Impact of Green Intellectual Capital on Sustainable Development Goals: Insights from Spain's Wine Industry

INTRODUCTION

Elevated consumer cognizance of ecological dilemmas, coupled with rigorous environmental mandates, has cemented sustainability as an overarching business doctrine across diverse economic domains (Annunziata et al., 2018). A prevailing agreement exists that views sustainability as an imperative response to the adverse environmental repercussions instigated by organizational activities. While the intellectual genesis of this discourse can be traced back to the mid-20th century, contemporary times underscore the pressing need for continued advancements in this realm.

Within the wine sector, sustainability emerges as a paramount concern for two primary rationales. Firstly, the sector grapples with profound challenges stemming from climatic shifts, coupled with the looming issues of water and energy paucity (Aigrain et al., 2016; Gilinsky et al., 2016). Conversely, adept environmental stewardship within wineries can potentially confer a competitive edge, facilitating enhanced market penetration and fostering innovative organizational processes (Fiore et al., 2016). Pertinently, prior studies indicate a consumer inclination towards wines crafted through sustainable methodologies, even if their comprehension of the specifics remains nebulous (Schäufele & Hamm, 2017). From the vintners' perspective, the adoption of eco-friendly practices has been linked to an uptick in both the caliber and fiscal productivity of their workforce (Szolnoki, 2013).

Within the viticultural sphere, sustainability is anchored by seminal documents from the International Organisation of Vine and Wine (OIV). These manuscripts articulate the quintessence of sustainable grape cultivation (OIV, 2004), outline its cardinal doctrines (OIV, 2008), and delve into its core tenets (OIV, 2016). Concurrently, leading wine-producing territories have devised region-specific strategies to infuse sustainability ethos within their landscapes. In the Spanish context, the Spanish Wine Federation (FEV) conceived the Strategic Vision for 2019-2024 (FEV, 2019). This strategic compass aims to perpetuate wine cultivation and amplify its societal resonance through an integrated sustainability lens. This instrumental strategy envisions pathways for the grape cultivation continuum to resonate with the Sustainable Development Goals (SDGs) set forth by the United Nations (UN). According to this strategic vision, the grape cultivation sector holds the potential to profoundly impact 11 salient SDGs: SDG 3 (health and wellness), SDG 5 (parity in gender), SDG 6 (pristine water and sanitation), SDG 7 (renewable and accessible energy), SDG 8 (respectable work and economic growth), SDG 9 (industrial evolution and innovation), SDG 11 (sustainable urban and community environments), SDG 12 (responsible consumption and production), SDG 13 (climate action), SDG 15 (land ecosystem conservation), and SDG 17 (partnerships for goal attainment).

Adherence to the SDGs by corporate entities facilitates a harmonious alignment of their economic, societal, and ecological aspirations. To actualize these ambitions, firms are necessitated to cultivate novel insights that empower them to navigate their operations with a sustainability-centric ethos (Boons et al., 2013). This evolution can be further augmented by enhancing their reservoir of intangible assets across three dimensions: human capital, structural capital, and relational capital (Davenport & Prusak, 1998). Within this framework, Intellectual Capital (IC) that integrates ecological considerations, termed as Green Intellectual Capital (GIC), emerges as a pivotal component in the quest for organizational sustainability.
The impetus for this investigation is anchored in two foundational postulates. Primarily, an augmented GIC capacitates enterprises to adeptly navigate their ecological conundrums. Subsequently, GIC serves as a metamorphic agent within entities, fostering enriched knowledge acquisition. Grounded in these tenets and employing a case study centered on a viticulture establishment, this inquiry endeavors to address the pivotal research query: Does GIC exert a favorable influence on the realization of the SDGs championed by the UN?

In pursuit of addressing the aforementioned query, the study is architected in the subsequent manner. Following this succinct prologue, Section 2 delineates the theoretical scaffolding, offering an analytical discourse on both GIC and the SDGs. Section 3 elucidates the methodological approach employed in the empirical segment to achieve the stipulated aim. Section 4 unveils the salient findings derived from the investigation. Conclusively, Section 5 articulates the inferences drawn from the study, spotlighting its seminal contributions, inherent constraints, and prospective research trajectories.

BACKGROUND

IC encompasses the array of non-tangible organizational assets that potentially serve as a wellspring for competitive leverage (Edvinsson & Malone, 1997). This includes the amalgamation of individual and collective acumen, intellectual proprietorship, experiential insights, and the intricate web of affiliations the entity shares with its diverse stakeholders (Bayraktaroglu et al., 2019). Historically, IC has been segmented into three distinct categories: human, structural, and relational capital (Mouritsen, 2003). Collectively, these tripartite classifications encapsulate the gamut of assets an organization might possess, spanning intangibles intrinsic to its personnel (human capital), inherent to its structural framework (structural capital), and reflective of its symbiotic ties with stakeholders (relational capital).

While there exists a prolific body of scholarly work centered on IC, scant research has endeavored to bridge IC with the environmental stewardship of entities. It wasn't until Chen's groundbreaking 2008 exposition, which heralded the innovative concept of GIC, that IC was examined through the lens of environmental governance. Chen's treatise bifurcated GIC into Green Human Capital (GHC), Green Structural Capital (GSC), and Green Relational Capital (GRC), thereby inaugurating a novel scholarly trajectory within IC studies. This was underscored by empirical evidence showcasing the affirmative nexus between GIC's tripartite dimensions and competitive ascendancy. In a subsequent exploration, Huang & Kung (2011) posited that GIC was pivotal for environmental adherence, value genesis within organizations, and satiating ecological imperatives of consumers. The preceding half-decade witnessed a surge in GIC-centric research, with numerous academics rigorously probing its interplay with diverse environmental determinants (Mansoor et al., 2021). Yet, to the best of our discernment, the nexus between GIC and SDGs remains uncharted territory. Instituted in September 2015, the SDGs were conceived to champion sustainable evolution within the ambit of the 2030 Agenda. Comprising 17 overarching goals and 169 specific objectives, they grapple with multifaceted challenges spanning climatic perturbations and socio-environmental disparities.

Consequently, the SDGs stand as a global clarion call, beckoning enterprises, institutional bodies, and governmental entities to collectively strive for enduring sustainable affluence. Post the inception of the 2030 Agenda in 2015, entities embarked on introspective evaluations to discern pathways for alignment with these pivotal objectives, recognizing their instrumental role in actualizing the SDGs. While these goals epitomize a universal blueprint, beckoning diverse institutional entities to confront ecological, societal, and economic quandaries, corporate entities have emerged as particularly influential stakeholders in this endeavor (van der Waal & Thijssens, 2020), thereby meeting the UN's stipulations. Specifically, the UN articulated, “We urge the global business community to harness their
innovative prowess in addressing sustainable development quandaries” (United Nations General Assembly, 2015, p. 25). The escalating prominence of SDGs within organizational paradigms has piqued the curiosity of scholars immersed in sustainable organizational governance. Consequently, while a subset of research delves into determinants catalyzing SDG adoption (Van der Waal & Thijsens, 2020), others probe the inherent potential of organizational endeavors in furthering these goals (Boiral et al., 2019; Pineda-Escobar, 2019). Our scholarly pursuit aligns with the former category, postulating GIC as a pivotal conduit for SDG realization.

GHC amplifies as employees assimilate novel ecological insights, competencies, and experiential learnings, thereby bolstering the organization's efficacy and sustainable trajectory. This reservoir of non-tangible assets further equips enterprises to adeptly navigate the labyrinth of rigorous global environmental mandates and the burgeoning eco-consciousness of consumers (Chang & Chen, 2012). Consequently, it becomes imperative to scrutinize the influence of GHC on an entity's alignment with the SDGs, considering that the cache of eco-centric acumen possessed by the workforce is pivotal for organizational sustainability (Jirakraisiri et al., 2021). Scholarly discourse has illuminated the affirmative impact of GHC on myriad facets, encompassing economic vitality, ecological stewardship, green-centric innovation, sustainable human resource strategies, and eco-friendly supply chain dynamics, to name a few (Yadiati et al., 2019; Mansoor et al., 2021). Yet, the nexus between GHC and the SDGs remains an uncharted domain in empirical studies. In light of the aforementioned rationale, we posit the ensuing proposition:

**Proposition 1:** GHC is positively related to the achievement of the SDGs.

Numerous scholarly endeavors have underscored the significance of GSC in augmenting organizational sustainability, deeming it an indispensable component for the pursuit of sustainable evolution. Such non-tangible organizational assets pave the way for enduring sustainable competitive edges (Zameer et al., 2020; Chen, 2008a), mitigating the adverse repercussions emanating from the entity's operations. Analogous to the trajectory observed for GHC, empirical evidence has substantiated the nexus between GSC and facets like green product innovation, fiscal vitality, the organization's eco-centric ethos, and sustainable human resource strategies (Liu, 2010; Chang and Chen, 2012; Delgado-Verde et al., 2014; Malik et al., 2020; Nisar et al., 2021). Yet, the interplay between GSC and the SDGs remains an unexplored avenue in academic discourse. In light of this observation, we articulate the subsequent proposition:

**Proposition 2:** GSC is positively related to the achievement of the SDGs.

Entities cultivate affiliations with their suppliers, leveraging their specialized acumen and expertise to foster synergistic collaborations that yield economic, societal, and ecological dividends (Dal Mas & Paoloni, 2019). Indeed, numerous scholars posit that the genesis of more sustainable societies is intrinsically tied to the collaborative nexus between corporate entities and both public and private institutional bodies (Zhang et al., 2020). Within this framework, green alliances facilitate the reciprocal transfer of eco-centric insights among diverse organizational stakeholders, thereby amplifying the sustainable trajectory of entities (Yusoff et al., 2020). Furthermore, the dissemination of knowledge and collaborative business endeavors are perceived as pivotal catalysts in championing a sustainability-centric ethos. Such significance is underscored by an extensive body of research that has delved into the affirmative impact of GRC on facets like organizational vitality, enduring competitive leverage, eco-friendly practices, and sustainable human resource paradigms (Chang & Chen,
2012; Thiagarajan & Sekkizhar, 2017; Febrianti et al., 2020; Asiaei et al., 2021; Ulla et al., 2021). However, the interrelation between GRC and the SDGs remains an uncharted domain in scholarly discourse. In light of these observations, we propose the ensuing hypothesis:

**Proposition 3: GRC is positively related to the achievement of the SDGs.**

**METHODODOGY**

This investigation adopts a qualitative paradigm, underpinned by a singular case study methodology. This approach is envisioned as a means to delve deeply into a specific occurrence, phenomenon, event, or context. The primary intent behind leveraging this methodological framework is to enhance comprehension of the selected case, rather than extrapolating the findings to a broader populace (Yin, 2012). Three pivotal rationales informed the decision to pursue a singular case study over a multi-case exploration. Initially, the chosen single case study methodology is aptly suited to validate the hypothesis articulated, holding the potential to significantly enrich the epistemological and theoretical discourse surrounding the nexus between GIC and the SDGs. Subsequently, an illustrative case was chosen, spotlighting the organization’s exemplary commitment to environmental stewardship. Lastly, the case study offers a comprehensive and profound insight into the phenomenon under scrutiny.

**Sample**

**Data collection and analysis**

The case study was orchestrated in a tripartite sequence: (1) literary exploration, (2) case analysis, and (3) data assimilation. Initially, the endeavor involved a meticulous perusal of scholarly works pertinent to GIC and the UN-endorsed SDGs. Subsequently, an exhaustive examination of the Bodegas Juan Gil case was undertaken to ascertain its congruence with the research objectives. In the third phase, in alignment with the study's qualitative essence, triangulation was employed as a data gathering technique to bolster the credibility and trustworthiness of the resultant inferences. This triangulation hinged on three data conduits: (1) an intricate dialogue with the winery's quality overseer, Miguel Ángel Abad; (2) firsthand observation, encompassing a winery visit and interactions with its personnel; (3) perusal of both internal (ecological proclamations, newsletters, accolades, etc.) and external documentation (corporate multimedia, digital presence, the Iberian Balance Sheet Analysis System repository, etc.). The interview was compartmentalized into three segments (refer to Appendix 1). The inaugural segment encompassed broad-based queries, shedding light on the winery's lineage and overarching ecological ethos. The subsequent segment delved deeper, probing the nuances of GIC dimensions and their interplay with the winery's ecological governance. The concluding segment broached topics pertaining to the winery’s alignment with SDGs, which hadn't been broached in the preceding segments.

The dialogue was facilitated on December 3, 2021, spanning an hour and was meticulously documented for subsequent transcription. The practice of leveraging interview transcriptions to scaffold theoretical constructs is a well-trodden path in management scholarship (Murray, 1996; Eisenhardt & Graebner, 2007; Lawrence, 2010). This methodology entails the extraction of salient terms and expressions from the dialogues to pinpoint thematic congruencies and discern potential lacunae warranting further exploration. Echoing Patton (2002), content analysis within the case study context is delineated as "a qualitative endeavor aimed at distilling vast swathes of material to unearth consistent patterns and fundamental essences" (p. 453).

Throughout the on-site exploration, interactions with various winery personnel underscored the institution's unwavering dedication to ecological stewardship. The data
assimilation process was curtailed when subsequent information yielded diminishing insights into the phenomenon in focus. Post-transcription, the perspectives of the interviewees were assessed against the preliminary draft to ensure its veracity. Subsequently, Miguel Angel Abad perused and ratified the transcribed account of his dialogue.

RESULTS

History of the winery group

Tracing back to 1916, Bodegas Juan Gil's inception was marked when Juan Gil Giménez, the progenitor of the present-day lineage, transitioned from his erstwhile profession to establish a quaint winery nestled in the heart of Jumilla. His son, Juan Gil Guerrero, devoted his entire existence to nurturing the winery. Yet, it was the stewardship of the third generation, represented by Juan Gil González and Francisco Gil González, the founder's grandsons, that fortified and sculpted the foundational ethos of the contemporary Gil Family Estates. Under their aegis, the winery's offerings came to be synonymous with quality, integrity, and efficiency.

Spanning over a century, an ardor for viniculture has seamlessly transitioned across generations, with the ethos of the patriarch, Juan Gil Jiménez, enduring: a commitment to excellence and an unwavering pride in the brand's legacy. Presently, the fourth generational torchbearers, Miguel and Ángel Gil Vera, have steered the enterprise, fortifying its stature as a prominent wine-producing conglomerate. This trajectory of growth was notably initiated in the closing months of 2001, marking the juncture when the scions embarked on a pivotal strategic venture. Miguel Gil Vera, fortified by Ángel's collaboration, spearheaded the rejuvenation of the ancestral winery, integrating the collective involvement of their nine siblings. Concurrently, alongside the strategic metamorphosis of Bodegas Juan Gil, Bodegas El Nido was conceived, gaining prominence for its flagship wines, Clio and El Nido. These wines not only augmented the winery's acclaim but also elevated the stature of the Jumilla wine region, previously a mere footnote in Spain's vinicultural tapestry. Notably, El Nido 2004 garnered an exceptional accolade of 99 Parker points, a distinction seldom bestowed upon Spanish wines. Indeed, El Nido emerged as the pioneering Jumilla wine to be heralded among Spain's top ten wines. This accolade was the culmination of a synergistic endeavor between the Gil lineage and the esteemed Australian oenologist, Chris Ringland, who remains integrally associated with the winery.

From 2004 to 2008, a deliberate strategy of territorial expansion was executed, culminating in the establishment of wineries across diverse appellations. Post the inception of El Nido in 2004, that very year witnessed the birth of Can Blau within the Montsant appellation. This was succeeded by Ateca in Calatayud in 2005, Atalaya in Almansa in 2007, Tridente in Zamora in 2008, and subsequently, Shaya in Rueda. This ambitious proliferation of wineries from 2001 to 2008 necessitated a substantial capital infusion amounting to 18.5 million euros. Moreover, the ambition to permeate various Spanish DOs remained undiminished. The growth trajectory persisted with the inauguration of Lagar da Condesa in Rías Baixas in 2013 and Morca in Campo de Borja in 2014. Between 2009 and 2015, investments aggregating to 45 million euros were channeled. Culminating this expansive journey, 2016 saw the establishment of Rosario Vera, the latest addition to the Gil Family Estates, nestled within the Rioja DO (refer to Table 1).

Table 1. Wineries belonging to the group
Over the preceding quintet of years, the conglomerate's export revenue has witnessed a twofold surge, with foreign markets absorbing a staggering 75% of its annual yield. As articulated by Miguel Angel, "Our expansive global footprint spanning over 40 nations is underpinned by our robust portfolio coupled with an efficacious logistical foundation, with pronounced inroads into the North American territories of the USA and Canada." Beyond these two international arenas, the winery's exports extend to a plethora of nations including, but not limited to, Sweden, Switzerland, Germany, Japan, the UK, Russia, Belgium, China, Denmark, South Korea, Ukraine, Mexico, the Dominican Republic, and Poland. Further destinations encompass France, Australia, Brazil, the Czech Republic, Serbia, Kazakhstan, Singapore, Taiwan, Guatemala, Cuba, and Peru, among others. This trajectory of expansive globalization has precipitated a consistent augmentation in the group's operational revenue and cumulative assets, culminating at respective values of 40 million and 130 million (refer to Graph 1).

<table>
<thead>
<tr>
<th>Wineries</th>
<th>Year</th>
<th>Designation of Origin</th>
</tr>
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<tbody>
<tr>
<td>Bodegas Juan Gil</td>
<td>1916</td>
<td>Jumilla</td>
</tr>
<tr>
<td>El Nido</td>
<td>2004</td>
<td>Jumilla</td>
</tr>
<tr>
<td>Can Blau</td>
<td>2004</td>
<td>Montsant</td>
</tr>
<tr>
<td>Ateca</td>
<td>2005</td>
<td>Calatayud</td>
</tr>
<tr>
<td>Atalaya</td>
<td>2007</td>
<td>Almansa</td>
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<tr>
<td>Tridente</td>
<td>2008</td>
<td>Zamora</td>
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<tr>
<td>Shaya</td>
<td>2008</td>
<td>Rueda</td>
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<tr>
<td>Lagar de Condesa</td>
<td>2013</td>
<td>Rías Baixas</td>
</tr>
<tr>
<td>Morca</td>
<td>2014</td>
<td>Campo de Borja</td>
</tr>
<tr>
<td>Rosario Vera</td>
<td>2016</td>
<td>Rioja</td>
</tr>
</tbody>
</table>

Source: own elaboration

Graph 1. Operating revenues and total assets of the Gil Family Estates group. EUR.

Source: Prepared by the authors based on the Iberian Balance Sheet Analysis System database (SABI, for its acronym in Spanish)

The conglomerate's wineries are architected with sustainability at their core, aligning with a doctrine of energy prudence and judicious resource utilization. This ethos permeates
every facet of the production continuum, underscoring an unwavering commitment to process and product excellence. Illustratively, the Can Blau winery stands as a paragon of energy independence and ecological stewardship, boasting complete energy self-reliance through a solar energy matrix bolstered by generators. This system mitigates CO2 emissions by an impressive 66 tons annually. Furthermore, the tenets of environmental conservation and reverence resonate across the group's entities.

As the enterprise embarked on its geographical expansion, the intent wasn't merely to establish a presence in novel Spanish vinicultural regions but also to imbue the deeply entrenched environmental ethos of Bodegas Juan Gil across its subsidiaries. Echoing Miguel Ángel's sentiments, "Bodegas Juan Gil's growth trajectory has been instrumental in disseminating our organization's green values to our broader portfolio of wineries." Additionally, the strategic positioning of the wineries proximate to the vineyards serves a dual purpose: facilitating meticulous grape evolution oversight and amplifying the enterprise's asset valuation. Miguel Ángel elucidates, "Our organizational mantra, 'we are land,' isn't arbitrary. We perceive the land as our paramount strategic asset, ensuring future harvests, underscoring our allegiance to our operational territories, and vouchsafing the caliber of our wines."

Presently, there's an ongoing expansion concerning production hectares and winery infrastructure, having adeptly navigated the challenges posed by the COVID-19 pandemic. As Miguel Ángel articulates, "The pandemic era was fraught with tension and complexities, yet our strategy of channel diversification and fostering close collaborations with our clientele proved instrumental in weathering this uncertain phase." This aligns with the insights presented by Marco-Lajara et al. (2021a) and Marco-Lajara et al. (2021b), underscoring the pivotal role of distribution channel diversification in the viniculture sector as a means to counteract the disruptions induced by COVID-19.

**Green Intellectual Capital in Bodegas Juan Gil**

As delineated earlier, the GIC encompasses three integral components: GHC, GSC, and GRC. The determinants shaping these tripartite environmental intangible facets, in the context of the case under examination, are elaborated upon in the subsequent section (refer to Table 2). Pertaining to GHC, it's imperative to underscore the winery's endeavors in sensitizing its workforce about the environmental challenges on the horizon. Bodegas Juan Gil channels resources into educational programs, enabling employees to assimilate eco-centric knowledge. This knowledge subsequently translates into fiscal prudence via resource optimization and heightened market distinction due to their advanced proficiency in sustainable methodologies.

The winery actively participates in industry exhibitions to stay abreast of evolving trends, such as the shift towards natural, organic, and biodynamic wines. Explicit knowledge is systematically documented through codes of conduct and best practices, ensuring universal accessibility for all employees. Furthermore, by embedding these practices, the winery fosters a sense of motivation, job contentment, and group allegiance among its staff. This is bolstered by the understanding that eco-friendly initiatives not only enhance the organization's financial viability but also fortify job security.

Regarding the GSC, several elements contribute to its development. The winery has instituted recycling initiatives for materials like cardboard, glass, and wood, complemented by a circular economy endeavor that involves creating compost from grape stalks. Its carbon footprint is meticulously assessed, and its environmental dedication is validated by the esteemed WfCP certification. The winery boasts a brand with significant recognition both domestically and internationally, and it's actively striving to ensure its organic wines garner acknowledgment from its clientele. The organization's structure is streamlined, promoting efficient dissemination of eco-centric knowledge. The foundational values of its organizational
ethos are anchored in sustainability pillars. Moreover, it embarks on R&D&I ventures aimed at bolstering the winery's sustainability, which subsequently yield tangible benefits, such as the in-house compost production from grape remnants.

In terms of GRC, Juan Gil is affiliated with an extensive array of associations, enabling the continual refinement and acquisition of the organization's environmental insights. This includes its association with the Designation of Origin (DO) Jumilla, the Jumilla Wine Business Association (known as ASEVIN in Spanish), the Jumilla Wine Route, the Murcian Institute for Agricultural and Food Research and Development (referred to as IMIDA in Spanish), and the Integrated Center for Agricultural Training and Experiences (abbreviated as CIFEA in Spanish) situated in Jumilla. Additionally, the winery has forged research collaborations with multiple Spanish academic institutions. Furthermore, Juan Gil mandates environmental certifications from its suppliers, ensuring the establishment and maintenance of an eco-conscious supply chain.

<table>
<thead>
<tr>
<th>Table 2. Dimensions of GIC in Bodegas Juan Gil.</th>
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<tbody>
<tr>
<td><strong>GHC</strong></td>
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<tr>
<td>Training Initiatives</td>
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<tr>
<td>“The organization prioritizes environmental education for its workforce, viewing it as a pivotal strategy for resource conservation.”</td>
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<tr>
<td>Industry Engagements</td>
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<tr>
<td>“The firm actively engages in prominent industry exhibitions, bolstered by a dedicated sales team that operates both domestically and internationally.”</td>
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<tr>
<td>Guidance Documents:</td>
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<tr>
<td>“The organization adheres to a code of conduct and environmental best practices. These documents are currently undergoing enhancements, driven by the impetus of the Wineries for Climate Protection certification.”</td>
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<tr>
<td>Employee Well-being</td>
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<tr>
<td>“The workforce is imbued with a sense of motivation and contentment, stemming from the company's environmental stewardship and favourable working conditions. Moreover, the economic advantages derived from sustainable practices ensure job security.”</td>
</tr>
<tr>
<td><strong>GSC</strong></td>
</tr>
<tr>
<td>Circular Economy Initiatives</td>
</tr>
<tr>
<td>“The organization has instituted recycling protocols for materials like cardboard, glass, and wood. Additionally, an in-house circular program has been developed to produce compost from grape remnants.”</td>
</tr>
<tr>
<td>Carbon Footprint Monitoring</td>
</tr>
<tr>
<td>“The establishment employs systems to quantify and externally audit its carbon emissions, witnessing a notable reduction since 2018.”</td>
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<tr>
<td>Eco-Optimized Infrastructure</td>
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<tr>
<td>“The facility is equipped with solar panels catering to 20% of its energy needs. The infrastructure has been meticulously designed for optimal energy conservation.”</td>
</tr>
<tr>
<td>Branding Considerations</td>
</tr>
<tr>
<td>“Despite being a paragon in environmental management, there remains a gap in consumer recognition of the company's sustainable endeavours, necessitating further brand development in this domain.”</td>
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<tr>
<td>Environmental Oversight</td>
</tr>
<tr>
<td>“The quality department shoulders the environmental responsibilities, allocating significant resources to execute eco-friendly initiatives.”</td>
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<td><strong>Accreditations</strong></td>
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<tr>
<td><strong>Organizational Hierarchy</strong></td>
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<td><strong>Cultural Ethos</strong></td>
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<td><strong>R&amp;D Investments</strong></td>
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<td><strong>Institutional Affiliations</strong></td>
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<td><strong>Supplier and Customer Collaborations</strong></td>
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<tr>
<td><strong>Sustainable Supply Chain Management</strong></td>
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Source: own elaboration

**Sustainable Development Goals in Bodegas Juan Gil**

Bodegas Juan Gil actively supports the realization of the Sustainable Development Goals pertinent to the viticulture sector. The winery is affiliated with the "Wine in Moderation" initiative (refer to Illustration 1), which champions endeavors that encourage temperate wine consumption and mitigate the repercussions of excessive alcohol intake. This initiative is anchored on three foundational tenets: sectoral and consumer education, advocacy for restrained consumption, and responsible communication. Such efforts resonate with SDG 3, which emphasizes health and well-being.

*Illustration 1.* Wine in Moderation label on the Juan Gil website.

Source: Juan Gil winery website (https://gilfamily.es/bodegas_juan_gil)
Historically, the viticulture sector has been male-dominated. However, in recent times, Bodegas Juan Gil has been advancing towards achieving gender parity by progressively integrating women into various roles within the industry. As highlighted by Miguel Ángel, "at present, women constitute 30% of our workforce. We are, however, actively striving to establish an equilibrium between male and female representation." This underscores the winery's dedication to enhancing its alignment with SDG 5, which champions gender equality. Moreover, the attainment of the WfCP certification positions Bodegas Juan Gil in alignment with SDGs 6, 7, and 13. Pertinently, effective water stewardship is a pivotal criterion for this certification, encompassing measures like assessing the water footprint and instituting strategies for consumption reduction and enhanced discharge processes.

Concurrently, the adoption of alternative energy solutions to cater to a portion of the winery's thermal demands, coupled with the deployment of energy audit systems to optimize consumption during production, stands as a fundamental tenet for certification acquisition. Furthermore, wineries graced with the WfCP certification are mandated to adhere to the strategic roadmap delineated by the certifying authority to confront the challenges of climate change.

The institution has the capacity to create employment for 125 individuals, thereby catalyzing growth in ancillary industries and associated sectors. Furthermore, it plays a pivotal role in bolstering the expansion, global outreach, and international stature of the Spanish economy. This is evidenced by a robust trade surplus, an extensive export infrastructure, and the visibility of Spanish wine products across over 40 nations, thereby underscoring its commitment to SDG 8.

The viticulture industry is intrinsically tied to the earth, and it recognizes the imperative of preserving its environment and the vital natural resources upon which it heavily relies to ensure the continued quality of its offerings. Bodegas Juan Gil embodies this ethos of environmental stewardship and reverence for the land, as encapsulated in their motto, "we are land." This commitment is further exemplified by their dedication to organic farming, with their entire vineyard expanse being organically cultivated, thereby aligning with SDG 12. Moreover, the winery's enotourism initiatives play a pivotal role in safeguarding Jumilla's cultural and natural legacy, given its deep-rooted association with both the culinary and cultural heritage of the region. This fosters the creation and nurturing of sustainable urban and communal spaces, resonating with SDG 11.

Pertaining to the waste emanating from the winery, significant strides have been taken in the ecological design of packaging to enhance its potential for recycling. This is complemented by exploring alternative systems like reuse and the reclamation of by-products from both the vineyard and winery operations. Such initiatives propel the winery's shift towards a circular economic model, thereby aligning with the objectives of SDG 12.

Finally, the establishment of collaborative alliances between the winery and public entities has been instrumental in advancing coherent strategies across various facets of sustainability. Additionally, the emphasis on eco-innovations has enhanced the winery's infrastructure, methodologies, and equipment. Such initiatives have effectively furthered the aspirations of SDGs 9 and 17.

CONCLUSIONS

The aim of this study is to delve into the impacts of wine enterprises' GIC on the realization of the SDGs. This exploration offers a significant addition to scholarly discourse, as, to the best of our understanding, no prior studies have explored this specific correlation. Tracing back to its inception in 1916, Bodegas Juan Gil was founded by Juan Gil Giménez, marking the establishment of a modest winery in the heart of Jumilla. Successive generations
have since expanded and fortified the legacy, culminating in the formation of the Gil Family Estates, which boasts ten wineries spanning across nine distinct Spanish viticultural regions. Presently, the group has a global footprint, exporting to over 40 nations, and is on an expansion trajectory in terms of vineyard acreage and winery infrastructure. Such organizational achievements have not only fostered job opportunities in their respective regions but have also stimulated growth in ancillary industries and associated sectors, aligning with the aspirations of SDG 8.

In relation to the GHC, the findings underscore a perpetual endeavor by Bodegas Juan Gil's workforce to enhance their environmental acumen. This is evident as organizational members actively partake in tailored environmental consciousness and management training sessions orchestrated by the enterprise. Additionally, they engage in sector-specific expositions to discern emergent sustainability paradigms and systematically encapsulate their expertise via established codes of conduct and commendable environmental protocols, ensuring widespread accessibility to this reservoir of eco-centric knowledge. Such cultivated insights have empowered them to affiliate with avant-garde initiatives in the domain, exemplified by their association with the ‘Wine in Moderation’ initiative, which champions moderated wine consumption while mitigating the repercussions of alcohol overindulgence, aligning with SDG 3. Furthermore, they've pioneered eco-friendly procedural innovations, notably their proprietary compost production from grape remnants, resonating with SDG 9. They've also instituted a holistic sustainable production blueprint, emphasizing diminished reliance on pesticides and fertilizers, steadfast soil preservation, judicious water utilization, and exemplary waste stewardship, aligning with SDG 12. These observations substantiate Proposition 1.

In terms of GSC, Bodegas Juan Gil has instituted a proprietary circular economy initiative, secured the WfCP certification underscoring its environmental dedication, fostered a brand synonymous with eco-conscious production, maintained a streamlined organizational hierarchy, cultivated an environmentally-focused organizational ethos, and embarked on R&D&I endeavors to augment the winery’s sustainability quotient. This amalgamation of green organizational assets has empowered the entity to champion gender parity within its ranks (aligning with SDG 5), devise efficacious water stewardship strategies and pollution and waste curtailment measures (aligning with SDG 6), ardently pursue self-sustenance and renewable energy avenues (aligning with SDG 7), undertake measures for climate change mitigation and adaptation (aligning with SDG 13), foster a wine tourism model accentuating territorial value (aligning with SDG 11), and advocate for organic cultivation practices and indigenous grape varietals, notably Monastrell (aligning with SDG 15). These observations substantiate Proposition 2.

Pertaining to GRC, Juan Gil maintains affiliations with a plethora of institutions, enabling the assimilation and dissemination of its environmental acumen. This includes affiliations with entities like DO Jumilla, ASEVIN, the Jumilla Wine Route, IMIDA, CIFEA, and collaborative research endeavors with various Spanish academic institutions. Additionally, the winery mandates environmental certifications from its suppliers as a prerequisite for collaboration. Such engagements ensure the forging of public-private synergies, advocating for policies that resonate with the multifaceted sustainability challenges confronting the wine sector (in alignment with SDG17). These findings validate Proposition 3.

While this research offers significant insights, it is not without its constraints. A primary constraint is the inherent challenge in drawing comparative insights from a singular case study, especially when the winery in question is distinguished as an environmental exemplar in its industry. To address this shortcoming, future research endeavors aim to undertake a multi-case study approach, examining the GIC-SDG nexus across both environmentally proactive wineries and those not particularly distinguished by this attribute.
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**APPENDIX 1**

**SECTION I: HISTORICAL CONTEXT AND GENERAL INFORMATION**

- Can you provide the inception date of the winery?
• Could you highlight the pivotal moments in the organization's journey?
• Does the organization operate other wineries domestically or internationally? Could you elucidate the strategy behind this expansion or international outreach?
• How extensive are the vineyards managed by the winery in terms of hectares?
• Can you specify the expanse dedicated to organic vineyards and their historical duration?
• Which grape varietals form the core of your operations?
• Could you delineate the distribution avenues of the winery? Which nations primarily receive your exports?
• Does the winery produce wines that are organic, natural, or biodynamic? Which primary destinations receive these exports?
• Does the winery operate under a singular brand or are there multiple brands within the consortium? Could you enumerate them?
• Could you provide an overview of the winery's present status?
• How did the winery navigate the challenges posed by the COVID-19 pandemic?

SECTION II: ECOLOGICAL INTELLECTUAL ASSETS ECOLOGICAL HUMAN ASSETS
• Are staff members encouraged to partake in educational sessions, such as seminars or workshops, to enhance their understanding of industry sustainability?
• Does the institution actively engage in sector-specific exhibitions or conventions?
• Does the institution maintain a set of best practice guidelines, environmental declarations, or explicit pledges to elevate its ecological stewardship?
• How would you assess the workforce's enthusiasm towards establishing the winery as a paragon of ecological responsibility?
• Do you perceive a correlation between the winery's sustainable initiatives and an enhanced work environment for the employees?
• Can you pinpoint when the institution began its resolute journey towards winery sustainability?

ECOLOGICAL STRUCTURAL ASSETS
• Does the institution champion any recycling initiatives? Could you specify them?
• Are there measures in place to monitor and control emissions within the winery?
• What mechanisms are employed to quantify the carbon and water footprints?
• Are strategies in place to curtail waste generation and energy consumption?
• How does the winery repurpose its waste? Are there derivative products crafted from the residuals?
• Are there initiatives aligned with the principles of the circular economy?
• How are the winery's infrastructures optimized for energy conservation? Are renewable energy sources, like solar panels, integrated?
• Do you believe that the Bodegas Juan Gil brand resonates with sustainability in the consumer's perception?
• Is there a designated individual or department overseeing the winery's sustainability endeavors?
• Are there any certifications that vouch for the winery's commitment to ecological preservation?
• Could you describe the organizational hierarchy? Is it more centralized or decentralized?
• Which core values of the institution do you believe bolster the winery's ecological initiatives?
- Does the winery allocate resources for research and development? Could you provide some instances?

ECOLOGICAL RELATIONSHIP ASSETS
- Is the winery actively engaged with external associations dedicated to environmental enhancement?
- Does the winery foster collaborations with its suppliers to advance ecological goals?
- Are eco-certifications a criterion when forging partnerships with suppliers?
- Are there established academic partnerships or agreements with universities?
- How does the winery foster connections with its clientele? Are there events curated to understand their preferences, especially concerning organic wines?

GOALS FOR SUSTAINABLE EVOLUTION
- What is the current employee count at the winery? Is there a balanced gender representation?
- Are there initiatives centered around wine tourism, and how do these endeavors contribute to the regional development of Jumilla?
- How would you describe the winery's intrinsic connection to its birthplace, Jumilla?
- What visions or aspirations does the winery hold for its sustainable future?