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RESEARCH ARTICLE

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Gamepreneurship Innovation and Business Sustainability in the Industry 5.0 Era: Evidence from Generation Z in Sumenep, Indonesia

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Abstract

Purpose This study aims to describe the innovative gamepreneurship strategies adopted by Generation Z in Sumenep City, analyze their contribution to business sustainability based on the Triple Bottom Line framework, and explain the influence of the Industry 5.0 era on these practices.

Design/Methodology This research employed a qualitative approach using a case study design. Data were collected through semi-structured interviews, observations, and documentation involving two key informants and four supporting informants selected through purposive sampling. Data validity was ensured through source, technique, and time triangulation.

Findings The findings reveal that participants implemented adaptive innovation strategies, including product selectivity, customer loyalty gamification, Madurese cultural branding, game portfolio management, and anticipatory saving strategies. These innovations strongly contributed to the profit and people dimensions, while the planet dimension remained implicit.

Practical Implications Findings offer practical guidance for Gen Z entrepreneurs and local policymakers on leveraging cultural branding and gamification to strengthen the sustainability of culturally rooted digital businesses.

Originality/Value This study extends the Triple Bottom Line by proposing a 4P framework (Profit, People, Planet, and Culture) for culturally embedded digital MSMEs in developing countries. The framework highlights local cultural identity as a potential dimension of digital MSME sustainability. Based on two empirical cases, it represents an initial theoretical proposition requiring further empirical validation.

Keywords: *Gamepreneurship, Business sustainability, Triple Bottom Line, Generation Z, Industry 5.0.*

JEL Classification: L26, O33, Z10
SDG: SDG 8, SDG 9

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1. Introduction

Digital transformation has become a global phenomenon that has reshaped the way societies work and do business over the past two decades. Global e-commerce sales reached USD 27 trillion in 2022, illustrating how significantly digitalization has affected contemporary business models (UNCTAD, 2024). This development has also given rise to a new industrial paradigm known as Industry 5.0, which differs from Industry 4.0 by integrating human-centricity with technological advancement while emphasizing social sustainability and sustainable development (Gamberini & Pluchino, 2024). In the Asia-Pacific region, including Indonesia, the three pillars of Industry 5.0 human-centricity, sustainability, and resilience are considered highly relevant to the development of a more innovative and sustainable digital entrepreneurship ecosystem.

One of the sectors experiencing the most dramatic growth as a result of digital transformation is the gaming industry. The global gaming market reached USD 187.7 billion in 2024 with 3.42 billion active players, and is projected to grow to USD 539 billion by 2034 (Newzoo, 2024). Alongside this growth, the esports ecosystem has built communities involving players, tournament organizers, sponsors, and fan communities, with interacting social, economic, and cultural elements (Kanellopoulos & Giossos, 2024). It is within this context that the concept of Gamepreneurship has emerged, leveraging game elements such as challenges, reward systems, and interactive feedback to motivate business actors to overcome obstacles while creating genuine economic value (Breuer et al., 2023).

This digital economic development has also been shaped by the role of Generation Z, who have grown up alongside digital technology and possess a high capacity to adapt to innovation (Benítez-Márquez et al., 2022). This potential becomes even more important when linked to strategic business innovation, which enables business actors to adjust to shifting market trends through the use of digital technology, data analytics, and interactive platforms (Pascucci et al., 2023). Numerous studies show a consistent positive relationship between strategy innovation and firm competitive advantage (Agazu & Kero, 2024). At the same time, business success is no longer measured solely by economic profit, but also by social contribution and environmental impact, as emphasized in the Triple Bottom Line framework, which balances the profit, people, and planet dimensions (Elkington, 1997; Rimmel, 2025). The integration of these three dimensions is considered increasingly relevant in the Industry 5.0 era in shaping responsible business models (Andersson et al., 2022).

In Indonesia, the gaming industry recorded a market value of USD 1.92 billion, yet the contribution of local developers to national revenue remains very limited, at only 0.5 percent (Suciasih & Santoso, 2024). This condition reflects substantial untapped opportunity for local developers, including at the regional level. Sumenep Regency recorded economic growth of 5.35 percent in 2023, indicating an economic capacity conducive to the development of digital entrepreneurship, including the gaming-based creative economy sector (Sumenep, 2024).

Prior research has examined games as media for simulating sustainable business (Fontanella et al., 2024),as a means of fostering entrepreneurial intention and competence through business simulation games (Jaoual & Koubaa, 2025), and Generation Z's involvement in technology startups (Zaelani et al., 2025) . However, studies that specifically integrate the concept of Gamepreneurship with business strategy innovation to achieve business sustainability at the regional level, particularly within the context of the Industry 5.0 era, remain very limited. Prior research has focused more on educational contexts or digital startups in general, without specifically examining how Gamepreneurship can serve as a sustainable entrepreneurship strategy for Generation Z in regions such as Sumenep City.

Based on this gap, the present study aims to: (1) describe and analyze the forms of Gamepreneurship strategy innovation adopted by Generation Z within the gaming ecosystem

in Sumenep City; (2) analyze the contribution of these strategy innovations to business sustainability as viewed through Elkington (1997) three Triple Bottom Line pillars profit, people, and planet; and (3) explain the role and influence of the Industry 5.0 era context on the Gamepreneurship practices of Generation Z in Sumenep City in achieving business sustainability. The novelty of this study does not lie in the idea that culture constitutes a fourth pillar of sustainability in itself, since this proposition was already articulated by Hawkes, (2001) in the context of local-government public planning. Rather, its novelty lies in bridging the concept of Gamepreneurship with the Triple Bottom Line framework, and in applying and empirically extending Hawkes, (2001) fourth-pillar proposition to the specific context of culturally grounded digital micro, small, and medium enterprises (MSMEs) at the regional level. This extension is warranted because gamepreneurship in culturally distinctive regions such as Sumenep operates at the intersection of digital business logic and local cultural identity, a setting that Hawkes's original public-planning framework did not anticipate. This intersection remains largely unexamined in either the Gamepreneurship or business-sustainability literature, thereby opening space for developing new, empirically grounded theoretical propositions.

2. Literature Review

This section outlines five core concepts that form the theoretical foundation of the study: Gamepreneurship, the Triple Bottom Line, the Industry 5.0 era, strategy innovation, and Generation Z. In brief, and as elaborated with the full research framework in Section 2.6 and Figure 1, this study positions the Triple Bottom Line as the grand theory for evaluating business sustainability, with the three Industry 5.0 pillars mapped onto its profit, people, and planet dimensions. Gamepreneurship, strategy innovation, and Generation Z's characteristics serve as supporting concepts explaining the processes through which that sustainability is achieved. Keeping this overall architecture in view, the five concepts are discussed in turn below as the conceptual basis, before being synthesized into the complete, integrated research framework at the end of the section.

2.1 Gamepreneurship and Gamification Theory

Gamepreneurship is understood as an entrepreneurial approach that harnesses game-design elements such as challenges, reward systems, and interactive feedback to drive motivation and user engagement while creating genuine economic value for business actors (Breuer et al., 2023). This approach aligns with Gamification Theory, which defines gamification as the use of game-design elements in non-game contexts to increase user motivation and participation (Deterding et al., 2013). In the context of digital entrepreneurship, both perspectives position games not merely as products to be sold, but also as strategic instruments for building customer loyalty, strengthening community interaction, and creating business differentiation, making them relevant for understanding the strategy innovation of business actors within the gaming ecosystem.

2.2 Triple Bottom Line and Business Sustainability

The Triple Bottom Line (TBL) concept was first introduced by Elkington, (1997), who proposed three core dimensions of business sustainability profit, people, and planet that must be evaluated simultaneously when designing business strategy, given their equal importance and interconnectedness. The profit dimension covers financial gain and broader economic contribution; the people dimension concerns fair business practices toward the workforce, consumers, and local communities; while the planet dimension emphasizes responsibility for environmental preservation. Bibliometric studies show that the TBL is not merely a moral

responsibility but a long-term strategy that influences firm competitiveness and sustainability, with the three dimensions exhibiting mutually reinforcing direct and indirect relationships (Nogueira et al., 2023, 2025).

Beyond these three pillars, an important strand of the sustainability literature argues that culture itself constitutes an essential, freestanding dimension of sustainable development rather than merely a subset of the people pillar. Hawkes, (2001) proposed culture as a fourth pillar of sustainability, arguing that cultural vitality is as essential to a healthy and sustainable society as economic viability, social equity, and environmental responsibility, and that planning frameworks omitting a cultural perspective remain incomplete. This proposition, originally developed for local-government public planning in Australia, has since informed regional sustainability planning in various contexts, yet its application to business-level frameworks such as Elkington's (1997) TBL, particularly for culturally distinctive digital micro-enterprises in developing countries, remains largely unexplored. The present study addresses this gap by examining whether and how local cultural identity functions as a standalone sustainability pillar within the specific context of Generation Z's Gamepreneurship practices, rather than assuming that culture is already adequately captured within the existing people dimension.

2.3 The Industry 5.0 Era

Industry 5.0 represents an industrial transformation that offers solutions to social, economic, and environmental issues left unresolved by Industry 4.0, by integrating the human dimension more deeply (Ghobakhloo, 2020; Ghobakhloo et al., 2023). This paradigm rests on three main pillars: human-centricity, which places people at the center of innovation; sustainability, which emphasizes the circular economy and resource efficiency; and resilience, which fosters business resilience through continuous adaptation (Gamberini & Pluchino, 2024). In the Asia-Pacific region, including Indonesia, these three pillars are considered highly relevant to the development of an innovative and sustainable digital entrepreneurship ecosystem (Ali et al., 2025), including the development of digital-based creative economy sectors such as the gaming industry (Hindrawati et al., 2023).

2.4 Strategy Innovation: Resource-Based View and Dynamic Capabilities

Strategy innovation is understood as the way business actors interact with consumers and leverage technology to create sustainable competitive advantage (Tali et al., 2021). The Resource-Based View posits that sustainable competitive advantage stems from internal resources that are valuable, rare, difficult to imitate, and non-substitutable (Barney, 1991; Barney et al., 2001), while the Dynamic Capabilities framework explains how organizations develop sensing, seizing, and reconfiguring capabilities to adapt to rapidly changing markets (Teece et al., 1997). These two perspectives complement one another in explaining how even micro-scale business actors can build competitive advantage through the adaptive, sustained management of internal resources.

2.5 Generation Z and Digital Entrepreneurship

Generation Z, born and raised within a digital environment, possesses a high capacity to adapt to technological innovation as well as considerable potential for developing digital entrepreneurship (Benítez-Márquez et al., 2022). This characteristic positions Generation Z as a key actor within the Gamepreneurship ecosystem, since their proximity to digital and gaming culture allows personal interest to be translated into productive, sustainable economic activity.

This portrait is reinforced by evidence on Generation Z's financial and consumption behavior in the Indonesian context. Ardyansyah & Indrawati, (2024) found that Indonesian Generation Z members exhibit distinctive personal financial management practices shaped by

their digital-native orientation, favoring practical, technology-mediated money management over conventional saving instruments. Complementing this, Zaelani et al., (2025) documented how Generation Z's digital consumption patterns are increasingly intertwined with the creative economy, positioning this cohort not merely as consumers but also as active producers of digital economic value. Taken together, these studies indicate that Generation Z's digital fluency extends beyond consumption behavior into entrepreneurial practice, reinforcing the relevance of positioning Generation Z as a key actor within the Gamepreneurship ecosystem examined in this study.

2.6 Research Framework

Building on this line of reasoning, the present study positions the Triple Bottom Line (Elkington, 1997) as the grand theory for evaluating the business sustainability of Generation Z's Gamepreneurship in Sumenep City, with the Industry 5.0 sustainability pillar aligned with the planet dimension, human-centricity reflecting the people dimension, and resilience relating to the sustainability of the profit dimension (Andersson et al., 2022). Gamepreneurship, strategy innovation grounded in the Resource-Based View and Dynamic Capabilities, and the characteristics of Generation Z are positioned as supporting concepts that explain the processes and mechanisms underlying the attainment of these three sustainability pillars. This research framework is presented in Figure 1.

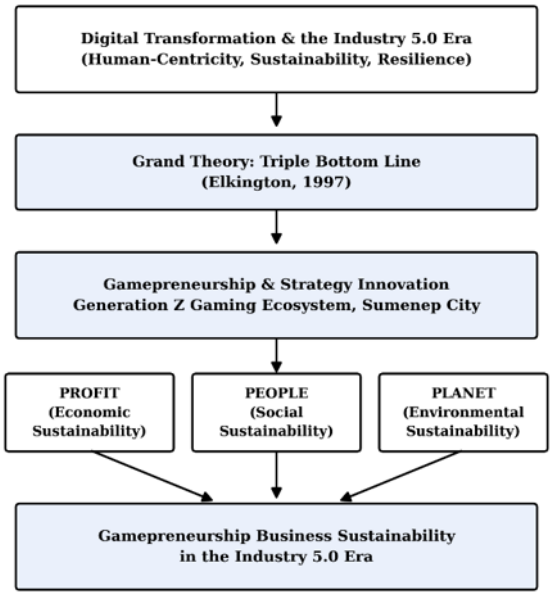


Figure 1. Research Framework

Source: Processed by the researchers, 2026

3. Research Method

This study employed a qualitative approach using a case study design, chosen for its exploratory and interpretive aim of gaining an in-depth understanding of Gamepreneurship strategy innovation in achieving the business sustainability of Generation Z in Sumenep City, covering activities such as streaming, game content creation, esports tournaments, gaming services, and game development (Creswell & Creswell, 2018). Specifically, this is a multiple, embedded case study design: the top-up store business model (IU-01) and the gaming-house farmer business model (IU-02) are treated as two contrasting embedded units of analysis within the single bounded context of Sumenep City's gaming ecosystem, rather than a single-case

design (Creswell & Creswell, 2018). The research was conducted in Sumenep City, Sumenep Regency, East Java, from March to June 2026, covering instrument preparation, field data collection, data analysis, and final report writing. Field data collection itself took place between 23 April and 7 May 2026, in accordance with the period stated in the institutional research permit.

The research data consisted of primary data obtained through semi-structured interviews and direct observation of Gamepreneurship practices in both physical and digital spaces. Secondary data were also used, comprising statistical data from BPS Kabupaten Sumenep, Presidential Regulation No. 19 of 2024 on the Acceleration of National Game Industry Development, reports from the Cooperatives and MSME Office, related scholarly articles, and informants' digital content. Informants were selected using purposive sampling based on relevance to and direct involvement in the Gamepreneurship ecosystem, with the number of informants determined by the principle of data sufficiency until data saturation was reached (Creswell & Creswell, 2018). Given the case study design's emphasis on information power and analytical depth rather than statistical representativeness, saturation with two key informants was judged adequate once successive interviews and observations ceased to yield new strategic categories and once the emerging patterns were consistently corroborated by the four supporting informants. This cross-informant triangulation, rather than the number of key informants alone, is treated as the primary basis for the credibility of the findings. The study involved two key informants, business actors within the gaming ecosystem who had operated for at least one year in Sumenep City. This one-year threshold was chosen so that each business had already passed through its initial start-up volatility. Strategies observed after this point can therefore be interpreted as an established, sustainability-oriented pattern rather than an ad hoc survival response. The study also involved four supporting informants who provided additional perspectives on the social impact and structural context of Gamepreneurship practices. In the analysis, key informants' accounts were treated as the primary unit of analysis, while supporting informants' accounts served a corroborating and triangulating function: a claim is reported in Section 4 as strongly supported only when it was independently corroborated by at least one supporting informant, and is otherwise explicitly flagged as resting on a single source. Prior to data collection, the purpose of the study was explained to all informants and their written informed consent was obtained for the use of their statements and business information in this publication. Informants' identities are protected through the anonymized codes used throughout this article. Institutional authorization for the fieldwork was granted by the Digital Business Study Program, Faculty of Economics and Business, Universitas Wiraraja, through research permit letter No. 026/PS-FEB/PP-01/UNIJA/IV/2026 dated 23 April 2026, addressed to the Chair of E-Sports Indonesia (ESI) Sumenep as the gatekeeper of the local gaming ecosystem. The informant profile is presented in Table 1. Based on their birth years, all informants fall within the Generation Z category, defined as those born between 1995 and 2010 (Ardyansyah & Indrawati, 2024).

Note: all interview excerpts presented in this article were originally conducted in colloquial Indonesian, with informants occasionally interspersing Madurese expressions, and have been translated into English by the researchers for this publication; the Indonesian-language edition of this article presents the excerpts in their original form.

Table 1. Research Informant Profile

Code	Role / Position	Age	Platform / Institution	Relevance to the Study
IU-01	Owner, Game Top-Up Store (Key Informant)	30	WhatsApp (mobile-credit server network)	Strategy innovation & business sustainability practices of the top-up store model

IU-02	Owner, Gaming House Farmer (Key Informant)	29	Telegram (boosting/farming services)	Strategy innovation & business sustainability practices of the B2B farming model
IP-01	Admin, Top-Up Store	28	Employee, Top-Up Store (IU-01)	Confirms IU-01's operations & strategy
IP-02	Worker / Employee, Gaming House	19	Gaming House Farmer (IU-02)	Confirms IU-02's operations & strategy
IP-03	Daily Coordinator, Sumenep Gamer Community	21	Sumenep Esports Community	Perspective on the gaming ecosystem & the community's socio-economic impact
IP-04	Coordinator, Sumenep Mobile Legends Community	27	Sumenep Esports Community	Perspective on community governance & collective resilience

Source: Processed by the researchers, 2026

Data were collected through three complementary techniques. First, semi-structured in-depth interviews with key and supporting informants, each lasting approximately 35 to 45 minutes per session, to elicit their experiences and the strategies they applied. Second, direct observation of Gamepreneurship practices in both physical spaces and digital platforms such as YouTube and TikTok. Third, documentation in the form of screenshots of platform statistics, game-content portfolios, and monetization data, which are non-reactive in nature and therefore yield more objective data (Creswell & Creswell, 2018).

Data analysis was conducted inductively and continued throughout the research process using an interactive model comprising four mutually reinforcing components: data collection, data reduction, data display in the form of descriptive narrative and analytic matrices, and conclusion drawing and verification (Sekaran & Bougie, 2019). Operationally, the data-reduction step was carried out through a three-stage coding procedure: open coding of interview transcripts and observation notes to generate initial descriptive codes, axial coding to group these codes into thematic categories aligned with the Gamepreneurship, Triple Bottom Line, and Industry 5.0 constructs in the research framework, and selective coding to integrate the resulting themes into the analytic narrative presented in Section 4. This coding procedure was carried out manually, without qualitative data analysis software, using coding tables and analytic matrices prepared by the researchers. Data validity was tested through four strategies: source, technique, and time triangulation; member checking with key informants; increased persistence through repeated re-reading of transcripts; and transferability through the presentation of a rich, detailed description of the research context (thick description), so that the findings' relevance to other, similar contexts can be assessed.

4. Results And Discussion

4.1 Gamepreneurship Strategy Innovation among Generation Z in Sumenep City

Both key informants displayed distinct patterns of strategic innovation consistent with their respective business models, yet both reflected adaptive capacity, product differentiation, and the use of the digital ecosystem as a source of competitive advantage. IU-01, who runs a top-up store, does not chase every game trend on the market but deliberately foregrounds products in the supply channels where he is most competitive:

"It's not that we don't sell other things those are just complementary products. What we really highlight are the products we know inside and out, the ones where we genuinely have a competitive supply channel, like Free Fire and PUBG" **(**IU-01, 4 May 2026)

This approach aligns with the Resource-Based View Barney, (1991), in which sustainable competitive advantage stems from resources that are valuable, rare, and difficult to

imitate. IU-01 also applies gamification through a bonus system that evolved from an initial deposit scheme during the start-up phase into incentives based on specific amounts and periods during the mature phase, as confirmed by IP-01: "The bonus system works like this when you buy a certain amount, you get a bonus. sometimes the bonus only applies to certain amounts and on certain days too." This evolution has produced more consistent customer participation compared to generic rewards, and has driven organic word-of-mouth during local tournament events.

IU-01's competitive advantage is further built through active membership in a national mobile-credit server community as well as local esports organizations, ESI Sumenep and APGI, which provide access to a cross-regional reseller network for sharing top-performing products. In addition, IU-01's brand Omduro is an example of cultural branding that emerged organically from the gaming community, turning Madurese cultural identity into a source of unique differentiation in a digital market that tends toward homogeneity (Zervas & Maronitis, 2026).

Meanwhile, IU-02, who runs a gaming house farmer business, applies a highly calculative game portfolio management strategy. Every game is evaluated economically by weighing its potential coin yield against operational costs, as IU-02 explains:

"We have to actively look for other games that still make financial sense, that still have earning potential... once a game starts dying down or isn't picking up anymore, then as the owner I have to actively find another game with bigger profit potential." (IU-02, 5 May 2026)

This perspective was consistently confirmed by IP-02, a worker who also helps assess each game's profitability before it is taken on, showing that revenue calculation has become an operational culture embedded at every level of the organization (Teece *et al.,* 1997). IU-02 has also built a multi-collector strategy to avoid dependence on a single distribution channel, and applies anticipatory financial management through a disciplined saving strategy to prepare for lull periods between games:

"The most important lesson is you have to be smart about saving... so that if the gap between game A and game B stretches for months, operations can keep running." (IU-02, 5 May 2026).

Unlike IU-01, cultural branding is not relevant for IU-02, because his business model is business-to-business, mediated through collectors who care only about the quantity and quality of the coins produced:

"There's none of that here, because neither the buyers nor the collectors care about it whether we're from Madura, Malang, or Surabaya, they don't care, because their only focus is the output we deliver." (IU-02, 5 May 2026).

This finding confirms that cultural branding and gamification are not universal strategies, but depend heavily on market structure, distribution channel, and proximity to the end customer within each Gamepreneurship business model.

4.2 Gamepreneurship's Contribution to Business Sustainability (Triple Bottom Line)

The business sustainability dimension was analyzed with reference to the three Triple Bottom Line pillars (Elkington, 1997). On the profit pillar, IU-01 demonstrated economic resilience through his ability to survive the ecosystem policy shock of 2024:

"We actually lost our direction for a while, because the ecosystem above us suddenly made a 130-degree policy shift... all we could do was hold on, selling flat out whether it sold or not, for a whole year." (IU-01, 4 May 2026).

IU-02 demonstrated economic sustainability through a multi-game portfolio model combined with disciplined financial management, generating income that IP-02 described as "fairly decent."

On the people pillar, IU-01 contributes through sponsoring local tournaments, active membership in ESI Sumenep and APGI, and creating jobs for store admins. IU-02 provides the most direct social contribution through flexible worker recruitment aimed at Sumenep students and young people, accompanied by a routine knowledge-exchange mechanism between owner and employees regarding new game selection. The daily coordinator of the Sumenep gamer community (IP-03) further confirmed that community tournament events generate a multiplier effect for the income of the local cafés and street-food stalls (angkringan) that serve as event venues.

On the planet pillar, environmental sustainability remains implicit, an incidental byproduct of paperless digital operations rather than an ideological commitment. The most concrete form of awareness was shown by IU-02, who lowered his computer's power draw from 100 watts to 50 watts for electricity efficiency:

"Electricity use can actually be worked around by lowering the computer's performance... but without disrupting the game activity being run." (IU-02, 5 May 2026).

However, no evidence was found that either informant had ever actively communicated environmental concern to customers or the community. The mapping of the three pillars' contributions is presented in Table 2.

The "Contribution Intensity" column in Table 2 is a qualitative, pattern-level judgment rather than a statistical score. A pillar was labeled High when the corresponding pattern was present in both key informants' cases and was corroborated by at least one supporting informant; it was labeled Moderate when the pattern was present but only weakly articulated, only incidental, or corroborated by a single source. Because the findings rest on two key informants, these labels should be read as indicative of the depth and consistency of the pattern within this study's cases rather than as a generalizable measure of contribution size. Table 2 also distinguishes, in parentheses, whether a claim was cross-validated by an informant independent of the business owner concerned (e.g., the community coordinators IP-03/IP-04) or only by that owner's own admin or worker (IP-01/IP-02), so that readers can judge the strength of triangulation behind each pillar rather than treating all "High" labels as equivalent.

Table 2. Mapping of Gamepreneurship's Contribution to Elkington's (1997) Three Triple Bottom Line Pillars

TBL Pillar	Sustainability Indicator	Gamepreneurship Contribution (Field Findings)	Contribution Intensity
PROFIT (Economic)	Income stability & diversification, long-term growth plans	Competitive product selectivity (Free Fire & PUBG), national reseller network, planned website & app, multi-collector strategy, inter-game saving fund	High within each case (IU-01 & IU-02); corroborated internally by each owner's admin/worker (IP-01, IP-02) but not independently cross-validated between the two business models

PEOPLE (Social)	Employment, community contribution, knowledge transfer	Local tournament sponsorship, ESI & APGI membership, cross-regional reseller partners, flexible worker recruitment, collective game-selection discussions	High; the multiplier-effect and knowledge-transfer claims are further corroborated by an independent community-level informant (IP-03/IP-04), while owner-specific claims (sponsorship, recruitment) rely on corroboration from each business's own admin/worker (IP-01, IP-02)
PLANET (Environmental)	Minimizing physical materials, energy efficiency, active environmental concern	Fully digital operations with no physical product; reduced computer power draw from 100W to 50W for electricity efficiency	Moderate, implicit (IU-01 & IU-02)

Source: Processed by the researchers, 2026

4.3 The Industry 5.0 Era in Gamepreneurship Practice

All three Industry 5.0 pillars proposed by Gamberini and Pluchino (2024) were found present in both informants' practices, though adopted organically and adaptively rather than as planned policy implementation. The human-centricity pillar is most strongly reflected in IU-01's semi-automated system, through the Automeck server and add-ons that execute technical processes, while personal interaction and customer complaint handling remain in the hands of human admins:

"So it [the server] manages the traffic... when the admin gives a command, the one that executes it is the executor the add-on and then the admin relays it to the buyer." (IU-01, 4 May 2026).

The sustainability pillar is reflected in both informants' awareness of energy efficiency as part of operational cost management, although the primary motivation is cost savings rather than ideological environmental concern (Ali et al., 2025). The resilience pillar manifests most broadly, at both the individual-business and community levels. At the community level, the coordinator of the Sumenep Mobile Legends community (IP-04) demonstrated rapid adaptation to changes in the tournament system:

"You could call it a new challenge, but it wasn't too heavy for us because changes had happened before too... we adapted fairly quickly, just so we wouldn't be left behind." (IP-04, 7 May 2026).

The correspondence among Gamepreneurship dimensions, TBL pillars, and Industry 5.0 principles is presented in Table 3.

Table 3. Correspondence between Gamepreneurship Dimensions, Triple Bottom Line Pillars, and Industry 5.0 Principles

Gamepreneurship Dimension (Field Findings)	TBL Pillar (Elkington, 1997)	Industry 5.0 Principle (European Commission, 2021)	Sustainability Outcome
Product selectivity based on competitive supply channels & multi-collector strategy	PROFIT	Resilience	Income stability amid game-trend volatility
Cultural branding (Omduro) & ESI/APGI community participation	PEOPLE	Human-Centricity	Strengthened local identity and gaming-community social capital
Technical energy efficiency & paperless digital operations	PLANET	Sustainability	Reduced operational energy consumption of game-based businesses
Semi-human automation system (server + add-on + personal admin)	PROFIT + PEOPLE	Human-Centricity	Service scalability without sacrificing personal interaction
Saving strategy & game portfolio management	PROFIT	Resilience	Operational continuity during inter-game transition periods

Source: Processed by the researchers, 2026

Table 3 shows that resilience is the most prevalent Industry 5.0 pillar, appearing in three of the five identified Gamepreneurship dimensions. This finding carries important meaning: Sumenep's gamepreneurs are naturally oriented toward business resilience as their first priority, while disruptive innovation remains a longer-term aspiration consistent with the finding that Indonesian Gen Z digital entrepreneurs tend to innovate adaptively and incrementally.

4.4 Cultural Gamepreneurship and the Extended Triple Bottom Line for Cultural Digital MSME

The most original finding of this study is the emergence of Cultural Gamepreneurship, a Gamepreneurship practice that integrates local cultural identity as the core of the digital business value proposition. This phenomenon is most clearly manifested in IU-01's brand Omduro, which did not emerge from formal strategic planning but accumulated from the social interactions of the gaming community and was later recognized and deliberately developed further consistent with the argument that gaming communities transform into social-interaction ecosystems that shape identity (Zervas & Maronitis, 2026). IP-01 confirmed the strategic value of this identity succinctly:

"Identity really does matter for a business." (IP-01, 7 May 2026).

Nevertheless, the relevance of cultural branding is contextual, depending on market structure and proximity to the end customer. In a direct-to-reseller model such as IU-01's, cultural identity becomes a valuable differentiation asset; whereas in a business-to-business model such as IU-02's, output quality and reliability matter far more than producer identity. This finding adds a dimension not explicitly articulated in Elkington's (1997) Triple Bottom Line framework namely, local cultural identity as a standalone competitive asset, rather than merely a subset of the people pillar.

Theoretically, this cultural dimension satisfies the VRIN criteria within the Resource-Based View (Barney, 1991): it is valuable for creating market differentiation, rare because it is unique to each region, difficult to imitate because it is rooted in local history and identity, and non-substitutable by competitors lacking a comparable cultural identity. Based on this finding, the study proposes the development of an Extended Triple Bottom Line for Cultural Digital MSME framework, which adds culture as a fourth pillar (4P: Profit, People, Planet, Culture)

alongside Elkington, (1997) three TBL pillars, as illustrated in Figure 2. This 4P framework offers a more contextually grounded sustainability-evaluation alternative for digital MSMEs in regions with strong local cultural identity, particularly in developing countries such as Indonesia.

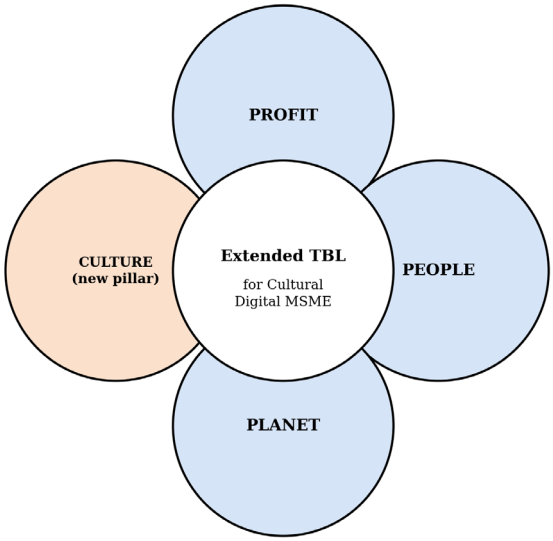


Figure 2. Extended Triple Bottom Line for Cultural Digital MSME

Source: Processed by the researchers, 2026

Socially, however, deploying local cultural identity as a branding asset is not without risk. While Omduro's use of Madurese identity generates positive differentiation, community pride, and market visibility, the same commercial logic can, over time, encourage a progressive simplification of cultural symbols to fit platform aesthetics and consumer expectations a risk commonly described in the cultural-sustainability literature as cultural commodification. This study did not observe active commodification in either case, but the risk is structurally present whenever cultural identity is instrumentalized for market differentiation. Local stakeholders and policymakers seeking to encourage cultural branding among digital MSMEs should therefore also consider safeguards, such as involving cultural-community representatives in how local symbols are represented online, so that commercial use of culture does not erode the meanings it draws upon.

4.5 Dynamic Capabilities as a Resilience Mechanism toward Sustainability

Both informants provided empirical evidence of dynamic capabilities (Teece et al., 1997) functioning as a resilience mechanism. IU-01 demonstrated absorptive capacity in responding to the 2024 VAT increase and ecosystem regulatory changes through unconventional short-term survival strategies, along with reconfiguring capability through plans to build an independent website and application to reduce third-party dependence. IU-02 demonstrated the clearest sensing capability through identifying promising new games based on revenue calculations and routine discussions with workers, confirming that dynamic capabilities in digital micro-enterprises stem not only from the owner's top-down decisions but also involve knowledge contributions from the operational level. This consistency also aligns with the five sustainability factors of digital entrepreneurs in developing countries audacity, resourcefulness, innovation, knowledge transmission, and resilience in adversity (Allal-Chérif et al., 2024).

4.6 Positioning against Prior Studies

Positioning these findings against the three studies noted in the introduction further clarifies this study's distinctive contribution. Fontanella et al., (2024) examined games as a simulation medium for teaching sustainable business models to high-school students, treating the game as an educational tool rather than as the entrepreneurial activity itself. In contrast, the present study finds that Gamepreneurship in Sumenep City is the substantive business activity, with sustainability outcomes emerging from actual income generation, employment, and community practices rather than a simulated exercise. Silitonga et al., (2024) showed how business simulation games can foster entrepreneurial intention and competence among early-stage entrepreneurs, a psychological, pre-venture outcome. This study extends that line of work into the post-venture stage, in which Gen Z entrepreneurs who are already operating gaming-based businesses translate game-related skills directly into strategy innovation and sustainability practice. Zaelani et al., (2025) documented Generation Z's broader involvement in technology start-ups and digital consumption within the creative economy without a specific sustainability lens. The present study narrows this focus to the gaming sector and explicitly evaluates outcomes through the Triple Bottom Line, revealing that the profit and people pillars are considerably more developed than the planet pillar among Gen Z gaming entrepreneurs. Taken together, these comparisons indicate that this study's contribution lies less in introducing entirely new constructs than in connecting existing constructs gamification-based simulation, entrepreneurial competence development, and Generation Z's digital engagement to an empirically observed, sustainability-focused business practice at the regional level.

4.7 Implementation Gaps and Theoretical Implications

This study also identifies three implementation gaps worth discussing candidly. First, the imbalance between the strength of the profit and people pillars and the weakness of the planet pillar reflects a stage of sustainability awareness still situated at the level of cost efficiency rather than active environmental responsibility (Andersson et al., 2022). Second, the absence of a structured documentation and financial recording system for both informants risks creating a strategic blind spot as the business grows and financial complexity increases, consistent with the limited strategic digital literacy among young Indonesian Gen Z entrepreneurs (Tali et al., 2021). Third, structural dependence on third-party ecosystems mobile-credit servers and community platforms for IU-01, and an informal collector ecosystem without formal agreements for IU-02.

Theoretically, this study shows that Elkington (1997) Triple Bottom Line framework, originally formulated in the context of large corporate business, remains relevant as an evaluative framework for regional Gen Z digital micro-enterprises. It also requires conceptual adaptation, however, through the addition of local cultural identity as a fourth pillar within the context of digital MSMEs in regions with strong cultural identity, such as Sumenep.

To enable future empirical testing of these theoretical implications, this study advances three propositions grounded in, but extending beyond, its own qualitative findings. P1: The strength of cultural branding as a competitive asset in Gamepreneurship is positively associated with the directness of the business's contact with end consumers, and diminishes as the business model shifts toward business-to-business intermediation. P2: Digital MSMEs with stronger integration of local cultural identity will exhibit stronger performance on the proposed culture pillar without a corresponding trade-off in the profit or people pillars. P3: The planet pillar in Generation Z digital Gamepreneurship will remain weak relative to the profit and people pillars until environmental considerations are institutionalized through external mechanisms, such as platform requirements or government incentives, rather than left to individual cost-saving motivations. These propositions are offered as a starting point for confirmatory, comparative, or mixed-methods research rather than as findings already established by this study.

5. Conclusions & Recommendations

5.1 Conclusion

The findings demonstrate that Generation Z in Sumenep City develops adaptive Gamepreneurship strategies aligned with their respective business models, encompassing product selectivity, gamified loyalty mechanisms, multi-platform community building, cultural branding, portfolio management, multi-collector strategies, and anticipatory financial management. These practices emerge organically through entrepreneurial adaptation and contribute to economic resilience, income diversification, employment creation, knowledge transfer, and local economic multiplier effects. However, the environmental dimension remains largely implicit, primarily reflected in operational cost efficiencies rather than explicit environmental commitments. The findings also demonstrate that human-centricity, sustainability, and resilience are embedded in Gamepreneurship practices, indicating the presence of Industry 5.0 principles through organic entrepreneurial adaptation rather than deliberate top-down implementation.

The study advances two preliminary theoretical contributions. First, it conceptualizes Cultural Gamepreneurship as a contextualized form of Gamepreneurship in which local cultural identity constitutes a central component of the digital business value proposition. Second, it proposes an Extended Triple Bottom Line for Cultural Digital MSMEs (4P: Profit, People, Planet, and Culture), positioning culture as an additional dimension alongside the conventional economic, social, and environmental dimensions. Given that the proposition is derived from two empirical cases, the 4P framework should be regarded as an initial conceptual proposition rather than a validated theoretical model. Future research should examine the framework across multiple regions, cultural contexts, and digital MSME settings to assess its applicability, explanatory scope, and boundary conditions.

5.2 Limitations

This study has several limitations that should be stated candidly. First, the findings are grounded in only two key informants. This is methodologically consistent with the information-power logic of qualitative case study research and was cross-checked through four supporting informants, but the resulting patterns including the proposed Extended Triple Bottom Line for Cultural Digital MSME framework should be read as analytically generalizable rather than statistically generalizable, and as an initial proposition requiring further testing rather than a settled conclusion. Second, the study is confined to a single regional context, Sumenep City, so the extent to which these findings transfer to Gamepreneurship practices in other regions with different cultural identities and market structures remains an open empirical question. Third, because the study relies on a single point-in-time qualitative account, it cannot capture how these strategies and their sustainability contributions evolve over a longer time horizon. These limitations are reported transparently so that the study's contributions are interpreted within their appropriate scope.

5.3 Recommendations

Gamepreneurship business actors in Sumenep City are advised to promptly establish a structured financial recording system, accelerate the formalization of locally grounded brand identity through visual identity guidelines and official trademark registration, and reduce dependence on third-party ecosystems by gradually building independent digital distribution channels.

The Sumenep Regency Local Government is advised to develop a digital entrepreneurship incubation program targeting gaming-based business actors, formally integrate the gaming and esports ecosystem into the regional creative-economy roadmap, and

formulate derivative local policies referencing Presidential Regulation No. 19 of 2024 on the Acceleration of National Game Industry Development.

Future research is advised to broaden the scope of informants to under-represented Gamepreneurship variants such as gaming content creators and indie game developers, to test the Extended TBL 4P framework through comparative studies in other regions with strong cultural identities, and to adopt a mixed-methods approach with a larger sample to test inter-dimensional relationships more rigorously.

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