

APPLYING SUSTAINABLE DEVELOPMENT GOALS, NON-FUNGIBLE TOKENS, BLOCKCHAIN, AND WEB3 TECHNOLOGY FOR EVENT MANAGEMENT WITH IMPACTS

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Abstract

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This paper aims to explore the key elements of transformative leadership skills of women servants to accelerate and impact activities related to the Sustainable Development Goals (SDGs). Content analysis and qualitative interviews with case research on applying the latest technology with distributed trust networks to provide traceability in science, technology, engineering, mathematics (STEM), and sports event management in Hong Kong for primary and secondary school students were conducted in April-July 2024. The attributes of transformative leadership of women servants with innovative ways to track students' sports competition are seldom studied for improving the quality services of sports and STEM service providers in the post-COVID-19 periods. According to the results, it is expected to have an ongoing study on innovative and sustainable ways of applying transformative leadership of women servant leadership with non-fungible tokens (NFT) and blockchain application in SDGs via strengthening the partnership of academia, researchers, business, and industry with SDGs and NFT community projects for sustainable development (SD).

Keywords: Sustainable Development, Servant Leadership, Transformation, SDGs

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1. INTRODUCTION

A sustainable development (SD) mindset with servant leadership has been mentioned in past studies for transformations. Under COVID-19, there is a need for new ways of committed organizations to provide professional services, for example, business-related training services with United Nations Sustainable Development Goals (UN SDGs) and environmental, social, and governance (ESG). Digital art-related business services may be a future

area for the education sector too. It is time to explore attitudes, skills, and values needed for a professional business servant leader to re-design workflow with transformations and services with innovations for driving economic growth.

Based on the 75th Session of the Economic and Social Commission for Asia and the Pacific (ESCAP 75) meeting in May 2019¹, it is realised that several representatives considered South-South cooperation as an effective means of exchanging

¹ <https://www.unescap.org/events/commission75>

good practices to accelerate the implementation of the SDGs. In order to facilitate SDG 4.7 and 4c knowledge transfer on teacher education/training, especially in schools of business, it is time to rethink the key elements of a committed organization to engage employees to learn, innovate, and transform with a new business model for SD. Developing teachers and trainers to be servant leaders with the provision of action research findings is a way to improve the quality of teaching and learning in the business sector, including small and medium-sized enterprises (SMEs) with a concept of business servant leadership for SD.

Wang (2022) mentioned that whole-person development focused on learner-centered global talent development. Through action research, teachers can deal with their daily work with a more inquiring attitude and adjust their behaviors according to the evidence and the kinds of solutions they implement. This is what we want for teachers: an increased capacity for monitoring and improving teaching and learning processes via continuous problem identification and solution implementation. A committed organization with employees who have actions of servant leadership may bring positive impacts to society. Employees are more than resources of an organization, they are talents and capital to exert influence on the community. Having employees engaged in the company with satisfaction, an organization may have a higher chance of achieving success (Barik & Kochar, 2017). This session illustrates the application of SDG and technology, for example, non-fungible token (NFT)/blockchain in designing a community project for primary and secondary school students for behavioral changes via SDG 4 (transferable skills and innovations).

This paper provides a review of the literature on the key theories of SD, servant leadership, employee engagement, and future education.

The main research objective of this study is to explore what key elements influence the SDG/STEM event management focused on primary and secondary students.

The research questions are:

RQ1: What are the key elements of transformative women servant leadership for implementing SDGs-related projects?

RQ2: How does a project design address social issues, for example, insufficient physical exercises for social impacts, for example, SDG 3, SDGs 4, 5, 9, 12, 13, and 17?

The remaining sessions of the paper are structured as follows. Section 2 shows the relevant literature on SD, NFT, transformation, employee engagement, the future of education, and blockchain technology. Section 3 defines the chosen research methodology for the trends of technology requirements and explores the use of technology in event management to highlight the importance of physical fitness for students' health, that is SDGs 3, 4, 5, 9, 12, and 17. Section 4 explains the overall findings of the case study results of extracurricular activities (ECA) implemented in the past three years. Section 5 summarises the key findings and discusses future research direction.

2. LITERATURE REVIEW

2.1. Sustainable development

In the past 10 years, there have been many research papers written on SD related to UN SDGs in the higher education sector. UN SDGs cover ESG areas and the interpretations and applications of SD are varied among institutions, it is time to re-visit the ways of promoting UN SDGs via responsible decision-making and resource allocations with impacts of behavioral changes to meet the future needs of society. This connects to the fundamental concepts of management (plan, organize, motivate, and control) and the strategic use of UN SDGs for staff engagement and total quality management. Understanding the key indicators of UN SDGs and the present situation is the first and the most significant step in implementing sustainability-related actions in an institution. Exposure to the good practices on SDG applications will be the next step for relearning and impact co-creation.

According to the definition by the World Commission on Environment and Development (WCED, 1987), "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p. 43). Basic economic sustainability requires that the current activity of businesses be supported in the short term and long term with green products, services, processes and people. In the global initiatives of the UN Decade of Education for Sustainable Development (DESD) 2005-2015, the DESD's primary goal is for all people to develop the values, skills, attitudes, and knowledge commensurate with the principles and practices of SD. This kind of proactive thinking has to be integrated into curriculum design with industry exposure for people in all nations at different ages to develop a mindset of SDGs for tackling challenges we are currently facing. Hence, education for sustainable development (ESD) is relevant to all nations and all higher education institutions. Management in higher education institutions and professional service providers need to keep on exploring the ways of applying UN SDGs by practising the rationale of ESD from the curriculum design level to the operations of programmes and measuring the learning outcomes of learners.

2.1.1. From sustainable development to a sustainable development/sustainability mindset

In recent years, the higher education sector has started to apply design thinking in the curriculum re-design in an action-based approach to seek solutions for a better world. This has created a dramatic need for proactive educators and industry-based trainers with a mindset of SDGs and ESD to write sustainability-related course outlines and prepare integrated reports to communicate with stakeholders for accountability and transparency. This led to a need for further study of the elements of SDG and ESD to align with the UN Principles for Responsible Management Education (UNPRME): purpose, values, teach, research, partner, practise, and share² for economic, social, and environmental impacts.

² <https://www.unprme.org/what-we-do/>

The concepts of SD have been highly debated subjects and are of great importance for the future, especially in the higher education sector where students are being prepared to face the world's impending challenges and where they are expected to develop themselves personally and professionally in a sustainable manner. Szitar (2014) argues that community development is related to sustainability which needs to have stakeholder collaboration, linking up changes with sustainability, and adopting interdisciplinary and multidisciplinary approaches in teaching. Pinho et al. (2015, as cited in Yeung, 2022, p. 1) also state that university education not only enables professional growth but also promotes development on a personal level. Additionally, they highlighted that contextualisation is crucial in university education, including creating a variety of contexts for students to learn how to perceive the world, how to handle adverse situations, how to experience practical content, and how to create professional networks via ECA complementary to their studies.

In fact, Gedžūne (2014), Gedžūne and Gedžūne (2012), and Pohl et al. (2010) also argue that teacher training and engagement through reflection, active research and co-production of sustainability-related research are needed to understand the importance of a broader and interrelated perspective on issues surrounding SD for the future. As early as 2005, Kitagawa (2005) examined the role of universities in a knowledgeable society in light of the emergence of new research and learning systems, conditioned by forces of both globalisation and regionalisation with the impacts of these new relationships perceived in four principal dimensions: economy, human resources, governance, and community.

2.1.2. Definition of leadership

After the emergence of COVID-19, leadership could be re-defined in several perspectives echoed by Pless et al. (2012) on service learning assignments, nurturing leaders with moral development, raising awareness on social issues via encouraging civic and social responsibility, developing a greater tolerance for diversity (p. 880).

It is undoubtedly that COVID-19 has created a new set of challenges that require leaders, responsible leaders with a mindset of innovations and transformations, to have a different skill set and approach towards leadership. The following characteristics of leadership that could be redefined with literature on leadership:

1. *Adaptability*: Leaders need to be able to react quickly and proact in a humanistic way in response to changing circumstances and show how the organizations that they serve with a greater level of flexibility to navigate through the uncertainties of the pandemic.

2. *Empathy*: Leaders need to have more empathy towards internal and external stakeholders, for example, the well-being of employees and customers.

3. *Communication*: Leaders need to have active listening skills with transparent channels for two-way communication to avoid misunderstanding which may hinder the level of productivity of employees and the organization as a whole.

4. *Resilience*: Leaders need to develop techniques to bounce back with resilience and readiness to take up unpredictable challenges under uncertainties to guide team members to move forward.

5. *Innovation*: Leaders need to have proactivity and creativity with a transformative mindset to identify innovative solutions and nurture a culture of innovation in an organization.

6. *Inclusivity*: Leaders need to consider diversity and inclusivity when creating a culture of innovation to make everyone feel respected with value creation.

Maula-Bakhsh and Raziq (2018) mentioned that servant leadership has never been given proper attention. They quoted the concept of servant leadership put forward by Greenleaf as that "the servant-leader's motive is to provide services as a servant first. He argued that the servant leader makes sure that employees' prioritized needs are being served first and, afterwards the desire to lead automatically proceeds" (1977, as cited in Maula-Bakhsh & Raziq, 2018, p. 63). Some researchers have termed servant leadership as an extension of transformative leadership. Maula-Bakhsh and Raziq (2018) also highlighted specific characteristics of servant leaders that are different from other forms of leadership. "The prominent traits which are considered important in improving the well-being of employees includes emotional healing, altruism empowering, conceptualization, and growth of people" (p. 67). For example, Gandhi can be regarded as a transformative servant leader who believed in leading by serving. He believed that serving others was the ultimate act of leadership to serve with humility, compassion, and commitment could inspire people to work together towards a common goal. Gandhi's leadership style encouraged self-management, commitment, and teamwork as he believed that these qualities had impacts on the community. Hence, the attributes of servant leadership will be explored in response to serving the community in a better way.

In summary, post COVID-19, the expectations on leadership are the six values mentioned above and the key concepts of servant leadership which focus on human-centric leadership style, the well-being, empowerment, and growth of their employees for SD of organizations.

2.1.3. Transformative servant leadership

Transformative leaders help to realign the values and norms of their organization, and when necessary, to accommodate and promote both internal and external change (Avolio et al., 1991). Tims et al. (2011) stated that daily transformative leadership is positively related to employees' daily engagement (Mozammel & Haan, 2016). Bass and Riggio (2006) summarized the core of transformative leadership as being about change and transformation (Shaw et al., 2018).

Servant leadership is a leadership philosophy that addresses the concerns of ethics, customer experience, and employee engagement while creating a unique organizational culture where both leaders and followers unite to reach organizational goals without positional or authoritative power (Carter & Baghurst, 2014).

Scholars have commented that both transformative leadership and servant leadership can find their roots in charismatic leadership (Graham, 1991; Smith et al., 2004). There is a substantial match between transformative leadership and servant leadership in terms of behavioral characteristics and consequences on both followers and organizations (Scuderi, 2010; Smith et al., 2004). These similarities demonstrate that transformative leadership and servant leadership are not only totally inclusive of each other but also have similar impacts on organizations (Choudhary et al., 2013; Ispas & Tebeian, 2012); therefore, they have the potential to be integrated into one concept, termed as “transformative servant leadership”. This integration is significant for modern-day businesses and organizations (Echols, 2009) because the complexity and ethical issues of modern-day businesses and organizations often challenge single-aspect-focused theories (Shaw et al., 2018).

This study aims to find out the attributes of transformative women’s business servant leadership through interviews with business leaders who have experience in organizing sports and STEM-related (science, technology, engineering, mathematics – STEM) events in Hong Kong. This study aims to provide insights into the existing body of transformative women’s business servant leadership research and build the capacity to respond to STEM/SDG-related event management organized by schools for the future. We discuss two key examples that relate to STEM/SDG/ESG activities organized in Hong Kong via a case study approach. Transformative leadership with an application of NFT, blockchain, and Web3 in STEM/SDG event management are seldom explored at the secondary school education level.

2.1.4. Employee engagement

Employee engagement is so important that the next logical question is to explore the drivers of employee engagement (Popli & Rizvi, 2016). Kahn (1990) proposed that leadership has the greatest potential to influence followers’ feelings of psychological safety by providing a supportive environment in which one feels safe to fully engage in a task. Luthans and Peterson (2002) in their study using a sample of 2,900 participants concluded that the most profitable work units of companies have people doing what they do best, with people they like, and with a strong sense of psychological ownership. Findings from their research extended the theory about a manager’s role in creating a supportive psychological climate (Brown & Leigh, 1996) and paralleled early theories of engagement (Kahn, 1990; Maslach et al., 2001; Schaufeli et al., 2006; Schaufeli et al., 2002) by suggesting that employees must have a supportive environment, job resources and support necessary to complete their work. On the contrary, research also found that many employees leave their jobs because they are unhappy with their bosses (Hay, 2002; Popli & Rizvi, 2016).

Leaders are the individuals in the organization who set the tone and culture. An effective leader is able to influence his or her followers to reach the goals of the organization (Batista-Taran et al., 2009). Various leadership theories have evolved to define the characteristics, traits, and styles of various leaders and leadership styles (Bass, 1985).

Burns (1978) initially developed the theory of transformative leadership. Transformative leadership emphasizes satisfying basic needs and meeting higher desires through inspiring followers to provide newer solutions and create a better workplace (Chandrashekhar, 2003; Marturano & Gosling, 2007). Bass (1985) uncovered four dimensions of transformative leadership. They are idealized influence, individualized consideration, intellectual stimulation, and inspirational motivation.

2.2. Futures of education

The Futures of Education Forum 2021 was organized by the United Nations Educational, Scientific and Cultural Organization Hong Kong Association Limited (UNESCO HK) on November 10, 2021. This has brought key stakeholders from a diverse background together with inspiring learning outcomes on knowledge, skills, attitudes, and values for the future under COVID-19 with uncertainties. The key players in fields including education, consultancy, and information technology (IT) delivered speeches and joined the panel discussions during the forum. They laid out the challenges we are facing nowadays and provided multifaceted insights on the potential means to tackle these challenges.

The focus of the forum was on how the future of education in Hong Kong and the Greater Bay Area could be reframed in response to the comprehensive findings of the survey conducted before the forum, for example, the issues of climate change, environmental crises, and an aging population. The top-ranked purposes of education in 2050 were namely scientific innovation, health and well-being, personal sustainability, and peace.

2.3. Blockchain and NFTs in STEM competitions

The convergence of blockchain technology, NFTs, and the STEM landscape represents a transformative shift in how value is created, shared, and recognized in the digital age. This section explores the implications of NFTs in STEM competitions, particularly concerning their influences on the SDGs and women’s empowerment, drawing on literature published in the past three years.

2.3.1. Blockchain technology, NFTs, and STEM-related competitions

Blockchain technology is a decentralized ledger system that ensures transparency, security, and immutability of data (Yli-Huomo et al., 2016). NFTs, which are unique digital assets validated through blockchain, allow creators to tokenize their work – ranging from art to scientific data – guaranteeing its authenticity and ownership (Catalini & Gans, 2020). These attributes of NFTs open new avenues for innovation in STEM fields, providing solutions for data integrity, funding, and intellectual property protection.

STEM competitions have historically fostered innovation by providing platforms for students and professionals to showcase their skills and ideas. Recently, these competitions have begun to incorporate blockchain technology and NFTs, creating new pathways for interaction and validation of innovative projects. For instance, organizations

like the XPRIZE Foundation (XPRIZE) have explored the use of NFTs to represent participation and achievement in their competitions.

The UN SDGs are a set of 17 interconnected global objectives designed to address pressing social, economic, and environmental challenges by 2030. The application of blockchain and NFTs in STEM competitions can potentially contribute to several SDGs:

1. SDG 4: Quality Education. Blockchain can enhance educational experiences by validating skills and achievements through NFTs, providing students with verifiable credentials. This is particularly beneficial for marginalized groups, including women, who may lack access to traditional educational pathways.

2. SDG 5: Gender Equality. The encouragement of female participation in STEM disciplines is crucial for achieving gender equality. NFTs can help recognize and celebrate women's contributions in STEM fields, enhancing visibility and opportunities. By creating more inclusive environments through decentralized platforms, blockchain can empower women to engage in STEM competitions without traditional barriers.

3. SDG 9: Industry, Innovation, and Infrastructure. Integrating NFTs and blockchain in STEM competitions can drive innovation while providing a decentralized approach to funding projects. Crowdfunding through NFTs allows students and innovators to secure resources for their projects more efficiently than traditional models.

2.3.2. Women's empowerment in stem through blockchain and NFTs

Women are underrepresented in STEM fields, which presents significant challenges for global development and innovation. The application of blockchain and NFTs can empower women by improving access to resources, networks, and recognition:

1. *Visibility and recognition:* By tokenizing their work, women in STEM can receive deserved recognition for their inventions and contributions. This visibility can inspire other women to pursue careers in science and technology. For example, NFT platforms have allowed women artists and creators to monetize their work, bridging the gender gap in the digital economy.

2. *Networking opportunities:* Blockchain technology facilitates decentralized networking, enabling women in STEM to connect without traditional gatekeeping barriers. By participating in STEM competitions that utilize these technologies, women can access mentorship and collaboration opportunities that may have otherwise been unavailable.

3. *Educational pathways:* STEM competitions integrating blockchain and NFTs can offer women educational resources and opportunities to gain skills in emerging technologies. Programs and platforms that provide workshops or courses on blockchain and NFTs can create a more inclusive environment for women learners.

Numerous initiatives globally illustrate how blockchain and NFTs positively impact women in STEM and contribute to the SDGs. For example, the "Women in Blockchain" initiative promotes

female participation by providing training, networking, and funding opportunities, while using NFTs to showcase their achievements in a global marketplace (Boateng, 2023). In education, the University of Melbourne has launched an NFT platform to recognize academic achievements transparently. This innovation not only recognizes all students fairly but particularly highlights the accomplishments of women in STEM programs, fostering an environment of recognition and encouragement.

As blockchain and NFT technologies continue to develop, it is crucial to focus on their ethical implications and accessibility. Engaging women in the design and implementation of these technologies will ensure that they are user-friendly and equitable. Encouraging interdisciplinary collaborations between technologists, educators, and policymakers can lead to innovative solutions that support women's empowerment and the achievement of SDGs (Wu et al., 2023). Blockchain technology and NFTs represent a significant opportunity to enhance STEM competitions and promote SD. By fostering inclusivity and recognition in these fields, there is potential for increased participation of women in STEM. The impacts of these technologies on SDGs highlight the necessity of integrating innovative solutions into education and professional growth frameworks. Continued research and practical applications of NFTs in STEM sectors will be vital to achieving these goals and empowering future generations of women.

Based on a recent article in *Harvard Business Review*, Web3 is more than anything with its uniqueness. It's based on the premise that there's an alternative to exploiting users for data to make money — and that instead, building open platforms that share value with users directly will create more value for everyone, including the platform (Esber & Kominers, 2022).

The article highlighted that users typically have control over the data/content they have created in Web3, including digital objects which are usually under the chain of blockchain with decentralization, traceability with immutable data and smart contracts. According to Esber and Kominers (2022), this makes the assets "portable", in the sense that a user can, in principle, leave any given platform whenever they want by unplugging from that app and moving — along with their data — to another one.

3. RESEARCH METHODOLOGY

First, a qualitative text search on the latest technology requirements in relation to the nature of jobs and education levels was conducted in June 2022. Secondly, an interview and case study of Archon Wellness Limited (further Archon Wellness) was conducted from April 2024 to July 2024. This study conducted a review of jobs related to NFT, blockchain, and Web3 with a preliminary exploration of NFT applications in event management organized by Archon Wellness, promoting SDGs 3, 9, and 17, and ESG with social impacts on sports for teenagers via STEM competition in Hong Kong. For example, the annual ECA in the Hong Kong Convention and Exhibition Centre in May 2024 and the 4th STEM Competition Briefing in July 2024 with competition to be held in December 2024 with NFT applications.

The research focused on analyzing the application of blockchain for skills development in event management for building trust and traceability to accelerate SDG-related projects with technology. The methods deployed aim to identify the key elements driving impacts for SDG/STEM event management focused on primary and secondary students.

Textual messages are data for conducting content analysis during the process of grounded theory which helps us to induce a concept for generalization and future prediction.

“Content analysis as a methodology is often used in conjunction with other methods, in particular, historical and ethnographical research. It can be used in any context in which the researcher desires a means of systematizing and quantifying data. It is extremely valuable in analyzing observation and interview data” (Fraenkel et al., 2011, p. 479).

Content analysis is a research technique used to analyze and interpret various forms of communication such as texts, images, and audio and video recordings to identify patterns, themes, and key information. It involves systematically analyzing and categorizing the content of each message or communication using a set of predefined criteria or coding schemes. Content analysis can be used to answer research questions about a particular topic or issue by identifying the most commonly used language, tone, themes, and messages in a collection of communication data. It is often used in interdisciplinary research including political, social, health, and media studies. To carry out a content analysis, researchers must first define the research objective and develop a coding scheme with selected literature or textual messages for text search to build a holistic understanding of a theme. The coding scheme should be reliable and valid, meaning that it accurately represents the data under investigation. The coding process usually involves reading, listening, or watching the content several times, noting relevant points and applying codes consistently. After the coding process, researchers can use statistical tools or software to analyze the data and draw conclusions. The results of content analysis can be presented in the form of graphs, charts, tables, and narrative summaries.

Content analysis is a qualitative research method that is often used to investigate complex issues and to answer research questions that require detailed analysis. Content analysis seeks to understand the meaning behind communication data, and it does not rely on numerical data. Quantitative surveys, on the other hand, are structured questionnaires that are used to collect numerical data from respondents. Surveys involve asking a large sample of respondents a set of standardized questions that are designed to measure specific variables or concepts. The results of a survey can be analyzed using statistical techniques to identify patterns, correlations, and trends in the data. The main difference between content analysis and quantitative surveys is that content analysis is a qualitative research method while surveys are quantitative.

Content analysis can be used to identify themes in communication data and to develop hypotheses that can be tested through a survey. The survey results can then be compared to the findings of the content analysis to validate or reject

the hypotheses. Overall, content analysis and quantitative surveys are complementary research methods that can be used together to provide a robust analysis of a research topic. Both methods have their advantages and limitations, and researchers should choose the appropriate method based on the research questions, the research topic, and the available resources. In this research, the author counted the frequency of occurrence of words and phrases from related literature to demonstrate the key elements related to digital transformation and SD rather than distributing a survey to collect data for regression analysis results, correlation, ranked mean, etc. The reason is that the survey results may provide a holistic idea of the preferences of respondents which may not be that desirable when compared to the use of qualitative analysis with detailed information for interpretation.

Communication is to send literary messages — verbal and non-verbal — for co-ordinating, joining, controlling and influencing purposes. Subsequently, printed messages are apparatuses for inducing people’s minds to acknowledge thoughts. Organizational behavior is to get, anticipate, and control others’ behavior. Administration is to oversee assets inside an organization for accomplishing organizational objectives. These three standards — commerce communication, organization behavior, and commerce administration bear an inter-related relationship.

Literary messages are information for conducting substance examination amid the method of grounded hypothesis which makes a difference in us to initiate a concept for generalization and future expectation. From the taking after citation, ready to realize that substance examination may be a strategy to empower analysts to ponder human behavior in a circuitous way. It is an examination of composed substance drawn from a certain kind of communication paper, like reading material, expositions and articles from daily papers. Through analyzing these composed work of individuals, the analyst can:

- get the behavior of individuals and organizational designs;
- gather states of mind, values and social designs in numerous nations or organizations;
- pick up thoughts of how organizations are seen;
- can see the slant of certain hones;
- separate hones among certain bunches of individuals.

Content examination as a strategy is regularly utilized in conjunction with other strategies, in specific chronicled and ethnographical inquiries. It can be utilized in any setting in which the analyst wants a implies of systematize and evaluate information. It is amazingly profitable in analyzing perception and meeting data (Fraenkel et al., 2011).

Substance examination could be an orderly and objective examination of chosen content characteristics. This incorporates checking the number, and frequency of words, finding out the characteristics of themes and characters, building relationships among items, paragraphs, at long last building up important concepts. It isn’t basically a quantitative investigative strategy but, moreover, a subjective one as the reason for the composing is additionally reflected through the investigation.

Based on a text search on NFT, blockchain and Web3 in Jobsdb, a table has been summarised for the technology requirements, nature of jobs and

education levels. For the keyword “NFT”, 137 results were found, while the results of “blockchain” and “Web3” were 633 and 96, respectively.

Table 1. Text search on NFT, blockchain, and Web 3

| <i>Keywords</i> | <i>Job titles</i> | <i>Organization names</i> | <i>Average educational requirement</i> |
|-----------------|--|--|---|
| NFT | User experience (UX) designer, user interface (UI) designer, senior project executive, Metaverse (NFT) account manager, frontend engineer (ReactJS + NFT Game), sales (NFT Shop) manager, senior accountant, product manager (Web3), full stack developer, IT project manager/director, creative copywriter, blockchain developer, marketing specialist, senior 3D modeller, blockchain engineer, assistant manager human resources (HR) admin, social media content editor, social media marketing and community, marketing data analyst | Osmium Consulting Group Limited, Eagle Partners (International) Co. Limited, Foonie Magus Pte. Ltd., Qmix Group Limited, Ucollex International Limited, Spring Professional (Hong Kong) Limited, One Arrow Consulting Asia Limited, Up Way China Bullion Limited, Gimmick Box Limited, Air World Limited, Eagle Sky Media Limited, Galaxy Cultural (Holding) Limited, Pantheon Lab Limited, Alexis Services Limited, One Arrow Consulting Asia Limited, NAHC Limited | Secondary: University degree (varied greatly among different types of jobs) |
| Blockchain | Blockchain engineer, React, Node developer, business analyst, mobile developer (Android/iOS), blockchain engineer (financial/financial technology — FinTech), senior marketing officer (blockchain), product manager, Java software engineer, full stack developer, Java developer, investment manager, marketing manager, blockchain analyzer tech lead, senior UI/UX designer, social media marketing and community, vice president, business audit, corporate banking, system analyst/analyst programmer (backend-blockchain) | Air World Limited, Ardekey IT Recruitment, ARTA TechFin Corporation Limited, Hong Kong BGE Limited, Meta Air Labs Limited, Meta Metopia Technology Company Limited, Realm Digital Trading Limited, Nigel Frank International, iDDY Financial Technologies Limited, JF Talent Consulting Group, CT Vision Capital (Hong Kong) Limited, EY, LABS Group Limited, GRIT Search Limited, DBS Bank, Meta Air Labs Limited, Alexis Services Limited, Ucollex International Limited | Diploma: University degree (more focused on the finance sector) |
| Web3 | Software engineer, JavaScript (frontend/backend), project manager, frontend/backend (programmer/analyst-programmer), UI/UX designer — innovation projects, marketing data analyst, web developer, assistant IT manager (web/ mobile apps), programme assistant, senior analyst programmer, key account manager, full stack developer, IT specialist, Java programmer/developer, web developer, quant developer, analyst programmer, temporary programmer/analyst-programmer, mid-level data science developer, fashion artificial intelligence (AI)/tech | Osmium Consulting Group Limited, Hays, Randstad Hong Kong Limited, NAHC Limited, CL Technical Services Ltd., Michael Page, Caritas Institute of Higher Education, Midland Holdings Limited, EventXtra Limited, Bond West Consultants, iFAST Financial (HK) Limited, Konew Financial Express Limited, Randstad Hong Kong Limited, Chandler Macleod Group (HK) Limited, Mandatory Provident Fund Schemes Authority, Jellybeans Hong Kong Limited | Mainly requires a university degree (more focused on the IT sector) |

Based on the abovementioned data collection, it has been found that marketing, social media and human resources management areas are also involved in NFT, blockchain, and Web3 on top of computer engineering, programming and data analysis-related technological positions.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Interview: Archon Wellness

Archon Wellness is a holistic wellness center located in Cyberport, a digital STEM/sports-related community with training services and event management in Hong Kong. Based on the sharing of Ella Leung, Director of Archon Wellness, on April 3, 2024, incorporating SDGs into their business model is possible to enhance their communities to develop actions on SDG, especially SDG 4.7 (knowledge transfer) on data analytics and predictive analysis on consumer behavior for sustainable business. Archon Wellness can have various impacts on the SDG community and environment. Here are some potential impacts on SDGs related to their services offered:

1. *SDG 3: Good Health and Well-Being.* Archon Wellness can contribute to promoting good health

and well-being by offering a range of wellness services. By promoting wellness-related activities and STEM training, they can help individuals lead healthier lifestyles with skills escalated.

2. *SDG 11: Sustainable Cities and Communities.* By operating in Cyberport, Archon Wellness can contribute to creating sustainable cities and communities. They can promote sustainable living practices, and raise awareness about environmental issues not only in the Cyberport community but also in the primary and secondary school communities on STEM applications and SDGs 3, 4, 11, and 17 implementation.

3. *SDG 12: Responsible Consumption and Production.* Archon Wellness can support responsible consumption and production by offering eco-friendly products, promoting waste reduction, and encouraging sustainable practices among its clients. They can also partner with ethical suppliers and promote sustainable sourcing.

4. *SDG 13: Climate Action.* Archon Wellness can take steps to reduce its carbon footprint and promote climate action. This can include energy conservation measures, waste reduction strategies, and promoting eco-friendly transportation options to and from their center.

5. *SDG 17: Partnerships for the Goals.* Archon Wellness can collaborate with other businesses, non-

governmental organizations (NGOs), and government agencies to achieve the SDGs collectively. By forming partnerships and alliances, they can have a more significant impact on the community and contribute to achieving global goals.

Overall, Archon Wellness in Cyberport can play a crucial role in advancing the SDGs by promoting health and well-being, supporting sustainable cities and communities, advocating for responsible consumption and production, promoting climate action, and fostering partnerships for the goals. Their commitment to sustainability and social responsibility can lead to positive impacts on the community and environment, contributing to a more sustainable and inclusive future. In addition, data analytics and predictive analysis play an essential role in sports management companies in Hong Kong, for example, Archon Wellness in Cyberport.

These technologies help organizations make informed decisions, improve player performance, enhance fan engagement, and optimize business operations. Here are some examples of data analytics and predictive analysis jobs related to sports management companies in Hong Kong:

- *Sports data analyst*: A sports data analyst collects, analyzes, and interprets data related to players, teams, and competitions. They use statistical models and data visualization techniques to identify trends, patterns, and insights that can help sports management companies make strategic decisions. For example, analyzing player performance data to optimize team strategies or evaluating fan engagement metrics to enhance marketing campaigns.

- *Predictive modeling specialist*: Predictive modeling specialists develop and implement predictive models to forecast outcomes, such as game results, player injuries, or fan behavior. They use machine learning algorithms, statistical techniques, and data mining methods to create predictive models that can improve decision-making and drive business growth. For example, building models to predict ticket sales for upcoming events or forecasting player performance based on historical data.

- *Business intelligence analyst*: Business intelligence analysts focus on collecting, analyzing, and visualizing data to provide insights that support business operations and strategic planning. They work closely with stakeholders to understand data requirements, develop reports and dashboards, and communicate findings to inform decision-making. For example, analyzing sales data to optimize revenue streams or evaluating marketing campaigns' effectiveness.

- *Sports performance analyst*: Sports performance analysts focus on using data analytics to optimize athlete performance and training programs. They work with coaches, trainers, and sports scientists to collect and analyze data from training sessions, competitions, and biometric devices to identify areas for improvement and enhance athletic performance. For example, analyzing player movement data to prevent injuries or monitoring performance metrics to optimize training regimens.

- *Fan engagement specialist*: Fan engagement specialists leverage data analytics to enhance fan experiences, drive fan loyalty, and increase revenue streams. They analyze fan behavior data, social

media interactions, and ticket sales data to personalize marketing campaigns, create targeted promotions, and improve customer engagement. For example, using predictive analytics to recommend personalized content to fans or analyzing social media sentiment to tailor communication strategies.

These are just a few examples of data analytics and predictive analysis jobs related to sports management companies in Hong Kong. The integration of data-driven insights and technology solutions is becoming increasingly important in the sports industry to gain a competitive edge, improve performance, and enhance the overall fan experience.

4.2. Case study of ECA

The 1st ESG Pioneer Leadership Award co-organized by Green EdTech Alliance, the Chinese Medicine (Global) Promotion Association, and Archon Wellness supported by Gratia Christian College, School of Business, International Centre for Environmental Education and Community Development (ICENECDEV), UN Global Compact, and Sustainable Development Solutions Network-Kenya (SDSN-Kenya). Around 30 primary and secondary schools joined the ECA EXPO 2024 and attempted 28 questions on SDG and ESG to become pioneers in the 1st ESG Pioneer Leaders. During the event on May 3, 2024, the author has identified the following attributes of the leaders of the eight companies of Green EdTech Alliance and the interviewee who is a key facilitator for the event: 1) application of Web3 via NFT paintings and paintings on environmental materials bring a disruptive education model — 15 of UNPRME, meaningful, fun, socially engaged, interactive, and iterative; 2) application of technology for students to attempt 28 questions with instant responses and result announcement of winners; and 3) application of networking (primary schools, secondary schools, Green EdTech Alliance) and supporting organizations for creating impacts to make the event to be a sustainable one.

4.3. Case study of the 4th STEM Competition Briefing Session

In order to encourage students to participate in more sports and promote the moderate-to vigorous-intensity physical activities (MVPA60) atmosphere with smart technology, it is co-organized by the Physical Fitness Federation of Hong Kong, China, Archon Wellness, supported by the Hong Kong Extracurricular Activities Masters' Association, and well supported by the Macau Physical Education Teachers Association of China, the Hong Kong Physical Education Teachers Association, and Hong Kong Education Work and Gratia Christian College, UNPRME Advanced Signatory Institute, Hong Kong. The 4th Joint School Smart Sports STEM Competition, fully supported by the Federation of Entrepreneurs, is tentatively scheduled to be held from December 2 to December 15 in the 2024–2025 school year with a briefing session launched in July 2024 with around 50 schools joined.

The problem of insufficient physical activity among Hong Kong school children is rather serious. Although it has returned to pre-epidemic levels, only 8% of schoolchildren still meet the World Health Organization (WHO) standards in daily

activity, and more than 90% of schoolchildren still do not meet the standards. Out of three students, there is one overweight and obese. The case organization aims to apply smart technology and AI to enhance students' interest in sports, improve their physical activity levels, and promote holistic development through appropriate physical training with NFT on cultural understanding.

The 3rd Joint School Smart Sports STEM Competition was successfully held in the 2022-2023 school year. More than 700 students from more than 20 schools in Hong Kong and Macao participated in the 14-day physical activity competition online. Students from both places interact with each other through participating in sports activities, and at the same time learn the principles of STEM in an interesting way, strengthening the development of creativity and collaboration skills. The average performance of participating students has exceeded 11,000 steps per day, and the overall performance has been improved compared with the previous years. In particular, the improvement of primary school students is more obvious than that of secondary school students. The average number of steps per day for girls is also less than that of boys.

In 2024, the case organization escalates from smart wearable bracelets and AI image motion recognition technology, combined with cloud services, to instantly upload, analyze data and report competition results, allowing students to challenge the tenth level of physical fitness with the help of sports technology, NFT, and experience the fun of smart sports. This year's competition will incorporate the SDGs advocated by the UN and understand the elements of Chinese culture, and attractions selected in Hong Kong and Macau including:

- Hong Kong: Forbidden City, Xiqu Center, Tea House, Tai Po Tower of Return, Tai Kwun;
- Macau: Ruins of St. Paul's, Our Lady of the Rosary Church, A-Ma Temple, Macau Tea Culture Center, Jao Tsung-I Academy.

Web3 and NFT have been combined in the award programs to encourage students to do more sports after school and improve students' physical fitness and health.

Based on the findings of the above, the following answers have been found for the research questions. As for *RQ1*, the key elements are understanding the use of NFT, blockchain, and Web3 from the perspective of fin-IT-SDG to build a team with multi-disciplinary knowledge. As for *RQ2*, the project design has to be policy-driven with the observation of social issues, for example, insufficient physical exercises of children with selected SDGs in the project design for ongoing measurements of project participants' behavioral changes and project implementers' competence improvements:

1) Project participants: physical exercises accomplished (SDGs 3 and 13) and appreciation of intangible cultural assets (SDGs 4 and 12).

2) Project implementers: applications of NFT, blockchain, and Web3 in SDGs 11, 4, 5, and 9) with data predictions, analysis, and business intelligence for impacts on increasing physical exercises for good health.

5. CONCLUSION

Based on the qualitative analysis of transformative women servant leadership with content analysis, interview results and case study of organizing STEM competition with NFT, the key leadership attributes for accelerating SDG-related events have been identified: 1) understanding relevant policy in STEM education and wellness of students; 2) knowledge of SDGs; 3) applications of NFT in trust building, traceability and knowledge transfer to teachers in primary and secondary school teachers; and 4) SDG project implementation skills, promoting SDG 3 — health and well-being, SDG 11 supporting sustainable cities and communities, SDG 12 advocating for responsible consumption and production, SDG 13 promoting climate action, and SDG 17 fostering partnerships for the goals. Hence, it is believed that the future of education is to integrate SDGs, NFT-related technology, and project implementation skills to measure the impacts of content created with values for SD. Educators, students, SMEs, policy-makers, NGOs, international investors and consumers may need to re-think the value of transformative women servant leadership in social and business models.

The implication of these findings for higher education institutions, training-related organizations and policymakers is that the values of applying transformative women servant leadership with NFT and blockchain application in SDGs with entrepreneurial education elements.

To fully visualize the implementation skills of transformative women servant leadership with technology and SDG in community projects, management of business schools needs to identify the related policy with the nature of tasks in the projects for participants to complete the tasks with expected impacts to be created. In order to develop women transformative business servant leaders with a mindset of serving the community with SDG-related projects with the latest technology, it is recommended to have a workshop integrating the above-mentioned attributes to serve the community with the design of the workshop integrating SDGs latest technology:

1) As a responsible organization, it is recommended to identify transformative women servant leaders to adopt the entrepreneurial spirit and select UNSDGs with technology for new job creations and new skills development (SDGs 8 and 9) for social impacts, for example, removal of inequalities (SDG 10).

2) As a responsible employee, trainer and teacher in implementing SDG and NFT community projects, it is suggested to understand the market trends, and job requirements, and learn how to apply the selected SDGs and NFT technology for personal growth to be transformative servant leaders.

Research on the integration of UN SDGs, entrepreneurial spirit and innovative technology, for example, NFT with ongoing projects, is seldom found in the academic and industry sectors for new skills development with new values co-creation and capacity-rebuilding for the education sector. When AI, NFT, and Web 3 integrated project learning are going to be implemented into a learning environment, educators and industry practitioners

may need to spend more time understanding the applications for achieving the expected learning outcomes. Future employment opportunities, in fact, focus more on productivity and innovations in the workflow process. Hence, resilience organizations may need to overcome their comfort zones to adapt to the digital transformation learning

process for active learning and developing a higher level of problem-solving skills. Moreover, UN SDGs are recommended to be embedded into community projects to increase the competency of project implementers and project participants to meet the requirements of new jobs created post COVID-19.

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