Automated Intelligence for Vineyards and Wineries

Overview

The Sustainable Winegrowing Australia (SWA) program launched mid-2019 to track and promote progress toward Australian Grape & Wine's (AGW) target for the Australian wine sector to achieve full sustainability reporting and net zero Scope 1 and 2 greenhouse gas (GHG) emissions by 2035. SWA has two paid membership tiers: Standard, which provides benchmarks based on user-supplied emissions data, and Certified, which allows use of the SWA trust mark in marketing material, in addition to the above. While the program has successfully onboarded about one tenth of the sector, industry commentators have expressed that the program is growing too slowly to make sufficient progress toward the AGW target. In this brief, we introduce a technological solution and behavioral catalysts to smooth the frictions of joining and progressing through the SWA program and ultimately increase the certification rate.

Problems

Frictions in the transition from non-member to Standard:

- The benchmarking reports were perceived as nice to have but not a necessity. Indeed, members often found the reports unactionable, and deprioritized data entry.
- Non-members were discouraged by uncertainty about the time cost of the data entry process.
- The cognitive and pecuniary costs of joining and paying the subscription fee could dominate the perceived benefits.

Frictions in the transition from Standard to Certified:

- Members were uncertain about their ability to pass the audit.
- Preparing for an audit required huge upfront time and financial investments.

Technology Solution

We propose the development of a decision support system (DSS) to analyze business data and contextual factors to suggest tailored interventions to optimize the profitability and sustainability of the vineyard or winery. Following data entry, a producer would receive, in addition to a benchmarking report, one or more written proposals for technology or management interventions, along with a statement of financial and environmental impact. Suggested technology improvements could include energy-efficient smart harvesters, environmentally friendly fertilizer formulae, affordable yield mapping, and labor-saving optical sorting machines. The statement would discuss increases in yield, energy consumption and labor savings, bottom-line impact, and payback period in the financial category, along with land preservation and emissions reductions in the environmental category.

While the data required by the current SWA benchmark is already sufficient to produce an informative result, a user could provide further details to obtain greater precision. As providing false data will reduce the output quality, a recommendation service based on the DSS implies a truthful mechanism.

The DSS model would be developed by a team of software engineers specializing in data science and technical experts familiar with the wine industry and sustainability best practices. SWA already employs many such individuals from the latter group on a part-time basis. We estimate the total labor cost of developing this technology to be 5 FTEs in wine experts (AUD 400,000) and 3 FTEs in engineers (AUD 350,000), over a period of 2 years. Following the initial investment of AUD 1.5M, the model needs only be updated by the wine experts with new technologies, contributing a negligible recurring cost.

Intervention

The DSS forms the core of our intervention, as it provides growers and wineries with unambiguous value in exchange for providing data, and acts as a critical bridge between the Standard and Certified tiers.
tiers. We modify the original program in two ways. Standard members maintain access to the benchmarking product, but no longer pay a $110/site-year fee. Users instead begin paying this fee at the Plus tier, which gives them access to the DSS analyses. Certified members are also given access to the DSS, but their experience is otherwise unchanged. In addition, we prescribe new language to be used in marketing material.

**Product Nudges**

We begin the story with a non-member. The Standard tier is now more attractive, as both the economic cost and additional cognitive load of managing a subscription have been removed, allowing curiosity and desire to invest in sustainability to prevail. By informing the user of the expected time cost of first-time and repeat data entry, they experience less risk aversion.

After joining as a Standard member and completing the data entry process, the DSS is run against the supplied information. The user is then offered the opportunity to upgrade to a Plus membership and teased with the bottom-line impact from the generated proposal. Because the data has already been entered, we are able to provide the user with an immediate gratification experience, where they are “one click” away from proposals that may make their business more profitable. Since the user is informed of the potential increase in profit, they will likely consider the net benefit of joining as opposed to the cost, and so does not experience loss aversion. Letting the user sign up as a Standard member and use the benchmarking tool for free establishes two more nudges, as the user now identifies as a member (foot in the door) harbors good will toward the program out of reciprocity.

Finally, Plus members can gradually optimize their business according to DSS suggestions, and in particular build confidence regarding their level of sustainability. This reduces the upfront cost of initiating the certification process, and again avoids risk aversion.

**Marketing Nudges**

To argue a more compelling case for sustainability, marketing material should explain that consumer demand and government attitude will shift increasingly toward sustainable wine, but that the SWA program is designed to keep members ahead of the curve so that they are not caught off-guard by changes in the market or policy. In addition, emphasis is placed on the newly accessible and easy profits enshrined within their data, and the impacts of sustainability practices on their children and grandchildren, as well as the preservation of their estate (emotional bias). Users are told that 40% of the wine sector by volume is already part of the program (bandwagon effect), and that many of them are larger vineyards and wineries (authority effect). Continuing a paid membership is presented as peace of mind to prevent attrition—so long as users are Plus members or above, they won’t have to worry about falling behind. Finally, the program should be presented as a pathway in which every producer is meant to arrive at the end (Certified status), and assists them in reaching that goal.