed two distinct clusters — a predominant red cluster that includes keywords such as wind, offshore, energy, fish, aquaculture, region, south, sea, role, conservation and maritime, and a smaller blue cluster that includes keywords such as spatial and planning. Both clusters have the same distance to the centre of the coordinates. When looking visually at the keyword hierarchy, it is clear that the red cluster is the largest and is relatively close to the blue cluster. However, there is no inherent relationship or similarity between the blue and red clusters.

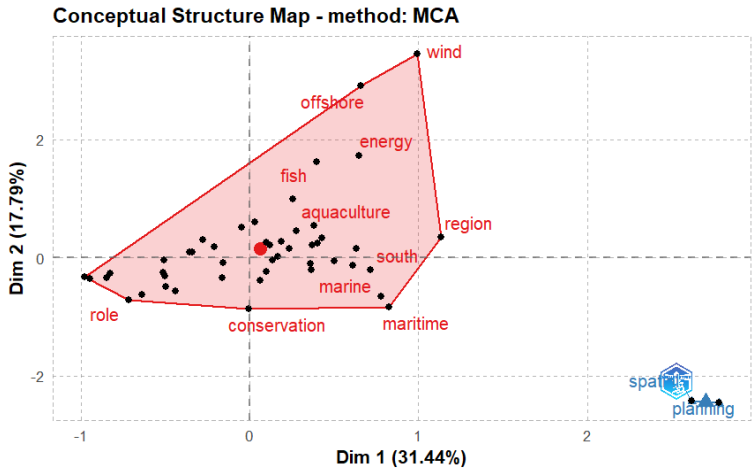


**Figure 8**. Multiple Correspondence Analysis (MCA)
Source: Biblioshiny (2017)

Multidimensional scaling analysis was used to analyse the themes, resulting in the identification of two clusters: the red cluster and the blue cluster (Figure 9). Within the blue cluster, keywords such as "offshore" and "wind" are prominent, while the red cluster includes keywords such as "space'," "planning'," "south'," "region'," "aquaculture'," "energy'," "fish'," "assessment'," "role'," "Caribbean'," "climate change'," "island" and "development' When visualising the cluster hierarchy, it is clear that the red cluster is the largest, with a significant gap to the blue cluster. In the red cluster, the predominant keywords are "energy" and "development"," which are further away from the centre of the coordinates, suggesting that their relationship is not particularly close.

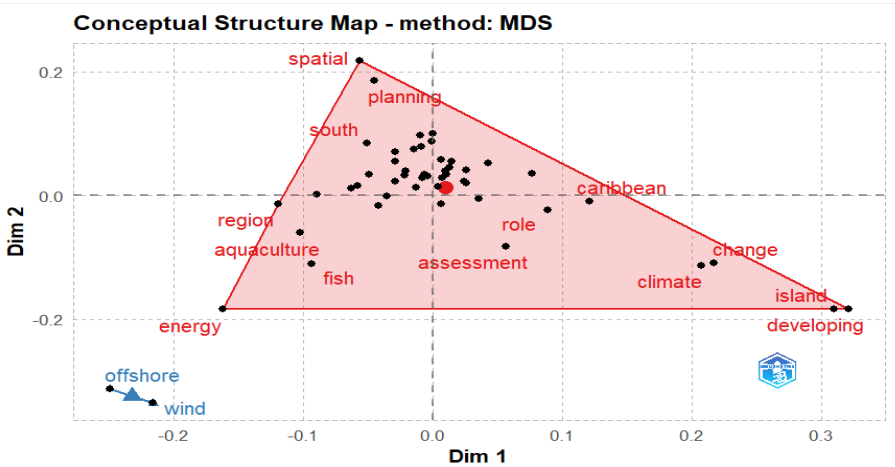


**Figure 9**. Multidimensional Scaling Analysis (MDS)
Source: Biblioshiny (2017)

**4.9 Thematic Analysis**

The qualitative thematic analysis of the 50 most cited articles included a manual review of the authors' summaries and keywords to identify the predominant themes. Two independent coders systematically analysed the textual data to uncover recurring patterns and conceptual categories within the discourse on the blue economy. This qualitative approach provided complementary insights to the factorial examination and enabled a deeper understanding of the key research themes and their significance in the field. Figure 10 shows a thematic map depicting the centrality and density metrics for different clusters within blue economy research. Each cluster represents a specific thematic focus in this area. The highest centrality and density scores are shown for the “Ocean" cluster, which indicates that ocean-related topics are the most influential and most closely connected within blue economy research. The “Management" and “Energy" clusters also have a relatively high centrality and density, which indicates their importance and interconnectedness within the blue economy discourse. Compared to the “Sea" and "Energy" clusters, the “Climate" cluster has a lower centrality but a high density, which indicates a coherent thematic focus within the climate-related topics. The “Fisheries" cluster has a moderate centrality but a high density, which indicates a strong thematic concentration and interdependence within the fisheries-related research topics. The "Oceans" cluster has a moderate centrality and density, which indicates its importance within the Blue Economy research network, albeit with a somewhat lower degree of networking compared to the other clusters.

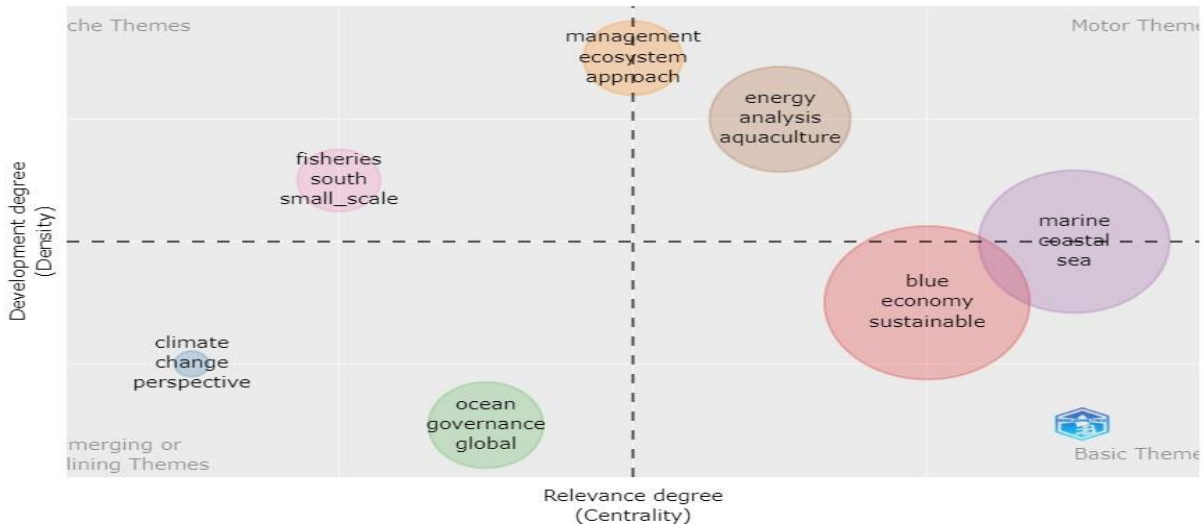


**Figure 10**. Thematic Map
Source: Biblioshiny (2017)

To further illuminate the patterns of keyword clusters in blue economy research, we have illustrated the thematic network of keywords in Figure 11. The keywords are categorised into different clusters based on their overlap with other keywords. The “blue” cluster consists of keywords such as “economy”, “sustainable”, “development” and “growth”. These reflect the central concern of blue economy research to find a path of sustainable economic development that is rooted in and connected to the ocean's resources. This cluster also includes keywords such as “challenges”, “opportunities” and “innovation”, which points to the multi-layered nature of the blue economy discourse. In contrast, the 'climate' cluster includes words such as 'change', 'perspective' and 'lessons” learnt', which indicate that it explores how the impacts of climate change on marine ecosystems and coastal regions are adapted and mitigated in the context of the Blue Economy. The "Ocean" cluster, for example, includes topics related to ocean governance and policy, global cooperation or an integrated approach to the sustainable development of ocean resources. The use of terms such as "governance", "policy", "global" and "community" indicates that this is a collaborative effort that encompasses holistic ocean management. The "marine" cluster addresses a range of research topics related to marine ecosystems and coastal management, marine and non-marine economic activities, environmental protection and the resolution of territorial disputes. Here, terms such as "coast", "sea", "environment" or "planning" signalise that these research strands focus on the close links between marine systems and human activities. The "Management" cluster includes terms such as "ecosystem", "approach", "model" or "framework", which we interpret as attempts to design and implement an effective management strategy, or as efforts to design an assessment framework or a set of monitoring systems that can be used to ensure sustainable and equitable use of natural resources, including their conservation. The Energy cluster focuses on topics related to energy production, including aquaculture, offshore energy, renewable energy sources and energy potential in the marine environment. This cluster reflects the growing interest in the exploration and utilisation of marine resources for sustainable energy production. Finally, the "Fisheries" cluster deals with issues of fisheries management, small-scale fisheries, food security and sustainability of resources. Terms such as "fisheries"," "food"," "knowledge" and "resource" emphasise the importance of sustainable fisheries management practises in the context of the blue economy.

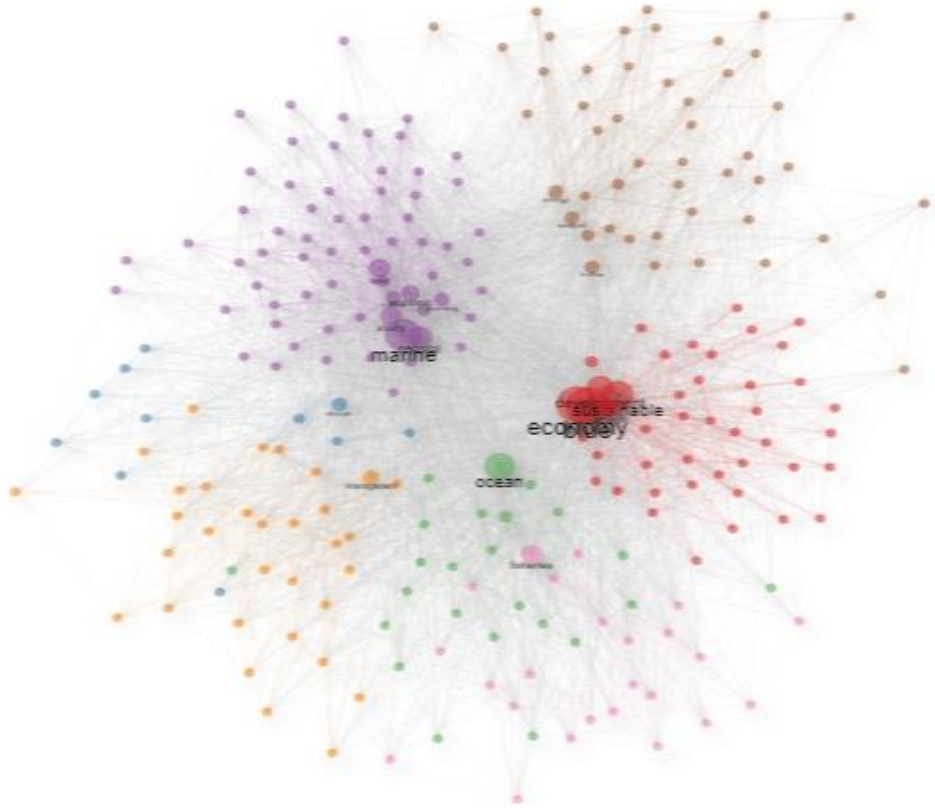


**Figure 11.** Thematic Network
Source: Biblioshiny (2017)

## 5. DISCUSSION

This study uses the Web of Science database to retrieve relevant bibliographic records on blue economy research from 2017 to early 2023. Web of Science was selected because it provides comprehensive coverage of peer-reviewed academic literature that includes scientific and social science publications. An advanced search query using “blue economy” limited the results to English-language articles, conference papers and reviews and returned 981 documents for analysis using the Biblioshiny software package. The correspondence analysis carried out in our study provides valuable insights into the thematic structure of blue economy research. Figure 7 illustrates two clear thematic clusters that emerged from the analysis: a large red cluster and a smaller blue cluster. The red cluster includes a variety of keywords, including "space, planning, data, south, sea, maritime, region, ocean, coast, energy, analysis, wind, offshore, aquaculture, economy and green" In contrast, the blue cluster focuses on the keyword "fish"," indicating a thematic concentration on fisheries-related research. Within the blue economy theme, the correlation between the keywords is relatively weak. However, certain keywords within the red cluster are closely linked, indicating thematic coherence or networking. This clustering shows clear keyword associations between the research articles on the blue economy. For example, the Blue Economy research articles most frequently revolve around the topics of space, planning, data, south, sea, maritime, maritime region, coast, energy analysis wind offshore aquaculture. These interlinked topics therefore form the core of most Blue Economy article abstracts and characterise a deeply multidimensional field of research. Conversely, the keyword association between economy, green and the other keywords in the cluster is strikingly weak, suggesting that this high-level theme may be less prominent and less clearly distributed across the broader blue economy discourse. Economy, green is strikingly distant from the rest of the keywords, suggesting that the relationship with the other words in the cluster “is 'less clear' This distance emphasises that additional work would be beneficial to illuminate the relationships and themes of blue economy research.

The MCA in our study paints an interesting picture of the thematic structure of blue Economy research (see Figure 8). Several interesting trends can be identified. There are two distinct clusters of keywords that represent different dimensions of the field. The main cluster in red includes wind, offshore, energy, fish, aquaculture, region, south, sea, role, conservation, maritime, among others. Taken together, these keywords indicate a thematic focus on different forms of marine resource utilisation, conservation and economic development. The fact that these keywords fall into the same cluster suggests that there is a degree of thematic coherence or connectedness between these research topics and that research in this cluster often addresses related topics and ideas. The smaller cluster in blue includes keywords such as spatial, planning. This cluster appears to represent a distinct thematic dimension within blue Economy research, focussing on spatial planning and management strategies related to ocean-based activities. Although the blue cluster is smaller compared to the red cluster, it represents an important aspect of blue Economy research and emphasises the

importance of spatial considerations in the sustainable management of ocean resources. What is remarkable about the MCA results is that the two clusters are kept at roughly the same distance from the centre of the coordinates. This could mean that the two smaller clusters represent different thematic dimensions that are not inherently related or similar, but reflect different facets of blue Economy research, reflecting the expected multidimensionality of the field. A visual inspection of the keyword hierarchy reveals that the largest cluster of keywords in red is relatively close to the second largest cluster in blue. This proximity could indicate a certain thematic overlap or a common focus of the two clusters. However, it is important to note that the proximity does not necessarily mean that the topics represented by the red and blue clusters are directly related or similar. Rather, it represents the nuanced, multifaceted nature of blue Economy research, where multiple thematic dimensions can overlap or influence each other to varying degrees.

This MDS analysis provides some important insights into the thematic structure of blue Economy research. As can be seen in Figure 9, there are two clear clusters of keywords that correspond to different thematic dimensions in this area. The red cluster of keywords includes space, planning, south, region, aquaculture, energy, fish, valuation, role, Caribbean, climate change, island and development. This collection of keywords appears to focus thematically on different aspects of spatial planning and regional development, aquaculture and energy, and the impact of climate change in the blue Economy. The fact that they are all found within the same cluster suggests that they are thematically very coherent (i.e. interlinked), so it would appear that this research cluster explores related themes and concepts. In contrast, the blue cluster includes keywords such as “offshore” and “wind",” which represent a separate thematic dimension within blue Economy research and focus on offshore energy production and wind energy technologies. Although the blue cluster is smaller compared to the red cluster, it represents an important aspect of blue Economy research and emphasises the importance of renewable energy sources and offshore resources for sustainable economic development. When visualising the cluster hierarchy, it becomes clear that the red cluster is the largest and has a considerable distance to the blue cluster. This spatial separation indicates that the topics represented by the red and blue clusters are relatively different and do not overlap significantly or have a common focus. Instead, they capture different aspects or facets of blue Economy research. They reflect the multidimensional nature of research in this area. Within this red cluster, we see the most common keywords, or those that are used most frequently. These keywords are "energy" and "development" They are further away from the centre of the coordinates of this cluster, suggesting that their relationships with other keywords within the cluster are not particularly close. It is therefore possible that these are not particularly distinct or unique words, but rather general thematic focuses or areas within blue Economy research that have weaker relationships with other topics in the cluster.

Also a thematic map showing the centrality and density metrics of the different clusters in Blue Economy research. A cluster in the map reflects a unique thematic focus in that area and shows how different research topics are connected to and prominent in the research network. It can be seen that this “marine” cluster has the highest callon centrality and density scores in blue Economy research. The relatively high centrality and density scores for the “marine” cluster tend to indicate that marine-related research data are central topics and that the topics in the research network are closely interlinked. The topics of this cluster include marine conservation, marine biodiversity, management of marine ecosystems and sustainable use of marine resources. Two other clusters named “Management" and “Energy" also have relatively high centrality and density scores, which also indicates that the topics are important within the blue Economy discourse and are related to each other. The 'Management' cluster is likely to include topics such as resource management, governance frameworks, policy development and sustainable practises within the blue Economy. The Energy cluster is likely to cover renewable energy sources, energy efficiency and the ongoing transition to sustainable energy solutions in maritime sectors. The "Climate" cluster, although less centralised than the "Ocean" and "Energy" clusters, has a high density, indicating a strong, cohesive thematic focus within climate-related topics. This could include, for example, research into the effects of climate change on ocean ecosystems, adaptation strategies for coastal communities, mitigation strategies for the maritime industry or political responses to climate-related challenges in the blue Economy. Fisheries cluster. The "Fisheries" cluster also has a lower centrality but a high density and indicates a strong, coherent thematic concentration and interconnectedness within fisheries-related research topics. This cluster is likely to include research on a wide range of topics relating to ocean governance, policy frameworks, integrated ocean management, oceanographic research, and the relationship of the blue Economy to broader socio-economic and environmental contexts.

Furthermore, it was analyze the themes of keywords that emerge in blue Economy research. I identify different clusters of keywords based on the terms that appear and the frequency with which they are linked. Each cluster I identify represents a particular thematic focus within the blue Economy discourse. The cluster "blue" is the core of blue Economy research. Key terms include 'economy', 'sustainable', 'development', 'growth' and the variants mentioned above. From a blue Economy perspective, it is revealing that the terms associated with energy research are seen as the core of the discourse. They imply a push for sustainable economic development linked to the ocean's resources. Words such as "challenges", "opportunities" and "innovation" indicate that blue economy themes cover a broad spectrum. the word "Climate' appears in the terms "change'," "perspective" and "lessons learnt", suggesting a thematic focus on understanding and addressing the impacts of climate change on marine ecosystems and coastal regions within the blue Economy. This trend also shows the growing recognition of the links between climate change and sustainable economic activities at sea. The "Ocean" cluster highlights the discussion on ocean governance, policy and global co-operation in the sustainable use and management of ocean resources. Key words such as "governance"," "policy"," "global" and "community" emphasise the collaborative and holistic nature of efforts aimed at the sustainable management and conservation of ocean ecosystems for sustainable economic activities. The "marine" cluster therefore includes research topics dealing with marine ecosystems, coastal management and human activities, economic activities in the biosphere and environmental protection. the terms "coast"," "sea"," "environment" and "planning" also point to the interconnectedness of human activities with marine ecosystems

(and the need to include environmental aspects in Blue Economy strategies). In the "Management" cluster, the terms "ecosystem"," "approach"," "model" and "framework" illustrate the team's aim to develop efficient management techniques, assessment frameworks and means of monitoring sustainable use and conservation in the context of the Blue Economy. This cluster emphasises the importance of an ecosystem-based approach to ocean management, ensuring that the pursuit of economic development and environmental protection can be achieved simultaneously. In this cluster, there are a number of topics related to “energy",” such as aquaculture, offshore, renewable energy and potential. This increase in enquiries is linked to the growing interest of industry in exploring and utilising marine resources, with a focus on sustainability, and the promise of policy makers to reduce dependence on fossil fuels and make the transition to renewable energy sources. 'Fisheries' topics include fish stock management and small-scale fisheries, as well as 'food' and 'knowledge'.” It highlights the importance of integrating fisheries into the framework of a Blue Economy to ensure food security and preserve marine biodiversity.

**5.1 Managerial Implications**

The results of the study provide a comprehensive roadmap for managers and decision makers involved in the development and implementation of blue economy strategies. Through the use of advanced analytical techniques, the study has identified various clusters and trends in the blue economy research landscape and illuminated the intricate relationships and connections between the various facets of this multidimensional field. One of the key implications for managers is the ability to prioritise effectively when allocating resources. The results of the study highlight areas with high centrality and density scores, such as marine, management and energy clusters, indicating their importance and interconnectedness within the blue economy discourse. With this knowledge, managers can strategically allocate their resources to these high-impact areas, ensuring that investment is channelled into the most influential and connected sectors. In addition, the identification of specific clusters and trends can guide strategic planning and support the development of targeted initiatives. Managers can use these insights to develop customised strategies and programmes tailored to the specific needs and opportunities within each cluster. For example, initiatives that focus on marine resource management, energy sustainability or governance frameworks can be designed to address the particular challenges and priorities of each cluster. In addition, the results of the study can inform investment decisions by highlighting emerging trends and potential areas for future growth within the blue economy. By adapting to these trends, managers can position themselves as early movers, capitalise on emerging opportunities and gain a competitive advantage in the rapidly evolving blue economy landscape. Ultimately, the study provides managers and decision makers with a comprehensive understanding of the blue economy research landscape so they can make informed decisions that promote sustainable economic growth while protecting the integrity of marine ecosystems and resources. By utilising this knowledge, managers can develop holistic strategies that balance economic prosperity with environmental responsibility, paving the way for a sustainable and thriving blue economy. The study contributes to the literature on the blue economy by employing advanced factorial analysis techniques such as correspondence analysis, multiple correspondence analysis and multidimensional scaling to philtre out research trends and clusters. These analyses provide a comprehensive understanding of the relationships between keywords, themes and clusters in the blue economy. The theoretical frameworks and conceptual models derived from these analyses enhance our understanding of the complex dynamics that have driven the emergence of blue economy scholarship and provide a roadmap for future theoretical development in the field.

**5.3 Practical Implications**

The study emphasises the importance of ocean-based economic activities as a sustainable solution to global challenges such as sustainable development, economic stagnation, food security and climate change. By highlighting the interdependencies between marine ecosystems, human activities and socio-economic factors, the study emphasises the need for integrated approaches to the sustainable management of ocean resources. This can lead to greater collaboration between governments, industry and civil society organisations to promote responsible stewardship of the oceans and ensure the long-term success of blue economy initiatives. For policy makers, industry stakeholders and other decision makers, the study offers practical implications for the development of effective blue economy policies and strategies. The identification of prevalent research themes and clusters can serve as a basis for designing targeted policies and initiatives that address specific areas of the blue economy. In addition, the study highlights emerging trends and areas where research is currently lacking so that policy makers and stakeholders can make informed decisions about interventions and resource allocation. For researchers and practitioners working on the blue economy, the study provides valuable insights into the current state of blue economy science. By identifying prevailing research themes and clusters, researchers can focus their efforts and accelerate the growth of knowledge in the field. Practitioners, such as marine resource managers and conservationists, can use this knowledge to make informed decisions about interventions and resource allocation based on the current thematic focus.

### 5.4 Limitations of The Study and Directions for Further Research

The exclusive use of the Web of Science database and the keyword "blue economy" may have led to the systematic exclusion of relevant literature, resulting in possible biases. The complexity of blue economy research may not be fully captured by the factorial analysis and thematic analysis approaches used. Top-cited articles based on the number of citations do not necessarily reflect the actual importance or relevance. Interpretation of the results of big data analyses can be subjective and inconsistent from researcher to researcher. Several recommendations are made for future research: Continuing interdisciplinary knowledge sharing, innovative methods to integrate perspectives from different fields, exploring regional differences and unique contexts within the blue economy, investigating emerging topics such as blue biotechnology and circular economy principles, and development research paradigms for a sustainable blue economy that address critical knowledge gaps. Other opportunities include comparing results from different databases, conducting qualitative interviews with researchers and practitioners, examining long-term research trends over extended periods of time, and fostering interdisciplinary collaboration involving perspectives from fields such as economics, environmental science and political science. Involving different stakeholders from the outset in the formulation of research questions and the final results could lead to more participatory, comprehensive and impactful knowledge production about the blue economy and the natural world.

## 6. CONCLUSION

This study presents and analyses the growth, dynamics and scope of blue economy research from 2017 to 2023, making an important contribution to the literature on the blue economy and having potential implications for sustainable ocean resource management and policy making. By using Biblioshiny to facilitate a bibliometric analysis of 981 bibliographic records from the Web of Science database, comprising articles, conference papers and reviews on the blue economy, this study provided a robust and comprehensive overview of the main themes, patterns and thematic clusters within this field. The use of advanced analytical techniques such as correspondence analysis (CA), multiple correspondence analysis (MCA) and multidimensional scaling (MDS) enabled a nuanced examination of the multidimensionality and complexity of the various research topics and their interrelationships. This approach not only illuminated the wide range of different research topics within the discourse on the blue economy, but also revealed the diverse and varied nature of research on the blue economy, as evidenced by the varying degrees of "closeness" between the keywords. One of the key contributions of the study is that it highlights potential areas for further research and greater integration in the study of the blue economy. By showing the distribution and relationships between the thematic clusters, the study highlights the connections between the different research topics and the importance of certain topics within the research network. Topics such as marine ecosystems, energy, fisheries management and climate change crystallised as central areas and reflect the complexity of research in the blue economy and its importance for tackling global challenges. Furthermore, the results of the study have the potential to significantly influence the sustainable management of ocean resources and policy making. By gaining a comprehensive understanding of the research landscape, including the identification of salient issues and their interrelationships, policy makers and resource managers can make informed decisions that reflect the current state of knowledge and address the most pressing issues in the blue economy. In addition, the results of the study can assist in the allocation of resources and the development of targeted initiatives by highlighting areas of high centrality and density, such as marine, management and energy clusters. This information can inform strategic planning, investment decisions and the development of customised strategies that promote sustainable economic growth while protecting ocean resources. In addition to the practical implications, the theoretical contributions of the study should not be overlooked. Through the use of advanced factorial analysis techniques and qualitative thematic analyses, the study enhances our understanding of the complex dynamics that have driven the emergence of the blue economy and provides a roadmap for future theoretical development in this area.

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**REFERENCES**


[1] Okafor-Yarwood, I., Kadagi, N. I., Miranda, N. A., Uku, J., Elegbede, I. O., & Adewumi, I. J. (2020). The blue economy–cultural livelihood–ecosystem conservation triangle: The African experience. *Frontiers in Marine Science*, *7(1)*, 1-18.

[2] Phelan, A., Ruhanen, L., & Mair, J. (2020). Ecosystem services approach for community-based ecotourism: towards an equitable and sustainable blue economy. *Journal of Sustainable Tourism*, *28*(10), 1665-1685.

[3] Uddin, S. A., & Islam, M. M. (2019). Blue biotechnology, renewable energy, unconventional resources and products as emerging frontiers at Sea. *Journal of Ocean and Coastal Economics*, *6*(2), 1-26.

[4] Martínez-Vázquez, R. M., Milán-García, J., & de Pablo Valenciano, J. (2021). Challenges of the Blue Economy: evidence and research trends. *Environmental Sciences Europe*, *33*(1), 1-17.

[5] Kamalu, K., Binti Wan Ibrahim, W. H., & Umar Ahmad, A. (2022). The effect of remittance on human development in the organization of islamic cooperation member countries: Evidence from DCCE AND CS-ARDL. *Interdisciplinary Journal of Management Studies (Formerly known as Iranian Journal of Management Studies)*, *15*(2), 405-424.

[6] Atiku, A. M., Ismail, S., & Ahmad, A. U. (2021). Energy trade amidst sustainable economic growth in regional cooperation of West African States: fresh evidence from panel CS-ARDL. *International Journal of Energy Economics and Policy*, *11*(6), 262-269.

[7] Ismail, S., Roslan, F., Endut, W. A., Ismail, N. F., Atiku, A. M., & Ahmad, A. U. (2024). Causal Link between Financial Globalisation Uncertainty, Economic Growth, Environmental Degradation and Energy Consumption in ASEAN+ 3 Countries. *International Journal of Energy Economics and Policy*, *14*(1), 1-5.

[8] Rotter, A., Barbier, M., Bertoni, F., Bones, A. M., Cancela, M. L., Carlsson, J., ... & Vasquez, M. I. (2021). The essentials of marine biotechnology. *Frontiers In marine science*, *8(1)*, 1-53.

[9] Atiku, A. M., Ismail, S., Roslan, F., & Ahmad, A. U. (2022). The effect of electricity distribution loos, electricity power consumption, electricity intensity on energy consumption in West Africa. *International Journal of Energy Economics and Policy*, *12*(5), 361-369.

[10] Brodie Rudolph, T., Ruckelshaus, M., Swilling, M., Allison, E. H., Österblom, H., Gelcich, S., & Mbatha, P. (2020). A transition to sustainable ocean governance. *Nature communications*, *11*(1), 1-14.

[11] Garland, M., Axon, S., Graziano, M., Morrissey, J., & Heidkamp, C. P. (2019). The blue economy: Identifying geographic concepts and sensitivities. *Geography Compass*, *13*(7), 1-21.

[12] Lahiri, S., Snowden, B., Gu, J., Krishnan, N., Yellin, H., & Ndiaye, K. (2021). Multidisciplinary team processes parallel natural disaster preparedness and response: A qualitative case study. *International Journal of Disaster Risk Reduction*, *61(7)*, 1-9.

[13] Wang, L., Niu, W., Ding, L., & Zhao, Z. (2023). A bibliometric review on marine economy: Current status, development and future directions. *Marine Policy*, *155(9)*, 1-22.

[14] Roy, A. (2019). Blue economy in the Indian Ocean: Governance perspectives for sustainable development in the region. *ORF Occasional Paper*, *1-38*.

[15] Karani, P., & Failler, P. (2020). Comparative coastal and marine tourism, climate change, and the blue economy in African Large Marine Ecosystems. *Environmental Development*, *36(4)*, 1-9.

[16] Pan, X., Wang, M., & Pu, C. (2024). Effect of marine ecological compensation policy on coastal water pollution: Evidence from China based on a multiple period difference-in-differences approach. *Science of The Total Environment*, *923(5),* 1-11.

[17] Choudhary, P., Khade, M., Savant, S., Musale, A., Chelliah, M. S., & Dasgupta, S. (2021). Empowering blue economy: From underrated ecosystem to sustainable industry. *Journal of environmental management*, *291*, 1-16.

[18] Lee, K. H., Noh, J., Lee, J., & Khim, J. S. (2021). Blue economy and the total environment: Mapping the interface. *Environment International*, *157(12)*, 1-8.

[19] Martínez Vázquez, R. M., Milán García, J., & De Pablo Valenciano, J. (2021). Analysis and trends of global research on nautical, maritime and marine tourism. *Journal of Marine Science and Engineering*, *9*(1), 1-19.

[20] Duan, P., Cao, Y., Wang, Y., & Yin, P. (2022). Bibliometric analysis of coastal and marine tourism research from 1990 to 2020. *Journal of Coastal Research*, *38*(1), 229-240.

[21] Liu, J. M., Setiazi, H., & So, P. Y. (2023). Fisheries hydroacoustic assessment: A bibliometric analysis and direction for future research towards a blue economy. *Regional Studies in Marine Science*, *60(2)*, 1-15.

[22] Jiang, L., Yang, T., & Yu, J. (2022). Global trends and prospects of blue carbon sinks: a bibliometric analysis. *Environmental Science and Pollution Research*, *29*(44), 65924-65939.

[23] Zhong, C., Li, T., Bi, R., Sanganyado, E., Huang, J., Jiang, S., ... & Du, H. (2023). A systematic overview, trends and global perspectives on blue carbon: A bibliometric study (2003–2021). *Ecological Indicators*, *148(4)*, 1-11.

[24] Liang, J., Yin, Z., Yang, J., Li, Y., Xu, M., Li, J., ... & Niu, L. (2022). Bibliometrics and visualization analysis of research in the field of sustainable development of the blue economy (2006–2021). *Frontiers in Marine Science*, *9(3)*, 1-16.

[25] Paredes-Coral, E., Mokos, M., Vanreusel, A., & Deprez, T. (2021). Mapping global research on ocean literacy: Implications for science, policy, and the Blue Economy. *Frontiers in Marine Science*, *8(3)*, 1-12.

[26] Razmjooei, D., Alimohammadlou, M., Ranaei Kordshouli, H. A., & Askarifar, K. (2024). A bibliometric analysis of the literature on circular economy and sustainability in maritime studies. *Environment, Development and Sustainability*, *26*(3), 5509-5536

[27] Levine-Clark, M., & Gil, E. L. (2021). A new comparative citation analysis: Google Scholar, Microsoft Academic, Scopus, and Web of Science. *Journal of Business & Finance Librarianship*, *26*(1-2), 145-163.

[28] Pranckutė, R. (2021). Web of Science (WoS) and Scopus: The titans of bibliographic information in today's academic world. *Publications*, *9*(1), 1-59.
[29] Chapman, K., & Ellinger, A. E. (2019). An evaluation of Web of Science, Scopus and Google Scholar citations in operations management. *The International Journal of Logistics Management*, *30*(4), 1039-1053.
[30] Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative psychology*, *9*(1), 1-24.

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# The Contribution of Social Entrepreneurship to the Local Development of Taroudant Province (Morocco): Case of Argan Cooperatives Subsidized by the National Initiative for Human Development (INDH)

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**ABSTRACT**

This paper of social and solidarity economy, aimed at studying the contribution of social entrepreneurship to local development. By surveying the conceptual and evolutionary origins of key concepts, we have developed a conceptual model that addresses a variety of theories likely to reveal the evolutionary origins of local development, where social entrepreneurship is considered in its cooperative form as a lever for local development. The study examines the interrelation between social entrepreneurship and local development. Empirically, the problematic of this paper seeks to highlight these interrelations and illustrate the importance of social entrepreneurship in relation to local development, and it aims to clarify the remarkable growth experienced by the argan cooperatives in Taroudant province thanks to the major cooperative movement that significantly marks this region. To what extent do the argan cooperatives subsidized by the INDH contribute to the local development of Taroudant? Hypotheses are established based on a literature review, defining the items to retain for each variable. We retained the level of activity and turnover for the economic dimension, job creation for the social dimension, education and training for the cultural dimension. Methodologically, a quantitative approach was conducted through administering a questionnaire to the target population, namely the 15 cooperatives identified following a preliminary survey conducted in Taroudant province on the beneficiaries of the said subsidy. It seemed more prudent to proceed with statistical tests to address potential correlations that could skew our results. The collected data were then processed using SPSS software version 23. The outputs demonstrate the validation of the first two hypotheses and the rejection of the last one. In other words, these cooperatives positively contribute to the local development of Taroudant province through economic and social dimensions. However, the positive effect via the cultural dimension is not demonstrated.

***Keywords:***
*Social entrepreneurship, Social and Solidarity Economy, Local development, Cooperative, Taroudant.*

## INTRODUCTION

Since the late 1970s, ongoing developments have made social entrepreneurship a significant theme in the social and solidarity economy and a key concept in development. It has generated strong interest from policymakers, economists, researchers, practitioners, and the general public related to the globalization of economies. These developments have contributed to destabilizing existing economic systems, causing socio-economic problems, particularly in emerging and developing countries. The widening gap between countries, depletion of natural resources, emerging issues related to poverty, unemployment, and social exclusion have intensified with the acceleration of economic internationalization.

Most definitions of social entrepreneurship are linked to innovative solutions leading to social change. The OECD defines social entrepreneurship as an "enterprise aiming to provide innovative solutions to unresolved social problems" (OECD, 2010). Thus, social entrepreneurship is one form of entrepreneurship that pertains to organizations within the social economy, characterized by solidarity and social utility principles. These organizations include cooperatives, the focus of our practical research. This type of social enterprise operates within a regulatory framework involving democratic management modes, making them socially significant for both their founders and the surrounding environment, broadly benefiting the hosting locales.

The concept of local development is emphasized here. According to scientific literature, local development represents the will of elected officials to attract investors to their territories to address employment creation deficiencies. The development path depends on local resources rather than waiting for "miracle" companies to favor territorial implantation. According to Mengin (2004), "Solidarity economy organizations do not establish themselves through simple opportunities; the territory is an essential component of their activity and development, unlike many companies that move as soon as more financially attractive opportunities arise elsewhere."

Morocco, a developing country, has not been an exception to the global trend, recognizing the necessity of promoting socially responsible entrepreneurship. As part of its national social and solidarity economy strategy, it chose the INDH in 2005. Sectoral strategies (Tourism 2020, Handicrafts 2020, Green Morocco, etc.) and other social programs have multiplied in recent years to promote the National Initiative for Human Development, a major effort to combat instability and social exclusion.

In this context, social entrepreneurship is an alternative solution to the challenges posed by socio-economic crises, particularly for cooperatives aiming to place economic activity at the service of humanity, creating a viable, sustainable model generating social value—a local development model ultimately.

This article aims to study the contribution of social entrepreneurship through cooperatives subsidized by the INDH in 2020 to the local development of Taroudant province. Attempting to address this issue, we also aim to answer the following question: "To what extent do the argan cooperatives subsidized by the INDH contribute to the local development of Taroudant province?" The analysis of this contribution is based on three dimensions: economic, social, and cultural. We developed a conceptual model to clarify the connections and formulated three main hypotheses subject to our tests:

**H1:** The argan cooperatives subsidized by the INDH have a positive effect on local development via the economic dimension;
**H2:** The argan cooperatives subsidized by the INDH have a positive effect on local development via the social dimension;
**H3:** The argan cooperatives subsidized by the INDH have a positive effect on local development via the cultural dimension.

Methodologically, we opted for a quantitative approach using a questionnaire to collect data from the 15 argan cooperatives subsidized by the INDH in Taroudant province, as only these 15 benefited from this subsidy in 2020. A preliminary survey conducted with the service responsible for allocating subsidies to these organizations in Taroudant province helped define our population, totalling 15. To collect reliable and credible information, we ensured that the respondents were responsible persons within these structures. The collected data will be analysed using descriptive statistical techniques with SPSS version 23 software.

Our work is structured around five main axes. The first axis is dedicated to the conceptual and theoretical origins of the key concepts; the second axis addresses the role of social entrepreneurship in local development; the third axis is devoted to the adopted methodology and study variables. The fourth axis deals with the analysis of results, leading to the fifth axis, which discusses these results.

## LITERATURE REVIEW

### Social Entrepreneurship and Local Development: Conceptual Insight

In an interconnected world, social entrepreneurship has emerged as a powerful force for local development. This innovative approach combines the passion and mission of a social cause with the discipline and innovation of business practices. Social entrepreneurship is a dynamic and transformative approach to addressing social issues through innovative business solutions. Unlike traditional businesses focused solely on profit, social entrepreneurs prioritize social impact alongside financial sustainability. They identify pressing problems within their communities—such as poverty, lack of education, or environmental degradation—and develop creative, market-driven solutions to tackle these challenges. By leveraging entrepreneurial principles, they create ventures that not only generate revenue but also contribute to the well-being of society. Local development is significantly enhanced through the efforts of social entrepreneurs, as they bring fresh perspectives and resources to communities in need. By addressing specific local issues with tailored solutions, social entrepreneurs help to stimulate economic growth, create jobs, and improve access to essential services. Their ventures often involve collaboration with local stakeholders, ensuring that the initiatives are culturally relevant and sustainable in the long term. Additionally, social entrepreneurs often reinvest their profits back into the community, further amplifying their impact. Through their innovative and community-centric approach, social entrepreneurs play a crucial role in building resilient, inclusive, and thriving local economies.

The main point of this part is to clarify as far as possible the key concepts namely social entrepreneurship and local development.

#### The Concept of Social Entrepreneurship

Social entrepreneurship first appeared as a sub-field of entrepreneurship in its early development stages, juxtaposed with other sub-fields such as enterprise concepts (Halaissi and Boumkhaled, 2018). Social entrepreneurship, as defined today, is a recent concept dating back to the 1990s, when the United States and Western Europe were pioneers, notably through the social enterprise initiative launched by Harvard University. Business schools, followed by Columbia University, Yale University, and various foundations, have established training and support programs for social entrepreneurs and social enterprises in the U.S. In Europe, social entrepreneurship first emerged in Italy, creating a specific position for social cooperatives to address unmet public service needs. During this period, other European countries like Belgium, Finland, France, the UK, Spain, and others saw the emergence of new entrepreneurial motivations with social aims (Alexandre, 2013).

Dees (1998) describes social entrepreneurship as combining "the passion of a social mission with an image of business-like discipline, innovation, and determination." He offered an idealistic vision of social entrepreneurs who should act as change agents in the social sector by:

- Adopting a mission to create and sustain social value;
- Relentlessly pursuing new opportunities to serve this mission;
- Engaging in continuous innovation, adaptation, and learning;
- Acting boldly without being constrained by current resources;
- Exhibiting heightened accountability to the communities served and the outcomes achieved.

Bacq and Janssen (2011) noted that social entrepreneurship and associated concepts are complex, multifaceted phenomena that cannot be standardized or universally accepted. They define social entrepreneurship as managing a system of dual equations: a social mission on one side and commercial activities on the other. Therefore, all definitions should at least illustrate these tensions between the social mission and commercial activities.

Roberts and Woods (2005) consider social entrepreneurship as constructing, evaluating, and pursuing opportunities for social transformation driven by visionary and passionate individuals. Definitions of social entrepreneurship vary. For the OECD, social entrepreneurship is defined as "any private activity of public interest, organized with an entrepreneurial approach, not primarily aimed at maximizing profits but at achieving certain economic and social objectives and the ability to provide innovative solutions to problems of exclusion and unemployment."

In this perspective, social entrepreneurship involves increasingly specialized social entrepreneurs. Existing or emerging social and solidarity economic organizations adopt entrepreneurial methods and formal management tools to better respond to societal demands (Dardour, 2012). To distinguish social entrepreneurship from classic entrepreneurship, it is essential to note that the primary focus of social entrepreneurship is on its social mission. Social enterprises seek to address social needs expressed in the form of general or collective interests that neither the private nor the public sector can satisfy. Classic entrepreneurship primarily aims to seek financial profits while considering the needs of customers, consumers, shareholders, or producers. Social enterprises can also complement classic enterprises' activities (Zahra et al., 2013). Tan et al. (2005) offer a broader interpretation of social entrepreneurship, emphasizing that both economic and social missions are crucial. However, the dominant position of the social mission is vital, as it distinguishes this type of enterprise, and the existence of social needs presents opportunities for social entrepreneurs.

Omrane and Fayolle (2010) confirm that social entrepreneurship involves three fundamental elements: (i) determining a stable balance and excluding or marginalizing social groups unable to alter market equilibrium, (ii) identifying opportunities and developing new social values, and (iii) establishing a new balance to ensure a better future for the group and society. The essence of social entrepreneurship lies in discovering and leveraging business opportunities by identifying unmet social and economic needs, aiming to create social value.

Boutillier (2008) asserts that the primary driver of a social entrepreneur is collective well-being, engaging in service to society and addressing unmet market and state needs, based on economic theory. The social entrepreneur is viewed as a change agent in the Schumpeterian sense.

Furthermore, Defourny and Nyssens (2012) regard non-profit sector entrepreneurs as change stimulators, creating new services, production methods, production factors, organizational forms, or markets. This type of entrepreneurship is about results rather than mere revenue.

Asli and Slitine (2013) emphasize that social entrepreneurship values the potential for change and innovation, with the entrepreneur seen as a "change maker"—an exceptional individual motivated by changing unsatisfactory situations and capable of providing pragmatic, efficient, and sustainable solutions.

**The Concept of Local Development**

In a world where economic development is a fundamental concern for governments and international organizations, studying the concept of local development is considered one of the most dynamic research fields. Diop (2008) defines local development as a development theory using the concept of "territory," where "internal" is inevitably linked to "external" endogenous factors. Thus, the full utilization of previously neglected resources to help society and the population adapt to development and globalization processes is not an alternative, but moderate support.

Local development is a theoretical and practical domain at the crossroads of multiple human and social science disciplines. Boucher and Favreau (2001) emphasize that social work, sociology, planning, and economics are all concerned with local development. According to them, "local development aims to enhance a community's resources through a partnership of local actors with intervention goals on employment and economic and social revitalization." They add that this approach focuses on three main axes: developing resident population skills (socio-professional integration); actively intervening in the job market (enterprises); and supporting the reconstitution of the social fabric (associations and support groups).

The territory or local area can be seen as a coalition of actors fixed in a delimited geographic space, aiming to identify and solve productive problems, judgments, or perceptions shared by these actors (Landel and Senil, 2008). Pecqueur and Itçaina (2012) argue that local development is now a key discussion point in public policies in developing countries, generally associated with a decentralized process that is necessary but often delayed. By closely examining the ground and its achievements, one can understand the necessity of clarifying the basic principles of its functioning. Local development also entails activities aimed at improving the community's culture, economy, politics, and society through partnerships between various decision-making centers: "Local development is a global approach that mobilizes and synergizes local actors to enhance human and material resources in a given territory, in negotiated relation with the decision-making centers of the economic, social, cultural, and political entities they belong

to" (Houée and Dia, 2001).

According to Klein (2006) , local development isn't just about where it happens , it's about the impact it has on the community. If we based it solely on location, then all development would be local since everything happens somewhere. What truly makes development local is when it builds and strengthens the systems and connections within that community, making a real difference in the lives of the people there.

**Role of Social Entrepreneurship in Local Development**

Social entrepreneurship plays a crucial role in local development by tackling community-specific problems with creative and sustainable solutions. Social entrepreneurs aren't just focused on making money—they're driven by a mission to improve their communities. They identify local issues like education gaps, healthcare needs, or environmental concerns and develop innovative businesses to address them. By using local resources and knowledge, they create solutions that make a real difference in people's lives, enhancing the overall quality of life and fostering a sense of community. In addition to solving social problems, social entrepreneurship boosts local economies by creating jobs and promoting inclusive growth. Unlike traditional businesses that might prioritize profits above all else, social enterprises reinvest their earnings back into the community to further their mission. This helps to build local capacity, empower marginalized groups, and ensure that everyone benefits from development. Social entrepreneurs also work closely with local governments, non-profits, and other stakeholders to create a supportive environment for their initiatives. This collaborative approach makes sure that their efforts are relevant, sustainable, and have a lasting impact. Through their dedication and innovative strategies, social entrepreneurs are transforming communities and driving positive change at the local level.

This section aims to understand the relationship between social entrepreneurship and local development by answering the question: To what extent can social entrepreneurship serve as a tool for local development?

The Convergent Aspects of Social Entrepreneurship and Local Development

Social and solidarity economy enterprises view social entrepreneurship not merely as an opportunity but as the foundation of their activity and development. This is particularly true for social enterprises like cooperatives, which are primary components of social entrepreneurship. The anchoring of social entrepreneurship organizations in a given territory depends on a conformity in terms of territorialisation, characterized by the intensity and plurality of relations that social and solidarity economy organizations maintain with other actors. These relations are based on three forms of proximity: organizational, institutional, and axiological proximity. Local anchoring is also considered one of the fundamental features of cooperatives.

Most presentations of cooperatives confirm that they see themselves as expressions and reflections of a given territory. Koulytchizky (2006) highlights the emergence of local initiatives of general interest within the distinction and continuity between associations, cooperatives, and national governance. Filippi et al. (2008) have clearly demonstrated that while agricultural and food cooperatives have internationalized, they continue to play an original and fundamental role in maintaining activities in the territory.

Cooperatives can also be seen as a system based on the unity of members within the enterprise. "A cooperative is an association of persons voluntarily united to meet their common economic, social, and cultural needs through a collectively owned and democratically controlled enterprise" (International Labour Organization Report, 2001).

Furthermore, cooperatives that need and seek solid capital can ensure and maintain local governance. This allows them to implement local democracy characterized by open governance and protection from foreign acquisitions, encouraging reinvestment in the local economy.

Tribak et al. (2006) believe that equality among members in cooperation guarantees determined orientations that suit the area's requirements and respond to the community's needs, as these members reflect the needs and characteristics of their territory. As long as the cooperative's goal focuses on responding to community members' needs rather than capital returns, the strategic direction will align with local realities and coordinate with the socio-economic needs of the cooperative territory. Local residents must genuinely participate in project development and management through elected officials, local investors, or associations.

It is clear that cooperative members are essential actors in local development, where cooperative interests traditionally diverge. In a cooperative, consumers are entrepreneurial investors, workers are owners, and producers are sellers. The revenues generated by the cooperative enterprise belong to all members, with the redistribution of the enterprise's added value among members ensuring they pay the price or salary. Additionally, members are rooted in a territory, influencing the results of local development gains.

Cooperatives value local skills, resources, materials, and products, calling on local suppliers and partners to better reflect the short circuit. The cooperative's results primarily aim at its future, guaranteeing its sustainability in the territory. Investment serves the economic development of the cooperative and, consequently, the local economy. Social entrepreneurship can be seen as a form of regionalization of economic activity, investment, and employment. Given that territorial anchoring, democratic functioning, and economic solidarity are main characteristics of the social and solidarity economy, this conclusion is logical. Pecqueur and Itçaina (2012) have shown that cooperatives are characterized by an active and local upward dynamic; close ties between the enterprise, the territory, and the population foster trust.

The Contribution of Social Entrepreneurship to Local Development

Cooperatives contribute to local development by creating income-generating projects, helping combat unemployment by creating and improving job opportunities in the concerned territories. The emergence of cooperatives is due to the state's and capitalist enterprises' inability to meet the majority of the population's needs, particularly in the context of globalization. Cooperatives are considered voluntary organizations, offering services to anyone willing to accept membership responsibilities. Economically, cooperatives impact verified: they provide uniform income, create jobs, and value local resources, heritage, and skills.

Cooperatives' contribution to local development includes job creation, production improvement, and enhancing the local economic and social fabric. This would not be possible without active support from major public actors, local authorities, and decentralized national services. Only through public employment service agencies, organizations, and social partners can local actors be supported in creating enterprises and integrating or employing. Cooperatives offer a complementary tool and different options to local project holders. Innovation can be an asset for cooperatives, fostering change and local development. Collective expertise in a distributed model has seen an original combination of exploration and assistance, emphasizing innovation by disrupting knowledge stability (Veyer and Sangiorgio, 2006).

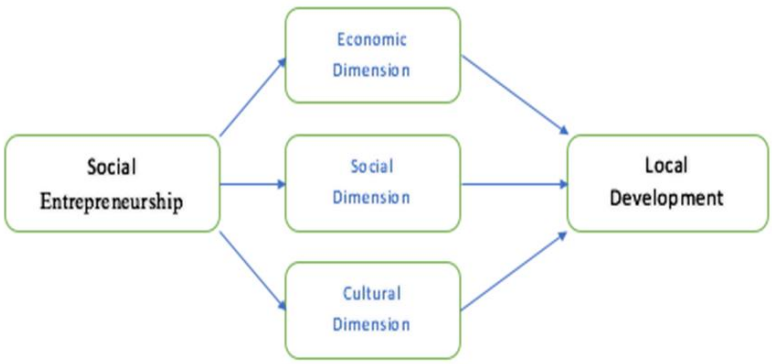
Cooperatives serve as a lever for local development in economic, social, and cultural aspects. They create income-generating activities for men and women, mitigating drought impact. However, developing these cooperatives requires good commercial knowledge while integrating local development principles. It also necessitates recognizing and integrating cooperatives as social actors in regional strategic decisions (Abdelbaki and Zammar, 2018).

Touzard and Vandame (2009) highlight the cooperatives' leadership in local development, resulting from internal development. Cooperatives need training in business management and cooperative life. This sharing complements human wealth in a specific domain. Additionally, cooperatives have a culture of networking and sharing knowledge and skills, supporting young entrepreneurs' establishment in the territory, strengthening enterprise creation, and fostering local development. Thus, there is a strong link between the cooperative and its territory. This territorial anchoring generally leads cooperatives to consider the need for long-term management of local resources affecting their activities and those of their members, participating in and investing in local development.

Asserraji (2020) studied local development construction through the local production system, identifying elements related to local development, notably its purpose. He found that surveyed enterprises consider local development's purpose to include the economic profitability of their activities and job creation opportunities to improve individuals' socio-economic status—a logical goal of any local development process. Additionally, there is a socio-economic impact of enterprises in industrial areas on the local community. Most enterprise leaders confirm their indirect contribution to promoting their anchoring territory's socio-economic status by employing young workers. Through sustaining their economic activities, entrepreneurs contribute to preserving sustainable employment and the socio-economic dynamics of their anchoring territory.

## METHODOLOGY, RESEARCH MODEL, AND VARIABLE SPECIFICATION

To address our research question, we chose a quantitative method, deemed most suitable for our study, allowing us to perfectly answer our question. A hypothetical-deductive approach involves formulating hypotheses, collecting data, and testing results to validate or refute these hypotheses. This approach allows us to test and verify the three hypotheses of our research model and determine the association relationship between social entrepreneurship and local development through three dimensions: economic (activity level, turnover), social (job creation), and cultural (education, training).




**Source: Authors**

We formulated three hypotheses to be tested:

**H.1:** The argan cooperatives subsidized by the INDH have a positive effect on local development via the economic dimension;

**H.2:** The argan cooperatives subsidized by the INDH have a positive effect on local development via the social dimension;

**H.3:** The argan cooperatives subsidized by the INDH have a positive effect on local development via the cultural dimension.

We assumed that the three dimensions—economic, social, and cultural—of social entrepreneurship, as the independent variables, explain our dependent variable, local development. This relationship mainly involves observable variables characterizing the behaviour of argan cooperatives subsidized by the INDH, contributing or not to local development. We then defined the variables of our research model according to the following table:

**Table 1:** Definition of Research Model Variables

| Variables | Definition |
|---|---|
| Social entrepreneurship | A form of entrepreneurship aiming to put economic activities at the service of humanity, aspiring to provide a sustainable response and alternative solution to various economic, social, environmental, and moral crises, and contributing to job creation by minimizing poverty and social inequalities (Drissi and Angade, 2017). |
| Local development | "Local development aims to enhance a community's resources through a partnership of local actors with intervention goals on employment and economic and social revitalization" (Doucet and Favreau, 2011). |
| Economic dimension | Expected effects on beneficiaries' well-being. The project's added value manifests as innovation advantages and improved living standards as a counterpart to investment (Louizi, 1998). |
| Social dimension | In terms of territorial development, the number of created jobs is significant. However, their quality, i.e., nature, status, and required qualification level, is also crucial. More qualified jobs attract or retain well-trained individuals in the region, promoting initiatives and adjustments needed by the development process (Vernières, s.d.). |
| Cultural dimension | A higher education and training level of the population fulfills a key condition for territorial development. Indicators like years of study and highest achieved diploma level are usual measures (Vernières, s.d.). |

For the independent variables, we defined and retained the following items for each dimension;

- ***Economic dimension:*** The level of activity and turnover (sales revenue).
- ***Social dimension:*** Job creation
- ***Cultural dimension:*** Education and training.

Finally, we conducted the study with the 15 argan cooperatives subsidized by the INDH in Taroudant province, using a questionnaire survey. The response rate was close to 100%, and the results were extrapolated to test the specified model and provide answers to the underlying questions of social entrepreneurship's contribution to local development.

## RESULTS

Using linear regression, we explored the relationship between the two variables to be explained (social entrepreneurship and local development) through three explanatory variables (economic, social, and cultural dimensions). We represented each result by modelling regression coefficients and their significant hypotheses.

The regression analysis aimed to verify if there is a direct significant link between the three variables (economic, social, and cultural dimensions) and the dependent variable. The usual conditions to conclude data issues' absence were verified: the Durbin-Watson statistic is $d = 2.163$, between the critical values of $1.5 < d < 2.5$, indicating no autocorrelation in the error term. Additionally, collinearity statistics revealed no multicollinearity issues, and the VIF (variance inflation factor) did not exceed 2.787. We previously checked the data's linearity assumptions and conditions for our research model.

**Table 2: R**-Squared Coefficient

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| Model | R | R2 | Adjusted R2 | Estimation standard Error | Change Statistics | | | | | DurbinWatson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Variati-on of R-2 | Variation Of F | ddl1 | ddl2 | Sig. Variation of F | |
| 1 | ,838[a] | **,702** | ,621 | ,14684 | ,702 | **8,650** | 3 | 11 | **,003** | **2,163** |

a. Predictors : (Constant), Cultural Dimension, Social Dimension, Economic Dimension
b. Dependent Variable: Local Development

The linear regression results show positive and significant relationships (F (3; 11) = 8.650, p ≤ 0.003). The model quality is satisfactory, as the three independent variables explain nearly half of the variance of the dependent variable expressed in the initial data, and the R-Squared coefficient is 0.702, indicating that the explanatory variables contribute 70.2% to the dependent variable's variability. This means that the economic, social, and cultural dimensions positively influence local development.

**Table 3:** ANOVAa Coefficient

| **Model** | **Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** |
|---|---|---|---|---|---|
| 1 Regression | ,560 | 3 | .187 | 8,650 | **,003[b]** |
| Residual | ,237 | 11 | .022 | | |
| Total | .797 | 14 | | | |

a. Dependent Variable: Local Development
b. Predictors : (Constant), Cultural Dimension, Social Dimension, Economic Dimension

**Source: SPSS Output**

The ANOVA test assesses the model's quality by comparing the sig with the acceptable threshold of 0.05. The results indicate that the model is highly significant, as the sig value (0.003) is significantly below 0.05. To test the formulated hypotheses, we used the standardized Beta regression coefficient analysis, the student t-test, and the significance test.

The linear regression coefficient results show that the economic dimension variable positively affects the local development variable, with a standardized Beta regression coefficient of 0.532, the highest student t-test value of 1.938, and a significance level of 0.079. The results for the second variable show that the social dimension variable has a positive and significant effect on local development, with a standardized Beta regression coefficient of 0.421, a student t-test value of 2.446, and a good significance level of 0.032. The third variable reveals that the cultural dimension variable negatively affects local development, with a standardized Beta regression coefficient of 0.096, a student t-test value of 0.352, and a poor significance level of 0.731, indicating the variable's negative contribution.

**Table 4:** Beta Coefficient and Student t-Test

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Standard Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | ,574 | ,267 | | 2,147 | ,055 | | |
| | Economic dimension | ,316 | ,163 | **,532** | **1,938** | **,079** | ,359 | **2,787** |
| | Social dimension | ,313 | ,128 | **,421** | **2,446** | **,032** | ,913 | 1,095 |
| | Cultural dimension | ,062 | ,177 | **,096** | **,352** | **,731** | ,364 | 2,745 |

a. Dependent Variable: Local Development

Source: SPSS Output

Based on the multiple regression test, the statistical test results allow us to validate hypotheses H.1 (The argan cooperatives subsidized by the INDH have a positive effect on local development via the economic dimension) and H.2 (The argan cooperatives subsidized by the INDH have a positive effect on local development via the social dimension). The test results for hypothesis H.3 allow us to reject the hypothesis (The argan cooperatives subsidized by the INDH have a positive effect on local development via the cultural dimension).

## DISCUSSION

In light of the obtained results, it appears that the surveyed argan cooperatives subsidized by the INDH tend to contribute to local development through the three dimensions: economic, social, and cultural. The practices related to the economic and social dimensions strongly explain local development.

This result summarizes several conclusions. After evaluating the level of association between the three dimensions (economic, social, and cultural) and local development through linear regression and variance analysis, the regression results show positive and significant relationships ($F(3; 11) = 8.650$, $p \leq 0.003$) with an explained variance of 70.2% for the dependent variable's variability.

Generally, cooperatives' participation in local development involves creating income-generating projects, combating unemployment by creating and improving job opportunities in the concerned territories. They also act as economic and social catalysts through active local cooperatives responding effectively to local development requirements by safeguarding resources, maintaining employment, and improving working conditions.

The study results show that argan cooperatives significantly contribute to local development in a dual perspective: economically by participating in the informal sector eradication and partially reducing unemployment, and socially by fighting poverty and social exclusion, empowering women, and improving the population's living conditions. These results align with Dafali et al. (2015), who affirm that cooperatives' active participation reduces unemployment in the region. They create significant job opportunities within the region, helping reduce unemployment and providing members with a substantial income source, allowing them to live dignified lives and be valuable in the region's economic and social fabric. Asserraji (2020) confirms that social enterprise leaders indirectly contribute to their anchoring territory's socio-economic promotion by employing young workers. Sustaining their economic activities helps entrepreneurs preserve sustainable employment and the socio-economic dynamics of their anchoring territory. These results also align with Veyer and Sangiorgio (2006), who state that local actors in enterprise creation, integration, or employment are social partners and organizations. The cooperative offers a complementary tool and different options to local project holders. Culturally, Touzard and Vandame (2009) argue that cooperatives need business management training and cooperative member life training. This sharing complements human wealth in a specific domain. Additionally, cooperatives have a culture of networking and sharing knowledge and skills, supporting young entrepreneurs' establishment in the territory, enhancing enterprise creation, and fostering local development.

## CONCLUSION

Social entrepreneurship is a true job generator and an effective means to address employment market deficits. It is a powerful key during socio-economic crises and declines. It also acts as an economic and social catalyst through active local cooperatives that effectively meet local development requirements by safeguarding resources, maintaining employment, and improving working conditions.

In conclusion, this work contributes to reinforcing the scientific and political understanding of the key role of cooperative forms of social entrepreneurship in local development. It highlights cooperatives' contributions to local society, economy, and culture. Based on a literature review, we formulated three hypotheses linking argan cooperatives subsidized by the INDH and local development through economic, social, and cultural dimensions. The rich literature allowed us to define the items for each variable and conduct various statistical tests. A quantitative method was adopted, administering a questionnaire to the 15 cooperatives studied. Using SPSS version 23, the collected data were analysed through principal component analysis and several tests (reliability, correlation, etc.), providing answers to our hypotheses. The results confirm the first two hypotheses (H1 and H2) and refute the third (H3). Economically, these entities help alleviate the informal sector and partially reduce unemployment. Socially, they are the main resource for reducing poverty and social exclusion and improving inhabitants' living conditions in their territories. Culturally, they receive business management and cooperative member life training, and knowledge and skill sharing.

## REFERENCES

Abdelbaki, N., & Zammar, R. (2018). Role of cooperatives in the local development of local products: Case of two cooperatives in the Draa-Tafilalet region. International Journal of Innovation and Applied Studies, 24(3), 942-951.

Alexandre, L. (2013). Social entrepreneurship and social innovation as unifying elements of innovation systems (pp. 99-115).

Asli, A., & Slitine, A. E. I. (2013). Social entrepreneurship in Morocco: Perception and development paths. Moroccan Journal of Management and Marketing Research, 8, Article 8.

Asserraji, P. A. (2020). Role of local production systems in local development construction: Case of industrial basins in Sidi Brahim, Fes, and Sidi Bouzekri, Meknes. Journal of Management and Economics, 8(1 & 2), 26-41.

Bacq, S., & Janssen, F. (2011). The multiple faces of social entrepreneurship: A review of definitional issues based on geographical and thematic criteria. Entrepreneurship & Regional Development, 23(5-6), 373-403.

Boucher, J. L., & Favreau, L. (2001, July). Local development, community organization, and social economy: A review of the literature. Center for Social Innovation Research.

Boutillier, S. (n.d.). Social entrepreneurship and sustainable development: What prospects. Journal of Management and Economics, 8(1 & 2), 26-41.

Dafali, S., Rhabra, S., & Elouatik, E. (2015). Analysis of cooperatives' contribution to socio-economic development: Case of the Taroudant region.

Dardour, A. (2012). Economic models in social entrepreneurship: Proposal for an integrative model. Management Science Review, 255-256(3), 49-57.

Dees, J. G. (2018). The meaning of social entrepreneurship. In J. Hamschmidt & M. Pirson (Eds.), Case Studies in Social Entrepreneurship and Sustainability (1st ed., pp. 22-30).

Defourny, J., & Nyssens, M. (2012). Conceptions of social enterprise in Europe: A comparative perspective with the United States. In B. Gidron & Y. Hasenfeld (Eds.), Social Enterprises: An Organizational Perspective (pp. 71-90). Palgrave Macmillan UK.

Diop, A. (2008). Local development, territorial governance: Issues and perspectives. KARTHALA Editions.

Doucet, L., & Favreau, L. (2011). Theory and practices in community organization. PUQ.

Drissi, S., & Angade, K. (2017). Crowdfunding financing: What contribution to social entrepreneurship? Case of the Souss Massa region (Morocco). Journal of Management, Accounting, and Auditing, 1(3), Article 3.

Filippi, M., Frey, O., & Mauget, R. (2008). Agricultural cooperatives face internationalization: Lessons from Latin America. Journal of Rural Studies, 8(1), 26-41.

Halaissi, M. E., & Boumkhaled, M. (2018). Social entrepreneurship: Towards a definition. Journal of Management, Accounting, and Auditing, 2(3), Article 3.

Houée, P., & Dia, M. (2001). Local development facing globalization challenges.

Klein, J.-L. (2006). From local initiative to territorial development: A synthetic perspective. In Inequalities, Democracies, and Development (pp. 143-164).

Koulytchizky, S. (2006). The place of the social economy in constructing general interest based on local initiative: The "countries" in France. International Journal of Social Economy: RECMA, 302, 67.

Landel, P.-A., & Senil, N. (2008). New territories and their names between project and competitiveness: The case of "rural excellence centers." Political Space. Online Journal of Political Geography and Geopolitics, 5, Article 5.

Louizi, K. (1998). Projects and actor logics: The dilemmas of collective action evaluation. Socio-economy of Territories: Experiences and Theories, 115-127.

Mengin, J. (2004). Approaches to social economy and local development: Franco-Quebec colloquium. Social Economy and Local Development.

OECD (2010). "Social Entrepreneurship and Social Innovation" in SMEs, Entrepreneurship and Innovation, OECD Publishing, Paris. https://doi.org/10.1787/9789264080355-50-en

Pecqueur, B., & Itçaina, X. (2012). Social and solidarity economy and territory: A natural couple? RECMA, 325(3), 48-64.

Roberts, D., & Woods, C. (2005). Changing the world on a shoestring: The concept of social entrepreneurship.

Touzard, J.-M., & Vandame, R. (2009). The cooperative as a sustainable development tool: The case of beekeeping cooperatives in Mexico and Guatemala. International Journal of Social Economy: RECMA, 313, 36.

Tribak, A., Lara, E. L., Bonilla, M. J. M., & Laaouane, M. (n.d.). TOURIST ACTIVITIES AND SUSTAINABLE DEVELOPMENT IN A SPACE.

Vernières, M. (n.d.). The contribution of heritage to local development: Issues and measurement limits.

Veyer, S., & Sangiorgio, J. (2006). Collective entrepreneurship as a product and project of epistemic enterprises: The case of Activity and Employment Cooperatives.

Zahra, S., Gedajlovic, E., Neubaum, D., & Shulman, J. (2013). Social Entrepreneurship.

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# The Impact of Social Responsibility on the Mental Image of Organizations

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**ABSTRACT**

In times when social responsibility forms the basis of organizational success, how institutions are perceived by their stakeholders has never been more critical. This study explores how economic, legal, and moral responsibilities influence the mental image of organizations among students in Jordanian private universities. Students, being future professionals and a force of discerning consumers, hold special insights into how organizations' socially responsible actions impact their reputation. Guided by the principles of social responsibility, this research applies a quantitative approach using structural equation modeling for the analysis of data collected from students. The results show that the economic responsibilities of an organization, directed at financial stability and contributing to society, come up as the most significant factor in shaping its mental image. In the same breath, moral responsibility, which covers ethical conduct and values, comes out as the most relevant, underlining the increasing relevance of ethics in how students relate to organizations. Legal responsibility, though important, shows a more tempered impact, outlining how organizations need to follow the law to stay in good repute. These results highlight the new expectations of Jordanian youth, where profitabil-ity must be coupled with ethical commitment if an organization is to achieve a long-term positive reputation. Given the nature of such multidimensional expecta-tions, during which organizations seek to redefine themselves in pursuit of these challenging expectations, the contribution of this study becomes valuable within the context of how balancing economic performance with legal and moral integri-ty yields a more salient mental image for the promotion of long-term success and the improvement of trust among a new generation of stakeholders.

***Keywords:***
*Corporate Social Responsibility, Mental Image, Private Universities, Jordan.*

## INTRODUCTION

The association of social responsibility in institutions with moral and human values has made it one of the reasons for the success and dis-tinction of these companies, and that social responsibility has clear ef-fects in providing these companies with services and societal necessi-ties, thereby achieving the welfare of society and achieving the growth and prosperity of the company with its community work, in addition to supporting its goals in a way that distinguishes the company itself in the competitive market and keeps its positive mental image firmly in the minds of all parties, according to the opinion of many researchers who linked social responsibility to the mental image, which necessarily af-fects the growth of the company and its survival in the market for a long period of time (Al-Adamat et al., 2023a). The company's interest in social responsibility and giving it its due with conscience and con-science helped the company advance and rise, which benefits society, its customers, and other external parties, including the surrounding en-vironment (Al-Azzam et al., 2023).

According to the above, companies and institutions have sought to study the mental image taken from them and work to maintain the posi-tive mental image and even improve it. This can only be achieved by these companies working to achieve and implement their social respon-sibility, and thus it is reflected in the mental image, which has become one of the most important goals of competitive companies in light of the globalization of the economy and technological progress and mov-ing away from old competitive images such as achieving profits and returns with deliberate neglect of any responsibility and moving away from

investment aspects that stimulate social principles (Al-Adamat et al., 2023b).

In light of such globalization and competition, researchers agreed on the necessity of investing in all initiatives that would serve social re-sponsibility (Al-Hawary & Al-Syasneh, 2020). This led to many com-petitive companies introducing into their economic activities a group of supportive and environmental social activities and providing time and money for projects that serve the local community in which they oper-ate, in addition to the contribution of more than two-thirds of these competitive companies in charitable works, in addition to interest in training employees and providing assistance, as this social responsibility has an impact on the welfare and development of society on the one hand, and on the other hand, obtaining employee satisfaction and bene-fit for all parties. In this study, light was shed on the nature of social responsibility and the role of this responsibility in building and forming a positive mental image.

## LITERATURE REVIEW

### Corporate Social Responsibility

Since 1950, the concept of social responsibility has emerged, and this concept is in continuous development and updating for any company seeking progress and growth (Al-Alwan et al., 2022a). This develop-ment was noticeable in the last decade, after which business organiza-tions began to establish the concept of social responsibility in their stra-tegic management and issue social reports to stakeholders and related parties (Aityassine et al., 2021). Under different names for this social responsibility, several concepts emerged, including social accountability (Corporate Accountability), business ethics (Corporate Ethics), organi-zational citizenship (Corporate Citizenship), and organizational obliga-tions (Corporate Obligations) (Mohammad et al., 2023a). In the early twenties of the twentieth century, Sheldon stated that every company must define its responsibility through its social performance and the statement of the benefit achieved for society (Al-Hawary et al., 2020). Business organizations began to respond by instilling the concept of social responsibility in their work, and rules and laws were established that impose, obligate, and emphasize social performance (Mohammad et al., 2023b). These companies had no choice but to commit to working with this social responsibility.

We should not forget that in the twentieth century, the Islamic think-er Kutieshat et al. (2024) declared a statement based on the first princi-ple, which is benevolence, which means in the Islamic religion that the more fortunate individuals should help the less fortunate individuals in society by meeting their needs in their local community. As for the sec-ond principle, which is the principle of guardianship, which means that companies and wealthy individuals should act as agents or trustees not only of the financial resources of their shareholders but also of the eco-nomic resources of society, and that their properties should serve the interests of society (Khodeer et al., 2023). Due to the different ap-proaches to the concept of social responsibility and its interpretations, Bani-Hani et al. (2023) defined corporate social responsibility as “the controls and commitments that companies undertake to improve and raise the welfare of society, and this comes through discretionary busi-ness practices and contributions from the company’s own resources.”

The Organization for Economic Co-operation and Development also added the concept of social responsibility as a company's commitment to contribute to the economic development of society while preserving the environment and working side by side with workers and their fami-lies within the local community and society in general, aiming to im-prove the quality of life for all these parties (Lemoun et al., 2023). This definition is broad while trying to collect a number of areas that include corporate social activities, as Masadeh et al. (2024) listed it as "all vol-untary strategies and programs by companies that combine issues of social and commercial value and are seen as an integral part of corporate social responsibility." This study addressed the following dimensions of social responsibility:

Economic Responsibility: All business companies are huge economic institutions that produce goods and services capable of satisfying the needs and desires of the market, providing job opportunities, obtaining the necessary raw materials, and improving the quality of products (Na-rayan et al., 2012). Legal Responsibility: These are obligations imposed on companies and include a set of laws and regulations in force in the environment in which the company operates. This dimension includes environmental protection, occupational safety, justice, and consumer protection laws. Companies must respect and abide by these laws and regulations, which will result in the advancement of society and its well-being (Gustafsson et al., 2023).Moral responsibility: Changes in ethics and values must precede the creation of laws because they are the driving force behind the enactment of many laws and regulations. They are viewed as the foundation upon which values and norms are built, which are consistent with what society expects from institutions. These values must reflect a higher level than what the law requires (McIner-ney, 2024).

### Mental Image

The mental image is defined as the distinctive place or position that the company occupies in the minds of people (Ghaith et al., 2023). This mental image may be formed as a result of people’s direct or indirect experience with the company. It may be rational or irrational (emotion-al). This mental image may be formed as a result of correct and reliable evidence and documents or based on rumors and statements that are somewhat doubtful, but in the end, it may represent a true reality for people who believe in this image (Al-Fakeh et al., 2023).

Al-Husban et al. (2023) confirms that it is important for the company to be distinguished from other competing companies so that it can maintain its competitive position in the market, especially in the current circumstances that companies are experiencing, which is called (globali-zation). Here we are talking about companies that provide the same ser-vices, such as banks and airlines, which provide services characterized by stereotypes, so that companies can distinguish themselves from each other and so that they

can possess a unique competitive advantage.

Alzboon et al. (2024) says that companies should build a mental im-age that focuses on the difference in terms of service, speed of delivery, reliability, and safety. As for Al-Tit et al. (2024) say that the mental image of companies is considered one of the intangible resources in the company that supports and enhances the continuity of the competitive advantage that the company possesses. Al-Adamat et al. (2023) view the mental image as one of the strategic assets that lead to the creation of a competitive advantage and an encouraging environment for the company's survival and development. There are many writers who use the terms mental image and fame as two similar terms, while many writers have argued that there is a difference between the two terms, as mental image, from their point of view, may include negative meanings and be far from truth, reality, and maintenance.

**Corporate Social Responsibility and Mental Image**

Studies have proven that performing the role of corporate social respon-sibility increases profits and production and reduces tendencies and differences between management, employees, and the communities with which they deal, which leads to the affiliation of employees and beneficiaries of these companies (Dalky et al., 2023). Then, many com-panies and leaders began to compete and desire social participation with the aim of serving society and presenting human and ethical roles with the aim of development and participation in public work, not isolated from society, countries, and their goals.

Companies have realized the importance of social participation (social responsibility) and the impact it has on their profitability, prosperity, growth, and sustainability as they play their role and activity towards their employees and their level of well-being, the local community, the surrounding environment, and then the entire society (Aldaihani et al., 2023). There has also been more emphasis on the value of corporate social responsibility and society, in addition to the great value of what social responsibility provides to society, which contributes to presenting a positive image of the company or institution from which this respon-sibility stems (Al-Fakeh et al., 2023). Employee and customer satisfac-tion and many other factors are taken into consideration when measur-ing the extent of business success and excellence

Social responsibility also contributes to improving the company's rep-utation in terms of efficiency in performance and service delivery. All of these matters help to present a positive image of the organization, thus increasing the trust between companies and stakeholders and the level of transparency with which they deal with beneficiaries (Al-Fugaha et al., 2023). In addition to attracting competent employees, companies' commitment to their responsibility towards the community in which they operate makes them attract distinguished employees and workers, especially for large local companies that operate in specialized fields and use modern technology at the level of international compa-nies. Social responsibility also contributes to increasing sales and in-creasing the level of consumer loyalty when the consumer seeks not only high quality and safety of the product but also hopes that it will be safe, with his confidence that the purchased goods were produced in a socially and environmentally responsible manner.Accordingly, the con-ceptual model of research can be expressed in Figure 1.

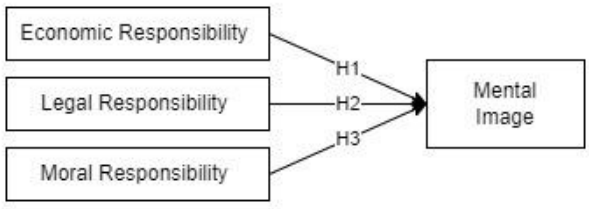


Fig. 1.Research Model

For the research purposes, the authors developed the following hy-potheses to investigate the effect of corporate social responsibilityon mental image:

H1: Economic responsibility has a positive impact onmental image.

H2: Legal responsibility has a positive effect on mental image.

H3: Moral responsibility has a positive effect on mental image.

**METHODOLOGY**

A positivist research philosophy was used to assess how corporate so-cial responsibility affected students' perceptions of themselves in Jor-dan's private universities. This philosophy assesses social phenomena and the causes behind their creation using an empirical evidence-based scientific method (Al-hawajreh et al., 2023a). While positivist theory advocates for longitudinal designs for gathering data, it also acknowl-edges that cross-sectional designs can be used to get around restrictions on research (Al-hawajreh et al., 2023b). Therefore, in order to get around the research's time and budgetary restrictions, a cross-sectional design was adopted in this study. Furthermore, a quantitative data ap-proach was used to evaluate the causal relationship between the re-search variables. Two primary sources provided the information used here. Whereas the secondary source is an extensive analysis of the per-tinent literature, which includes books, manuscripts, and published re-ports, the primary source is a quantitative survey.

The demographic that the current study focused on included students attending private universities in Jordan. An extensive survey was not feasible due to the size of the research population. Consequently, a min-imum sample size of 385 valid responses was chosen when applying the convenience sampling approach. 630 members of the target population received the research instrument

as a result, in order to ensure sufficient sampling in accordance with the guidelines of (Al-Husban et al., 2023a). The responses to the research instrument were 470 responses. These responses included 10 incomplete responses and 35 with a typical bias in the response, which led to their removal from the research sam-ple. Accordingly, the final research sample included 425 responses, which is 67.4% of the total sent.

A standardized self-reporting questionnaire was used in the research data collection process. The target sample was emailed the electronic form created with Google Forms, and they were invited to reply be-tween April 17 and July 31, 2024. Reverse translation was used to con-vert items from English literature into Arabic for the questionnaire (Al-Husban et al., 2023b). In addition, there were three primary sections and an introduction outlining the goals of the study as well as the re-searchers' responsibilities regarding confidentiality and research ethics. The first section of the instrument included demographic data, which are categorical variables that define the demographic characteristics of the sample. The second section was for items on corporate social re-sponsibility, the independent variable, measured by 15 items derived from (Alkayed & Omar, 2023). These items are distributed into three first-order constructs: economic responsibility (five items), legal respon-sibility (five items), and moral responsibility (five items). The last sec-tion was devoted to mental image, the dependent variable, which was measured through six items consistent with (Chen et al., 2024).

## RESULTS

Before testing the hypotheses through the structural model, the validity and reliability of the research measures were verified using confirmato-ry factor analysis (CFA). CFA is an integral part of structural equation modeling used to assess the degree of fit between the observed varia-bles and the hypothesized factor model consisting of latent variables (Al-Husban et al., 2023a). Table 1 lists the results of the confirmatory factor analysis of the corporate social responsibility and mental image measures.

| Constructs | Items | Loadings | AVE | MSV | √AVE | CR |
|---|---|---|---|---|---|---|
| Economic Responsibility | ER1 | 0.703 | 0.511 | 0.429 | 0.715 | 0.839 |
| | ER2 | 0.788 | | | | |
| | ER3 | 0.634 | | | | |
| | ER4 | 0.714 | | | | |
| | ER5 | 0.728 | | | | |
| Legal Responsibility | LR1 | 0.727 | 0.557 | 0.419 | 0.746 | 0.863 |
| | LR2 | 0.736 | | | | |
| | LR3 | 0.742 | | | | |
| | LR4 | 0.753 | | | | |
| | LR5 | 0.772 | | | | |
| Moral Responsibility | MR1 | 0.731 | 0.592 | 0.437 | 0.769 | 0.879 |
| | MR2 | 0.766 | | | | |
| | MR3 | 0.792 | | | | |
| | MR4 | 0.814 | | | | |
| | MR5 | 0.741 | | | | |
| Mental Image | MI1 | 0.721 | 0.559 | 0.488 | 0.748 | 0.883 |
| | MI2 | 0.830 | | | | |
| | MI3 | 0.719 | | | | |
| | MI4 | 0.674 | | | | |
| | MI5 | 0.822 | | | | |
| | MI6 | 0.707 | | | | |

The factor loadings on the first-order latent constructs were found to range between 0.634 and 0.830, according to Table 1's results. Retention of the observed variables in the measurement model is based on loading values over the 0.50 threshold, which is seen as an indicator of a reasonable degree of link between the observed variables and their latent construct. Convergent validity was attacked using the average variance extracted (AVE). The indicator's results show that the values for the measures of mental image and corporate social responsibility were higher than the permissible minimum of 0.50. Consequently, it was determined that the measures had sufficient convergent validity.

The Heterotrait-Monotrait ratio of correlations (HTMT) comparisons were used to estimate discriminant validity. Comparative analyses revealed that AVE was higher than the constructs' maximum shared variance (MSV), which is regarded as preliminary evidence of discriminant validity (Al-Alwan et al., 2022b). By contrasting the square root values of AVE with the correlations between the components, these findings were demonstrated. This comparison's findings demonstrated that the square root values

of AVE were higher than the correlation coefficient values, proving beyond a shadow of a doubt that the latent constructs capture heterogeneous notions. Conversely, the measures' reliability was evaluated using the composite reliability (CR), which was determined by McDonald's Omega coefficients in accordance with Haija et al. (2023). According to the findings, the CR values were higher than the suggested threshold of 0.70, falling between 0.839 and 0.883 (Bani-Hani et al., 2023). The research measures were deemed valid and trustworthy in light of these findings.

Formulating the structural model and determining the impact coefficients between the corporate social responsibility conceptions and mental image constituted the next stage of the analysis. SEM is a sophisticated analytical technique that aids in examining the causal relationship between the latent components by assessing the trajectories of the hypotheses and emphasizing the goodness-of-fit indicators, as shown in Figure 2.

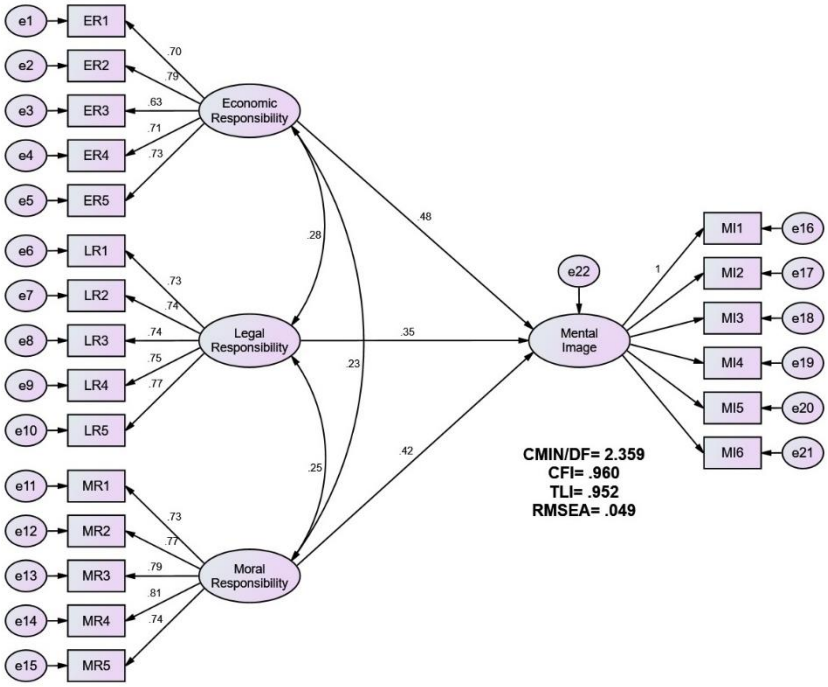


**Fig. 1.**SEM of Corporate Social ResponsibilityonMental Image.

The findings in Figure 2 demonstrate how the structural model of the study was assessed using two different kinds of goodness-of-fit indicators. Appropriate values were indicated by the absolute fit indices. It did not exceed the top limit of 0.08, as indicated by the root mean square error of approximation (RMSEA) of 0.049. Furthermore, as the pro-posed model did not meet the upper threshold of 3, the ratio of chi-square to degrees of freedom (CMIN/DF) was 2.359, indicating that it is compatible with the data employed. Values with appropriate degrees of fit were also indicated by the incremental fit indices. The Tucker-Lewis index (TLI) was 0.952 and the comparative fit index (CFI) was 0.960. An appropriate level of agreement between the suggested model and the null model is indicated by the values of these indices, which are greater than the 0.90 threshold. Therefore, the thorough assessment of the structural model indicated a suitable degree of fit, allowing us to move forward with the analytical steps and derive the impact coefficients provided in Table 2.

Table 1.Path Coefficients: Corporate Social Responsibility and Mental Image.

| | | | B | β | S.E. | T |
|---|---|---|---|---|---|---|
| Economic Responsibility | → | Mental Image | 0.490 | 0.476 | 0.072 | 6.80*** |
| Legal Responsibility | → | Mental Image | 0.364 | 0.351 | 0.078 | 4.66** |
| Moral Responsibility | → | Mental Image | 0.438 | 0.424 | 0.071 | 6.16*** |

**Note:** * $p< 0.05$, ** $p< 0.01$, *** $p< 0.001$.

The research hypotheses argued that there is an impact of corporate social responsibilityon mental image, as the results of the path analysis showed support for these hypotheses.Economic responsibility had a positive impact on mental image, as the standardized effect coefficient (β) was 0.476, which is statistically significant ($p < 0.001$).Moreover, moral responsibility had a positive impact on mental image, as the standardized effect coefficient (β) was 0.424, which is statistically significant ($p < 0.001$).Finally, legal responsibility had a positive impact on mental image, as the standardized effect coefficient (β) was 0.351, which is statistically significant ($p < 0.01$).

## DISCUSSION

The results of the study showed that there is an impact of the dimen-sions of social responsibility in building the mental image of the compa-ny, and measuring the extent of success and excellence of business or-ganizations can only be done through a set of

factors such as employee and customer satisfaction and others (Al-Shaikh et al., 2023). Social responsibility also contributes to enhancing and improving the reputa-tion of the institution in terms of efficiency in performance and provid-ing services capable of meeting market needs. This in turn helps to pre-sent a positive mental image of the company, which results in increasing trust between companies and stakeholders as well as the parties benefit-ing from the company's services (Al-serhan et al., 2023). Based on what the studies have provided, it has been shown that if companies adopt the concept of social responsibility, this will result in increased profits and productivity, and reduce conflicts and differences between man-agement and employees on the one hand, and the community surround-ing the company on the other hand, which is reflected in the affiliation of its employees and raising their loyalty, as well as the parties benefit-ing from the company, which has also been reflected in many competi-tive companies and their managements and created in them the ambi-tion for social participation, aiming to serve their communities and play a humanitarian and ethical role that enhances development and partner-ship in work, and that it is not isolated from the international communi-ty and its goals.

## REFERENCES


Aityassine, F., Aldiabat, B., Al-rjoub, S., Aldaihani, F., Al-Shorman, H., & Al-Hawary, S. (2021). The mediating effect of just in time on the relationship between green supply chain management practices and performance in the manufacturing companies. Uncertain Supply Chain Management, 9(4), 1081-1090.

Al-Adamat, A. M., Almaseid, M. O., Alserhan, A. F., Alrfai, M. M., Al-Husban, N. A., Aldaihani, F. M. F., ... & Al-Hawary, S. I. S. (2023a). Impact of Digital Marketing Tools on Customer Interactions in Jordanian Telecommunications Companies. In Emerging Trends and Innovation in Business and Finance (pp. 61-74). Singa-pore: Springer Nature Singapore.

Al-Adamat, A. M., KassabAlserhan, M., Mohammad, L. S., Singh, D., Al-Hawary, S. I. S., Mohammad, A. A. S., &Hunitie, M. F. A. (2023b). The Impact of Digital Market-ing Tools on Customer Loyalty of Jordanian Islamic Banks. In Emerging Trends and Innovation in Business and Finance (pp. 105-118). Singapore: Springer Na-ture Singapore.

Al-Alwan, M., Al-Nawafah, S., Al-Shorman, H., Khrisat, F., Alathamneh, F., & Al-Hawary, S. (2022a). The effect of big data on decision quality: Evidence from telecommunication industry. International Journal of Data and Network Sci-ence, 6(3), 693-702.

Al-Alwan, M., Bader, D., Al-Qatawneh, M., Alneimat, S., & Al-Hawary, S. (2022b). E-HRM and employee flexibility in Islamic banks in Jordan. International Journal of Data and Network Science, 6(3), 703-710.

Al-Azzam, M. A. R., Alrfai, M. M., Al-Hawary, S. I. S., Mohammad, A. A. S., Al-Adamat, A. M., Mohammad, L. S., ... & Al-hourani, L. (2023). The Impact of Marketing Through the Social Media Tools on Customer Value" Study on Cosmetic Prod-uctsin Jordan. In Emerging Trends and Innovation in Business and Finance (pp. 183-196). Singapore: Springer Nature Singapore.

Aldaihani, F. M. F., Abu-Romman, S. A. T., Mohammad, A. A. S., Alserhan, A. F., Khodeer, S. M. D. T., Alrfai, M. M., ... & Al-Hawary, S. I. S. (2023). Determining the Dimensions of Electronic Customers' Relationship Management in Jordanian Insurance Companies. In Emerging Trends and Innovation in Business and Fi-nance (pp. 3-19). Singapore: Springer Nature Singapore.

Al-Fakeh, F. A. A., Al-Shaikh, M. S., Al-Hawary, S. I. S., Mohammad, L. S., Singh, D., Mohammad, A. A. S., ... & Al-Safadi, M. H. (2023). The Impact of Integrated Marketing Communications Tools on Achieving Competitive Advantage in Jor-danian Universities. In Emerging Trends and Innovation in Business and Fi-nance (pp. 149-165). Singapore: Springer Nature Singapore.

Al-Fugaha, Z. N. A., Al-Husban, N. A., Al-Hawary, S. I. S., Abuaisheh, S. F. Y., Al-Tarazi, D., Mohammad, A. A. S., ... & Al-Adamat, A. M. (2023). Does Electronic Human Resource Management Matter for Workforce Agility? An Empirical Study of the Jordanian Banking Sector. In Emerging Trends and Innovation in Business and Finance (pp. 379-391). Singapore: Springer Nature Singapore.

Al-hawajreh, K. M., Al-Nawaiseh, A. R., Dalky, A. F., Al-fugaha, Z. N. A., Lemoun, A. A. A., Aladwan, S. I., ... & Al-Hawary, S. I. S. (2023a). The Impact of Diversity of Human Resource on the Quality of Work-Life. In Emerging Trends and Innova-tion in Business and Finance (pp. 441-457). Singapore: Springer Nature Singa-pore.

Al-hawajreh, K. M., Al-Rowashdeh, Z., al-fugaha, Z., Alqahtani, M., Dalky, A., Alserhan, A. F., ... & Al-Hawary, S. I. S. (2023b). The Role of Public Policy Making in the Strategic Performance According to the Balanced Scorecard Model. In Emerging Trends and Innovation in Business and Finance (pp. 229-243). Singapore: Springer Nature Singapore.

Al-Hawary, S. I. S., Mohammad, A. S., Al-Syasneh, M. S., Qandah, M. S. F., & Alhajri, T. M. S. (2020). Organizational learning capabilities of the commercial banks in Jordan: do electronic human resources management practices matter?. Interna-tional Journal of Learning and Intellectual Capital, 17(3), 242-266.

Al-Hawary, S. I., & Al-Syasneh, M. S. (2020). Impact of dynamic strategic capabilities on strategic entrepreneurship in presence of outsourcing of five stars hotels in Jordan. Business: Theory and Practice, 21(2), 578-587.

Al-Husban, N. A., Dalky, A. F., Mohammad, A. A. S., Al-Hawary, S. I. S., Ghaith, R. E. A., Singh, D., ... & Al-Khaldi, S. S. (2023a). The Impact of Emotional Intelligence on Marketing Performance. In Emerging Trends and Innovation in Business and Finance (pp. 135-147). Singapore: Springer Nature Singapore.

Alkayed, H., & Omar, B. F. (2023). Determinants of the extent and quality of corporate social responsibility disclosure in the industrial and services sectors: the case of Jordan. Journal of Financial Reporting and Accounting, 21(5), 1206-1245.

Al-serhan, A. F., Al-Qasem, M. M., Mohammad, A., Khodeer, S. M. D., Aldaihani, F., Al-Adamat, A. M., ... & Al-Fakeh, F. A. A. (2023). Effect of Customers Green Con-sciousness on Customers Purchase Intention: A Field Study on Green Technology (Home Appliances). In Emerging Trends and Innovation in Business and Fi-nance (pp. 273-284). Singapore: Springer Nature Singapore.

Al-Shaikh, M. S., Mohammad, S. A., Al-Hawary, S. I. S., Mohammad, L. S., Abuaisheh, S. F. Y., Ghaith, R. E. A., ... & Al-Fakeh, F. A. A. (2023). The Role of Digital Public Relations in Improving the Mental Image. In Emerging Trends and Innovation in Business and Finance (pp. 213-227). Singapore: Springer Nature Singapore

Al-Tit, A.A., Al-Hawary, S.I.S., Abu Hilal, S.I., Almajali, R.M., Masadeh, M., Kutieshat, R.J., Vasudevan, A., Al sarayreh, A., Mohammad, A.A (2024). Impact of Digital human Re-courses Management on Innovation of Technological Industries in Jordan. In: Musleh Al-Sartawi, A.M.A., Ghura, H. (eds) ARTIFICIAL INTELLIGENCE, SUSTAINABLE TECHNOLOGIES, AND BUSINESS INNOVATION: OPPORTUNITIES AND CHALLENGES OF DIGITAL TRANSFORMATION. STUDIES IN COMPUTATIONAL INTELLIGENCE. Springer, Cham. Forthcoming.

Alzboon, M.S., Al-Shorman, H.M., Alka'awneh, S.M., Saatchi, S.G., Alqaraleh, M.K., Samara, E.I., Abdel Wahed, M.K., Al-Hawary, S.I.S., Al-Momani, A., Abu Haija, A.A.(2024). The Role of Perceived Trust in Embracing Artificial Intelligence Technologies: Insights from SMEs. In: Hannoon, A., and Mahmood, A. (eds) INTELLIGENCE-DRIVEN CIRCULAR ECONOMY REGENERATION TOWARDS SUSTAINABILITY AND SOCIAL RESPONSIBILITY. STUDIES IN COMPUTATIONAL INTELLIGENCE. Springer, Cham. Forthcoming (2024).

Bani-Hani, F. A., Alserhan, A. F., Aldaihani, F. M. F., Haija, A. A. A., Alrfai, M. M., Khodeer, S. M. D. T., ... & Al-Fakeh, F. A. A. (2023). Impact of Social Customer Relationship Management on Sustainable Competitive Advantage of Commer-cial Banks in Jordan. In Emerging Trends and Innovation in Business and Fi-nance (pp. 119-133). Singapore: Springer Nature Singapore.

Chen, C., Lee, S., Jang, E., & Sundar, S. S. (2024, September). Is Your Prompt Detailed Enough? Exploring the Effects of Prompt Coaching on Users' Perceptions, En-gagement, and Trust in Text-to-Image Generative AI Tools. In Proceedings of the Second International Symposium on Trustworthy Autonomous Systems (pp. 1-12)

Dalky, A. F., Haija, A. A. A., Al-Hawary, S. I. S., Mohammad, A. A. S., Mohammad, L. S., Abuaisheh, S. F. Y., ... & Al-Tarazi, D. (2023). Talent Management Practices and Corporate Entrepreneurship: An Evidence from Emerging Market. In Emerging Trends and Innovation in Business and Finance (pp. 245-258). Sin-gapore: Springer Nature Singapore.

Ghaith, R. E. A., Al-Hawary, S. I. S., Mohammad, L. S., Singh, D., Mohammad, A. A. S., Al-Adamat, A. M., ... &Alqahtani, M. M. (2023). Impact of Artificial Intelligence Technologies on Marketing Performance. In Emerging Trends and Innovation in Business and Finance (pp. 49-60). Singapore: Springer Nature Singapore.

Gustafsson, M. T., Schilling‐Vacaflor, A., & Lenschow, A. (2023). Foreign corporate accountability: The contested institutionalization of mandatory due diligence in France and Germany. Regulation & Governance, 17(4), 891-908.

Haija, A. A. A., Al-Fugaha, Z. N. A., Al-Hawary, S. I. S., Mohammad, L. S., Mohammad, A. A. S., Al-Tarazi, D., ... & Al-Adamat, A. M. (2023). Does Entrepreneurial Orien-tation Matter in Corporate Ambidexterity: A Study of the Banking Sector in Jor-dan. In Emerging Trends and Innovation in Business and Finance (pp. 393-403). Singapore: Springer Nature Singapore.

Khodeer, S. M. D. T., Al Sheyab, H. M., Al-Adamat, A. M., Hunitie, M. F. A., Al-Fakeh, F. A. A., Alserhan, A. F., ... & Al-Hawary, S. I. S. (2023). Impact of Social Media Marketing on Electronic Word of Mouth: A Study of Jordanian Private Universi-ties. In Emerging Trends and Innovation in Business and Finance (pp. 75-88). Singapore: Springer Nature Singapore.

Kutieshat, R.J., Al sarayreh, A., Masadeh, M., Al-Hawary, S.I.S., Abo Keir, M.Y., Al-Tit, A.A., Abueid, A.I., Vasudevan, A., Mohammad, A.A.(2024) Entrepreneurial Mindset and Busi-ness Growth: An Empirical Investigation of High-Growth Startups. In: Hannoon. A, and Reyad, S. (eds) FRONTIERS OF HUMAN CENTRICITY IN THE ARTIFICIAL INTELLIGENCE-DRIVEN SOCIETY 5.0. STUDIES IN SYSTEMS, DECISION AND CONTROL. Springer, Cham. Forthcoming .

Lemoun, A. A. A., Dellagi, H., Alrfai, M. M., Al-hawajreh, K. M., Al-Nawaiseh, A. R., Dalky, A. F., ... & Al-Hawary, S. I. S. (2023). The Impact of Transformational Leadership on Quality of Work-Life. In Emerging Trends and Innovation in Business and Finance (pp. 459-472). Singapore: Springer Nature Singapore.

Masadeh, M., Al-Hawary, S.I.S., Aburub, F.A., Vasudevan, A., Al-Momani, A., Singh, D., Jahmani, K., Aldaihani, F.M., Al-Adamat, A.M.(2024). The Big Data Journey: Mapping the Path of Adoption Through Bibliometric Analysis. In: Hannoon. A, and Reyad, S. (eds) FRONTIERS OF HUMAN CENTRICITY IN THE ARTIFICIAL INTELLIGENCE-DRIVEN SOCIETY 5.0. STUDIES IN SYSTEMS, DECISION AND CONTROL. Springer, Cham. Forthcoming.

McInerney, T. F. (2024). Covid-19, State Effectiveness, and Core Values of Political Morality. Law and Development Review, 17(2), 303-330.

Mohammad, A. A. S., Al-Qasem, M. M., Khodeer, S. M. D. T., Aldaihani, F. M. F., Alserhan, A. F., Haija, A. A. A., ... & Al-Hawary, S. I. S. (2023a). Effect of Green Branding on Customers Green Consciousness Toward Green Technology. In Emerging Trends and Innovation in Business and Finance (pp. 35-48). Singa-pore: Springer Nature Singapore.

Mohammad, A. A. S., Barghouth, M. Y., Al-Husban, N. A., Aldaihani, F. M. F., Al-Husban, D. A. A. O., Lemoun, A. A. A., ... & Al-Hawary, S. I. S. (2023b). Does Social Media Marketing Affect Marketing Performance. In Emerging Trends and Innovation in Business and Finance (pp. 21-34). Singapore: Springer Nature Sin-gapore.

Narayan, P. S., Lal, N. K., Dutta, A., Mehta, T., Majumdar, A., Madhavan, A., ... & Sheel, R. (2012). Corporate social responsibility: Practice, theory, and challenges. Vikalpa, 37(2), 73-116.