



Embedding Sustainability

Report

December 2021

**Analysis carried out for an importing-wines company in
Aotearoa New Zealand
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Glossary

Carbon footprint: Are the greenhouse gases, expressed in CO₂, emitted by an individual, company, process, service, event, element or any activity.

CO₂e: Is the measure or metric that considers the carbon dioxide equivalent of many other greenhouse gases. For example, CO₂e could include methane (CH₄) equivalent or nitrous oxide (N₂O). The CO₂e total is calculated considering each gas's weight or global warming potential (GWP).

LCA: The Life Cycle Assessment (LCA) is a study of the entire life of a product, from the cradle to the grave. This means that the analysis includes resources and raw materials used to make the product, the use and finally, its disposal.

SMEs: Small and medium enterprises, organisations or companies.

Tank to Wheel: Total emissions without considering the emissions from petrol extraction, processing and transportation to customer.

Well to Wheel: Total emissions which consider the steps of extraction, processing and transportation of petrol to customer.

Introduction

This report presents and analyses possible steps to introduce sustainable practices in a company that looks for importing and selling wines in NZ. The company is based in Christchurch on the South Island and would be importing wines from Argentina via sea cargo ships. The product would be transported in containers and packed in 750cc glass bottles, probably sharing freight space with other products and companies.

The sustainability concept as an action or approach acquired relevance after the Brundtland Report in 1987. This perspective results from issues that human development and the planet are facing. Thus, the original report proposes maintaining and improving human life while natural resources are preserved for future generations. The concept suffered several critiques and changes during the time and further views were added (Kuhlman & Farrington, 2010). Among these approaches were the need of considering three critical pillars or dimensions (social, ecological, and economic) as part of the sustainability configuration. These pillars are also known as the Triple Bottom Line (People, Planet and Profit) introduced by Elkington in 1994.

It is important to highlight that sustainability is still criticised through the idea that economic growth is extremely difficult without compromising resources. Therefore, further research is still being carried out to improve current strategies and keep development oriented to sustainable practices.

This report identifies possible areas where the company should focus in order to have a sustainable approach. Furthermore, different concepts and terms are introduced and explained to facilitate the report reading and understanding. The first step involves the scope of the analysis, which determines the limits of this investigation and recommendation. Then, based on the three pillars, an explanation and a list of strategies to be considered for the business takes place. Finally, a conclusion and suggestion for the first steps are outlined.

Scope

The report will be focused on internal and external aspects of the business based on the information provided. This first stage analyses generical factors related to sustainability that would determine the company's normal operation.

The investigation considers one supplier from Argentina, the transportation of the product to and within New Zealand, and the local company strategy. The areas mentioned previously are analysed through sustainability basics and the triple bottom line. This report also explains concepts such as Sustainable Development Goals (SDGs) from the United Nations, reporting, transparency, stakeholders and Corporate Social Responsibility (CSR).

In terms of recommendations and steps to follow, this report tries to identify the essential actions to ensure that the company would be towards sustainable management for each area. The advice also involves' third-party actions or audits in order to ensure that the supply chain is also sustainable.

Sustainable Development Goals (UN-SDGs)

In 2015, the United Nations leaders set 17 sustainable development goals (SDGs) and 169 targets. Several organisations have increasingly used these goals and targets as benchmarks or indicators to measure their sustainability. The objectives of the SDGs embrace social inclusion, environmental protection, and economic growth. Despite these goals could be seen as separate, it is encouraged that they should be considered as interconnected (Stafford-Smith et al., 2017).



Figure 1, United Nations Sustainable Development Goals (United Nations, 2020).

Company Strategy

The company strategy design is the most important step towards sustainable practices. The sustainability concept should be embedded in each business area, considering the macro (external) and micro (internal) environments. Thus, this approach should equally incorporate the capability to look internally and externally in terms of the business. The following paragraphs explain the points and strategies to be considered when planning sustainable management of any business.

It is important to point out that sustainability does not mean a significant investment or an entire change of perspectives. This concept starts with transparency and the intention of improving. Easy steps such as planning, data recording, protocols, codes and reporting are vital for developing this strategy component.

Stakeholders' analysis

The first step to put this theory into practice is to carry out a stakeholder analysis or mapping (Figure 1). This research should be carried out to understand the level of interaction, power, and influence of different actors on and with the company. An example is given in figure 1, and at the bottom, the colour scale shows how the business should manage these different stakeholders.

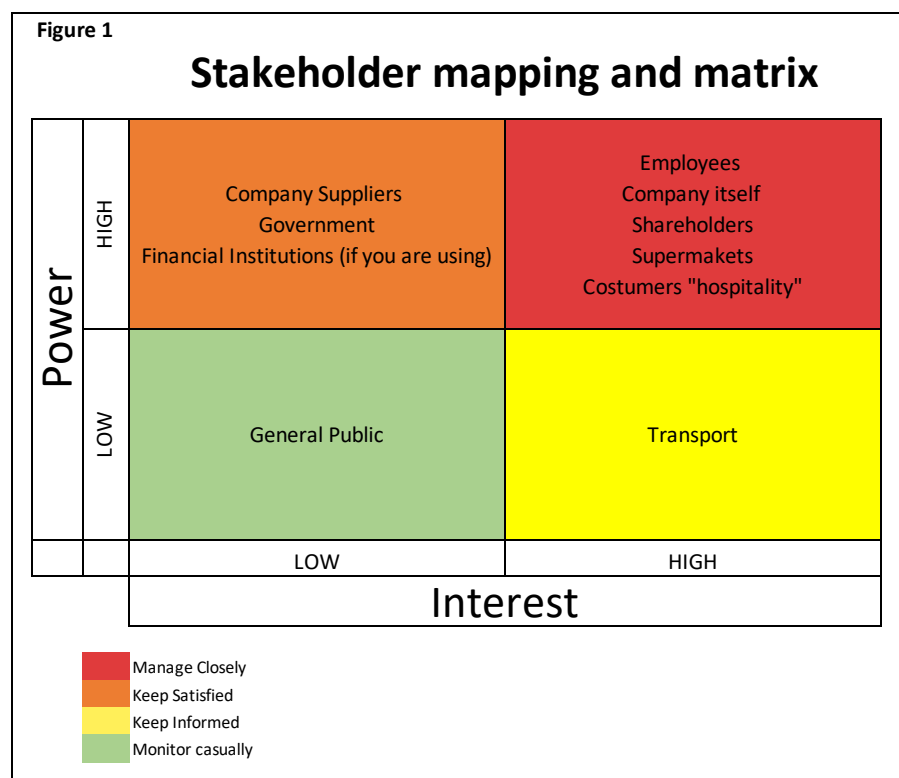


Figure 2, Stakeholder map and matrix.

SWOT Analysis

This is a well-known analysis, but several times is not carried out correctly. It is essential that when the elements are identified, the following is considered: Strengths and Weaknesses should be comprised by the internal factors of the business such as a differentiated product (strength) and lack of clear reporting (weakness). In terms of Opportunities and Threats, the external environment should be the one that defines these elements. For example, NZ possesses several opportunities for expansion (opportunity), but other companies are importing or will import Malbec soon (threat).

Business Strategy

One of the most important parts of sustainability is ensuring a long-term business. Therefore, the plan should consider critical aspects such as core competencies, competitive advantage and generic strategies (Porter, 1997; Prahalad & Hamel, 1997). The company would be able to determine its current strategy after identifying and understanding Porter's five forces.

Sometimes it is important to revisit the basics. According to Porter (1997), there are three competitive generic strategies. These frameworks make the company differentiate from its competitors. The first approach is cost leadership which involves leading the market with a generic product at the lowest price due to the company efficiency and low costs. The second concept is differentiation, and it is characterised by a unique product or added value that sets the company apart from its competitors. Lastly is the focus strategy, which involves targeting a specific market or consumer with a tailored product (Porter, 1997).

Based on the information provided by the customers, the product (Haroldos premium Malbec) offered by this wine company could be considered within a differentiation strategy. However, other companies in New Zealand also sell Malbec from different parts of the world. Thus, it is highly recommended to enhance the business strategy through supporting or complementing tactics such as adding value to the current product with sustainable practices. For example, the company could offer a unique Malbec in terms of social responsibility that contributes to different UNSDG's including Climate Change. This strategy could be implemented gradually without interfering with the current plans and costs.

Finally, Swot and Pestel analysis would contribute to identifying the company positioning and future targets. The business should also consider shifting from a supply chain to a value chain, where every step adds value to the final product. For SMEs could be a challenge this shift; however, it could be accomplished, and being pulled by the demand is the goal instead of pushing with the offer.

Innovation

The company should plan or propose steps to promote innovation, which should be clarified in its vision and mission. For example, a goal could be using recycled glass bottles from NZ instead of importing the product already packed. In this way, the company will be promoting

local business growth as well as a reduction of recycling processes. This can be used in marketing strategies as well.

Possible innovations list:

- Wines with lower Carbon Footprint.
- Organically and Biodynamically produced Wines (Striepe, 2020).
- Certification processes. (ISO 14001, BCorp, etc).
- Water use efficiency.
- Virtual Sommelier (helping the customer to choose the right wine) (Cult Wine Investment, 2021).
- Canned and Boxed Wines (Striepe, 2020).
- Circular economy plan.

This list should be reviewed annually to keep updated on possible innovations that can be applied to the business.

Reporting and transparency

The company should design a clear reporting model that could be sustained and improved. This is one of the most critical tools for sustainability. All reports should be accessible for anyone that needs information regarding the business and the enterprise. These kinds of reports will be beneficial not only for the company's image but also at the moment of requiring financial assistance or making a deal. Depending on the type of report, this should include not only financial aspects but also projections, company structure, company performance (KPI's) with SDG's, CSR, and risk management plans.

Transparency should also be certified, and different organisations in the market offer to accredit this practice. One of these certification organisms is B Lab, which ensures that the audited business complies with high standards of environmental and social performance as well as legal accountability (B Lab, n.d.). In addition, there are many other options such as ISO, Fairtrade and Green Tick (Sustainable Business Network, 2021).

Clear Vision and Plan

Once the company has defined its business strategy, a clear vision and action plan should be defined. The vision should incorporate consumer expectations and the enterprise desires for a long-term goal. The plan should constitute the guide to revisit every time that doubts arise and be flexible to adapt to a changing market. This plan should include economic/business, social, and environmental goals.

Proposed Timeline

This is an example of how the company plan could be designed. See Appendix A.

CSR

CSR could be described as companies' response to social issues that can have an effect on them. This response is not only for problems such as negative direct externalities of the business but also for improving on areas like the community where the activities occur and internally in the company. An internal example could be gender and cultural balance. Six different characteristics are identified as key features of CSR: it is Voluntary, it is for managing externalities, has a multiple-stakeholder orientation, searches for social and economic alignment, promotes certain practices and values, and could be beyond philanthropy (Crane et al., 2013).

Porter and Kramer (2006) introduced a different approach called Strategic CSR. This scheme is centred on that "CSR can be much more than just a cost, constraint, or charitable deed. Approached strategically, it generates opportunity, innovation, and competitive advantage for corporations—while solving pressing social problems" (Porter & Kramer, 2006, p. 2). The authors propose three steps for practising this approach that soaks into the business strategy. First, the company should identify the points where society and the company intersect. Secondly, choose which social problems to approach. Third and last, set a selected number of key initiatives that can have a significant and positive outcome for society and the firm (Porter & Kramer, 2006).

The authors propose two tools for the first step, which involves identifying the intersection points between society and the company. The first tool is a mapping scheme of the value chain that lists the looking inside-out linkages from the company's perspective. This map helps users detect the positive and negative effects that company activities could have on society. According to the paper, these inside-out linkages can vary from greenhouse emissions to hiring policies (Porter & Kramer, 2006).

The following are the tools for identifying the linkages between the company and society. In order to guide the user, examples are given in these diagrams.

Inside-Out Linkages:

SUPPORT ACTIVITIES	Firm infrastructure: Annual and interim general, financial and sustainability reports – Local Certifications - KPI's monitoring - Life Cycle Analysis (LCA) - MPI Registrations (Risk management and Exports) - International Certifications					
	HR Management: Health and Safety – Focus on gender pay gap (diversity and inclusion policies) - Perform and Grow process - Recruitment strategies - Employee’s improvement programmes - Work flexibility policies.					
	R&D: R&D Investment target (A % of revenue) - Partnership with suppliers, universities, and research institutes for reducing carbon footprint – Improve wine Industry sustainability – Retailer’s sustainability.					
	Procurement: Purchasing improvement programmes - Procurement Policy (low carbon wines – only sustainable suppliers) - Natural resources (soil, water, air) protection - Supplier audits – suppliers support (helping them to be sustainable).					
PRIMARY ACTIVITIES	Inbound Logistics: Winery to port; Sea Freight; Transport to Chch.; Storage.	Operations: Management; wine classification; labelling.	Outbound Logistics: Wine distribution	Marketing & Sales: Annual reporting (Financial and Sustainability) - Tailormade products for different costumers including labelling - Supermarket alliances - Talent attraction - Culture and Community	After-Sales service: Creating consumer trust with Product traceability; satisfaction surveys	Recycling: Circular economy (LCA, sustainable packaging, waste monitoring - Sustainable supply (Procurement Policy) - R&D in packaging and operations to reduce waste

Table 1, Inside-Out linkages – Social impact of the value chain mapping (Porter & Kramer, 2006).

Outside-In Linkages: (Examples)

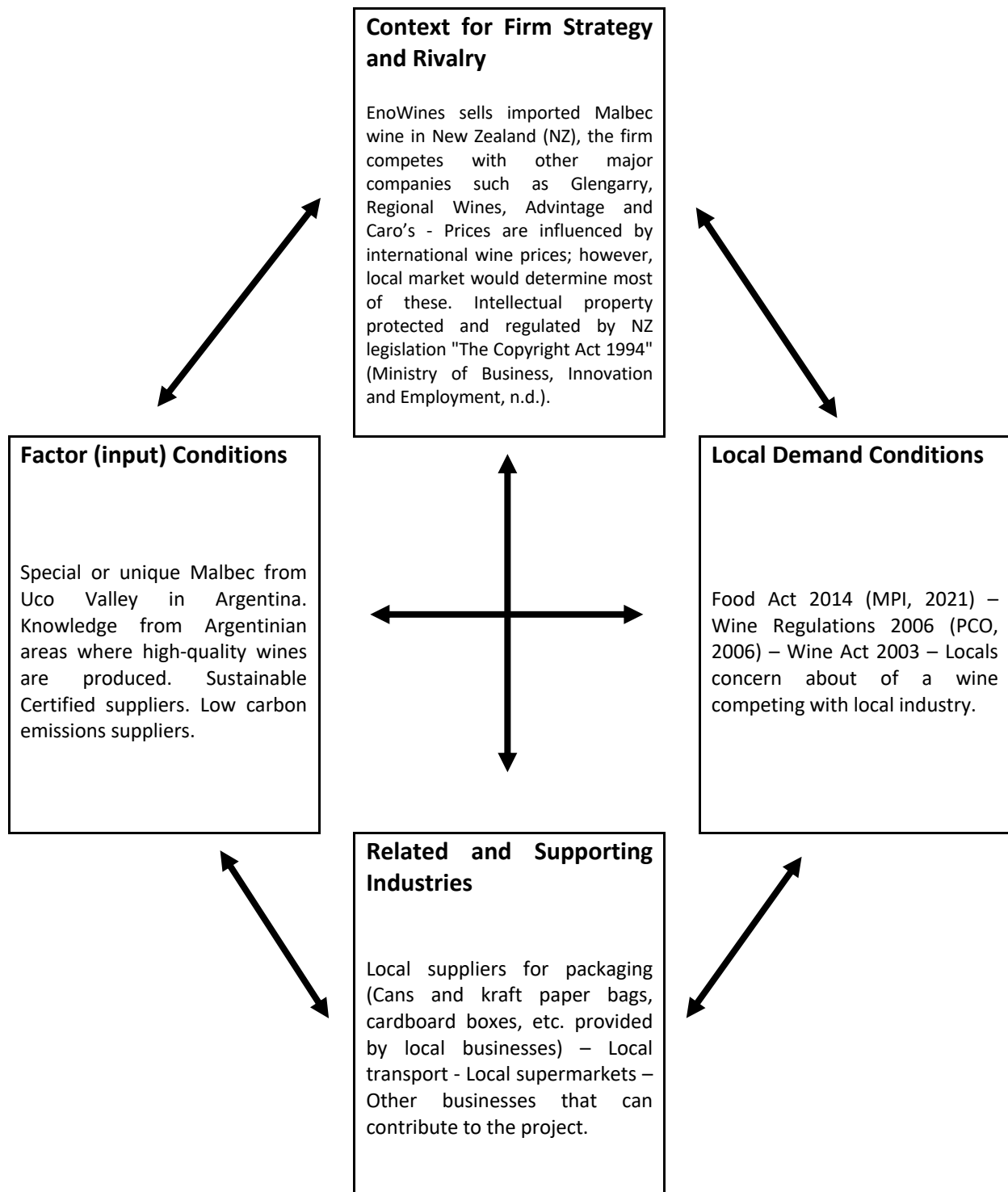


Figure 3, Outside-In Linkages - Social Influences on Competitiveness – EnoWines - (Porter, 1990)

Risk Management

In order to be sustainable, the company should secure different areas of the business and have a plan to avoid, mitigate or restore any negative effect. The following paragraphs approach various examples of possible issues and how these could be avoided through planning.

First, the company should consider internal risks, including its supply chain, employees, and finance—secondly, the external factors such as consumer health risks and demand behaviour. There are several strategies and concepts regarding risk management. Further research should be carried out to understand better which risk management frameworks suit this type of business. However, it could be assumed that the company should focus on strategic and operational or economic, social, technical, legal/political, and ecological risks (Soltanizadeh et al., 2016).

A strategic perspective involves risks associated with the business strategy, in this case selling wines. Some of the factors that should be evaluated within this perspective are market regulations, consumer behaviour, sustainability, diversification and innovation.

Operational perspective approaches issues related to the supply chain, product quality, health and safety, technology issues (e.g., a breach in a database), compliance breach, food safety and any other disruption that the business could suffer.

Health and Safety (Operational):

- Who, how and where will handle the company's product?
- Insurance.
- Storage.
- Hazards.
- Covid-19 Actions.
- Code of conduct.

Financial, credit and capital (Operational):

- Does the company possess any type of financial insurance?
- Reporting.
- Transparency.
- Currencies (foreign exchange exposure).
- Controls and records.
- Audits.

Ecological (Operational):

- During transportation, an accident occurs, and the product contaminates an area.
- It is discovered that the supplier does not comply with sustainable management practices and is using forbidden chemicals in the production process.
- The CO₂ emitted is more than the company expected, and this reaches the media.

Business Strategy (Strategic):

- Is the business diversified enough to support the failure of an area or product?
- Could the company offer other services?
- Is the business studying consumer behaviour and taking action to follow trends?
- Sustainable practices and strategy.
- Market (study of international and local market regulations; adaptation capability).
- Association with key stakeholders.

The points listed previously could be approached from different strategies. For example, some actions could involve hiring insurance, surveying suppliers annually about sustainable practices, studying the market, portfolio and supplier diversification, and mitigation plans design. All these strategies make an essential part of the company resilience and sustainability and should be included in its reporting.

Marketing

Proper communication is a crucial concept regarding sustainability and is directly connected to transparency. For example, a study carried out in Italy in 2016 showed that wine companies should invest in improving their capacity to communicate their sustainable practices through social media (Sogari et al., 2017). Therefore, the company should create a long term plan focused on informing how sustainability is embedded in the business.

Supplier in Argentina

Los Haroldos

Los Haroldos is a well-recognised Argentinian winery located in Mendoza that has been producing wines for almost 80 years. They specialise in high-quality wines with a strong focus on the Malbec variety that is produced in Uco Valley. This area in Mendoza characterises by its unique weather and environment that allows grapes to deliver unique flavours and quality.

This winery implements sustainable strategies such as efficient irrigation and waste management (Ojeda, 2018). Moreover, they utilise sustainable materials such as zero-carbon plant-based closures/stoppers for their bottles.

It is highly recommended that the supplier reports on current sustainable practices since this contributes directly to the sustainability goals in the New Zealand importing company. Furthermore, helping suppliers elevate or implement sustainable practices should be within the company's strategy. Some of the activities could include courses, training or certifications. For example, the local company could request a simple report on health and safety standards used by the winery in Argentina. This ensures that the supplier employees are protected from working hazards.

Basically, the customer in New Zealand should ensure that it is being supplied by a company that sustainably produces wine and has tools to prove it. It should be remembered that sustainability involves three pillars (economic, social, and environmental). Thus, the supplier should be producing the wine taking care of community, ecological and financial aspects.

Other Wineries

The following list includes the wineries that currently have sustainable practices embedded in their business.

- Catena Zapata – (Sustainable certified).
- Santa Julia – (Organic and other sustainable practices).
- Bodega Norton – (Fair Trade and ISO).
- Salentein – (Carbon footprint and ISO).

Transportation

International

Gori is the chosen freight company to transport the wines from Argentina to New Zealand. It belongs to the DHL group and specialises in wine and spirits transport. This company offers a green alternative (GoGreen) for transporting goods that offsets emissions through investments in international climate change mitigation projects (DHL, n.d.-a). Moreover, this carrier also offers transparency services such as carbon footprint and best practices reports (DHL, n.d.-b).

If green options offered by the transport company are not chosen, there are alternatives to mitigate and offset the business CO₂e emissions. According to Kuhene + Nagel Calculator Tool, 433 Kg of CO₂e (Well-to-Wheel) could be emitted in a 2-tonne freight from Mendoza Argentina to Christchurch New Zealand (Kuehne+Nagel, 2021). Further information regarding this calculation is presented in Appendix B. Many options are available in the market to offset these emissions. For example, Gold Standard, which is an organisation recognised by The United Nations, offers alternatives to invest worldwide and where climate change is having more severe effects (Gold Standard, n.d.-a).. These investments could range from \$10 to \$50 USD/TONNE of CO₂e offset (Gold Standard, n.d.-b).

After offsetting the carbon emissions through Gold Standard, the user could add their logos in their products and marketing strategies and claim contribution to the UN-SDG's and the Paris Climate Agreement (Gold Standard, n.d.-c).

National

In terms of local companies' availability with green choices for transportation, the following enterprises are listed:

- Toll New Zealand.
- New Zealand Post.
- Til Logistics Group (e.g., Move).
- Mainfreight (not yet but towards sustainable practices).

Many of the companies mentioned in the previous list are working or carbon-reduce certified by Toitū, which holds a B-Corp certification. If the freight company does not offer an offsetting option, the emissions could also be offset through Golden Standard

Transport: general concepts

In order to be sustainable, the company should analyse all available options to reduce its footprint or impact on the environment. One of the key issues regarding transporting wine is bottle packaging. This type of container adds unnecessary weight to all transportation processes. Thus, different alternatives should be considered to make this step more efficient.

According to a Life Cycle Assessment (LCA) carried out by Point et al. (2012), the most substantial environmental impact comes from nutrient management practices and consumer shopping trips. However, the research also showed that using a lighter bottle could significantly reduce adverse environmental effects even more than shifting to organic production (Point et al., 2012). Another study carried out by Ponstein et al. (2019) for the Finish wine market that imports all its wines found that importing as bulk and locally bottling causes the lowest Green House Gasses emissions. This methodology is even more effective when long importing trips are required (Ponstein et al., 2019).

Finally, more strategies could be considered, such as transporting bigger lots, lower steaming ships or other types of containers. Another vital component of sustainability is R&D, and this could keep the focus on researching options to reduce the business footprint.

Conclusion

Sustainability should be embedded in the entire supply chain and company. The concept should be addressed holistically, not in isolation or focused on specific areas. All actors or stakeholders should contribute to adding value to the final product, including consumers. Any enterprise could implement sustainable practices at lower costs bringing significant benefits to the business.

Several approaches, methodologies and concepts are introduced in this report. It is the user responsibility the implementation of correct practices. Further analysis of the business is recommended to define the right steps for implementing sustainable practices.

References

- B Lab. (n.d.). *About B Corps | Certified B Corporation*. Retrieved 8 December 2021, from <https://bcorporation.net/about-b-corps>
- Crane, A., Matten, D., & Spence, L. J. (2013). Corporate social responsibility in a global context. Chapter in: Crane, A., Matten, D., and Spence, LJ, *Corporate Social Responsibility: Readings and Cases in a Global Context*, 2, 3-26.
- Cult Wine Investment. (2021, June 28). *10 Tech Innovations That Are Changing The Wine Industry*. Retrieved from <https://www.wineinvestment.com/learn/magazine/2021/06/10-tech-innovations-that-are-changing-the-wine-industry/>
- DHL. (n.d.-a). *Carbon Offsetting*. Retrieved 6 December 2021, from <https://www.dhl.com/nz-en/home/logistics-solutions/green-logistics/offset-emissions.html>
- DHL. (n.d.-b). *Create Transparency*. Retrieved 6 December 2021, from <https://www.dhl.com/nz-en/home/logistics-solutions/green-logistics/create-transparency.html>
- Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California management review*, 36(2), 90-100.
- Gold Standard. (n.d.-a). *Vision + Impacts | The Gold Standard*. Retrieved 6 December 2021, from <https://www.goldstandard.org/about-us/vision-and-mission>
- Gold Standard. (n.d.-b). *Projects*. Retrieved 6 December 2021, from <https://marketplace.goldstandard.org/collections/projects>
- Gold Standard. (n.d.-c). *Brand Assets | The Gold Standard*. Retrieved 7 December 2021, from <https://www.goldstandard.org/our-work/brand-logo>
- Kuehne+Nagel. (2021, November 26). *How to calculate your carbon footprint*. Retrieved 6 December 2021, from <https://home.kuehne-nagel.com/-/knowledge/carbon-footprint-calculator>
- Kuhlman, T., & Farrington, J. (2010). What is sustainability?. *Sustainability*, 2(11), 3436-3448.
- Ministry of Business, Innovation and Employment. (n.d.). *Legislation*. Retrieved 18 April 2021, from <https://www.iponz.govt.nz/about-ip/copyright/legislation/>
- Ministry for Primary Industries. (2021, March 11). *Food business*. Retrieved from <https://www.mpi.govt.nz/food-business/>

- New Zealand Parliamentary Counsel Office (PCO). (2006). Wine Regulations 2006 (SR 2006/147) (as at 01 November 2021) 4 Application of labelling requirements – New Zealand Legislation. Retrieved from <https://www.legislation.govt.nz/regulation/public/2006/0147/latest/DLM385323.html>
- Ojeda, Nuria Magdalena. (2018). *Reingeniería del tratamiento y la disposición final de efluentes industriales en bodega Los Haroldos, San Martín, Mendoza: (Tesina de grado)*. Mendoza, Universidad Nacional de Cuyo. Facultad de Ciencias Agrarias .
Dirección URL del informe: <https://bdigital.uncu.edu.ar/10308>.
Fecha de consulta del artículo: 03/12/21.
- Point, E., Tyedmers, P., & Naugler, C. (2012). Life cycle environmental impacts of wine production and consumption in Nova Scotia, Canada. *Journal of Cleaner Production*, 27, 11-20.
- Ponstein, H. J., Ghinoi, S., & Steiner, B. (2019). How to increase sustainability in the Finnish wine supply chain? Insights from a country of origin based greenhouse gas emissions analysis. *Journal of Cleaner Production*, 226, 768-780.
- Porter, M. E. (1997). Competitive strategy. *Measuring business excellence*.
- Porter, M. E., & Kramer, M. R. (2006). Strategy and society: the link between corporate social responsibility and competitive advantage. *Harvard business review*, 84(12), 78-92.
- Prahalad, C. K., & Hamel, G. (1997). The core competence of the corporation. In *Strategische Unternehmensplanung/Strategische Unternehmensführung* (pp. 969-987). Physica, Heidelberg.
- Resource Management Act 1991.
- Sogari, G., Pucci, T., Aquilani, B., & Zanni, L. (2017). Millennial generation and environmental sustainability: The role of social media in the consumer purchasing behavior for wine. *Sustainability*, 9(10), 1911.
- Soltanizadeh, S., Rasid, S. Z. A., Golshan, N. M., & Ismail, W. K. W. (2016). Business strategy, enterprise risk management and organizational performance. *Management Research Review*.
- Stafford-Smith, M., Griggs, D., Gaffney, O., Ullah, F., Reyers, B., Kanie, N., ... & O'Connell, D. (2017). Integration: the key to implementing the Sustainable Development Goals. *Sustainability science*, 12(6), 911-919.
- Striepe, B. (2020, August 20). 10 Innovations in Winemaking. Retrieved from <https://science.howstuffworks.com/innovation/inventions/10-winemaking-innovations.htm>

Sustainable Business Network. (2021, September 27). *Sustainability Certifications*. Retrieved from <https://sustainable.org.nz/sustainable-certifications/>

Toitu. (n.d.). *Certified Member Directory*. Retrieved 7 December 2021, from <https://www.toitu.co.nz/our-members/members>

United Nations. (2020, September 19). *Take Action for the Sustainable Development Goals*. Retrieved from <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

Wine & Spirits Virtual Fair. (2021). *Wine Sustainable stoppers: How to take care of wines and the environment at the same time*. Retrieved from <https://winespiritsvirtualfair.com/blog/wine-sustainable-stoppers-how-to-take-care-of-wines-and-the-environment-at-the-same-time/>

Eno-Wines Roadmap

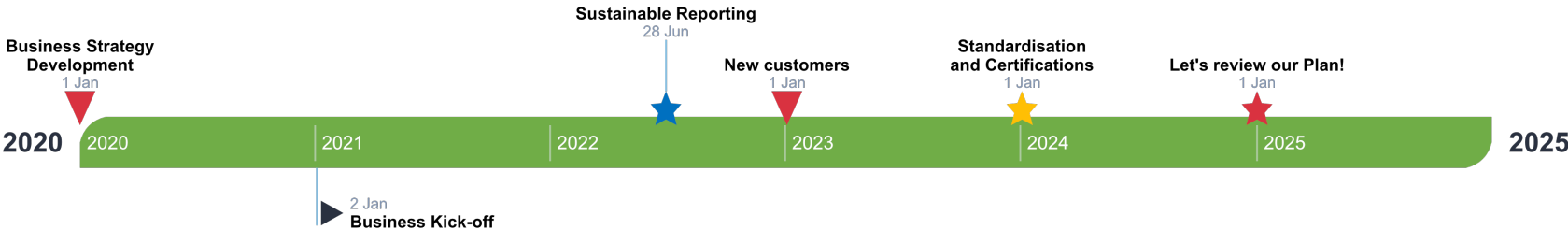


Figure 4, EnoWines Roadmap Example 2021

Global Seafreight Carbon Calculator



Global Seafreight Carbon Calculator (GSCC)

The Global Seafreight Carbon Calculator allows a quick calculation of:

- Carbon dioxide (CO₂)
- Nitrogen oxide (NO_x)
- Sulphur dioxide (SO₂)
- Particulate Matter (PM₁₀)
- Energy consumption (EC)
- CO₂ equivalent (CO_{2e})
- Tank-to-Wheel (TTW)
- Well-to-Wheel (WTW)

for container movements from door to door.

Calculation Parameter

Start of Transport: MENDOZA GODOY CRUZ, ARGENTINA
Port of Loading: BUENOS AIRES, ARGENTINA (ARBUE)
Port of Discharge: CHRISTCHURCH, NEW ZEALAND (NZCHC)
End of Transport: CHRISTCHURCH, NEW ZEALAND
Volume: 2.0 tonnes

Environmental Output

From	To	Mode of transport	Distance in km	CO ₂ in kg	NO _x in kg	SO ₂ in kg	PM ₁₀ in kg
MENDOZA GODOY CRUZ, ARGENTINA	BUENOS AIRES, ARGENTINA (ARBUE)	Road	1,056	211.78	0.88	0.62	0.01
BUENOS AIRES, ARGENTINA (ARBUE)	CHRISTCHURCH, NEW ZEALAND (NZCHC)	Sea	10,363	214.74	4.72	0.83	0.44
CHRISTCHURCH, NEW ZEALAND (NZCHC)	CHRISTCHURCH, NEW ZEALAND	Road	7	1.98	0.01	0.00	0.00
Total			11,426	428.50	5.61	1.45	0.45

From	To	Mode of transport	Distance in km	EC (TTW) in GJ	EC (WTW) in GJ	CO _{2e} (TTW) in kg	CO _{2e} (WTW) in kg
MENDOZA GODOY CRUZ, ARGENTINA	BUENOS AIRES, ARGENTINA (ARBUE)	Road	1,056	2.38	2.83	177.08	214.88
BUENOS AIRES, ARGENTINA (ARBUE)	CHRISTCHURCH, NEW ZEALAND (NZCHC)	Sea	10,363	2.57	2.80	199.83	216.80
CHRISTCHURCH, NEW ZEALAND (NZCHC)	CHRISTCHURCH, NEW ZEALAND	Road	7	0.02	0.03	1.66	2.01
Total			11,426	4.97	5.66	378.57	433.69

Kuehne + Nagel GSCC Methodology

Kuehne + Nagel as member of the Clean Cargo Working Group (CCWG) based the calculation methodology for this tool on the CCWG methodology <http://www.bsr.org/our-work/working-groups/clean-cargo>.

For port to port FCL transportation, the GSCC calculates CO₂ emission per Trade Lane/TEU/Grams based on the aggregate data reported by CCWG carrier participants in 2012 https://www.bsr.org/reports/BSR_CCWG_TradeLaneEmissionsFactorsReport.pdf. Pre-/on carriage CO₂ emissions are calculated according to the EcoTransIT World method <http://www.ecotransit.org/basis.en.html>.

For port to port LCL transportation, the average volume of a TEU is considered at a 22.5 m³. Thus, the actual volume inserted by the user when selecting LCL is converted to weight. Consequently the LCL calculation for the main transport is completed by using the CCWG methodology. Pre-/on carriage CO₂ emissions are calculated according to the EcoTransIT World method <http://www.ecotransit.org/basis.en.html>.

Figure 5, CO₂ Emissions Calculation (Kuehne+Nagel, 2021)