

Content Analysis of the New Approach of Sustainable Projects Implementation Necessity: The Case of the Champagne Region

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Abstract

Since the United Nations included the 17 Sustainable Development Goals (SDGs) on its crucial agenda, sustainability has emerged as a significant theme that captures global attention. Although the global Champagne market is increasing significantly, it is exposed to the physical risk caused by drought and some other challenges. With climate change and environmental issues, coupled with the impact of the spread of the epidemic on the wine industry, innovation and sustainability have become crucial development trends. The Champagne region has undertaken several sustainable projects over the past 15 years and achieved significant success, establishing itself as a leader in advocating for sustainability within the French wine industry. This paper employed a case study of Champagne region, conducting secondary research, gathering data from the official website of Comité Interprofessionnel du vin de Champagne (CIVC), as well as other reputable wine-related media outlets, associations, and organizations. Content analysis was used to determine the ways, the achievements, and the necessity of new sustainable projects implementation methods that will be used in the Champagne region.

1. Introduction

The wine industry is currently experiencing rapid global development. As one of the most representative regions of French wine producing regions, the Champagne region is also deeply affected by globalization. However, even in the current adverse environment, Champagne's market share is still showing a significant upward trend. Figure 1 shows the global champagne market size from 2019 to 2030. although the market share declined in 2020 due to the impact of the COVID-19 crisis, it will immediately rebound in 2021, and it will also show a significant upward trend in subsequent forecasts.

However, the phenomenon of global warming exerts a significant influence on vineyards and the winemaking process, thereby compelling the wine industry to address the imperative of sustainability. Over the past 20 years, temperatures in Champagne have risen 1.2°C, accelerating bud-burst and the harvest by an average of 18 days [1]. Climate variables assume a crucial role during winemaking and wine storage periods [2]. Moreover, in addition to its impact on viticulture and wine production, climate

modification also influences the wine business [3]. As one of the world's most famous wine producing regions, Champagne is very sensitive to climate change.

Climate change has consistently remained at the forefront of global attention since the beginning of the 21st century, representing an ongoing and pervasive spatiotemporal reality [4]. Moreover, climate change poses significant challenges to the sustainability of oenology in various geographical regions and has a profound impact on risk within the wine industry [5]. Although climate change is a big challenge the whole world is concerned and many wine-related studies have been paid attention to climate change and sustainability, few studies focus on the French wine industry, especially the Champagne region.

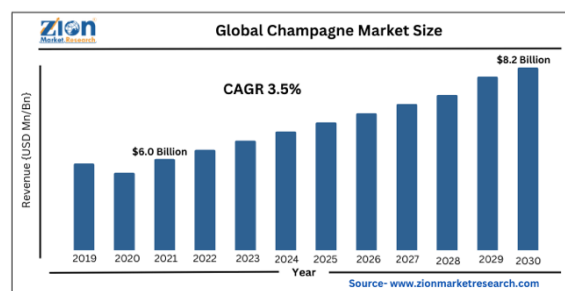


Figure 1. Global Champagne Market Size

Since the United Nations included the 17 Sustainable Development Goals (SDGs) on its crucial agenda, sustainability has emerged as a significant theme that captures global attention. Meanwhile, with the evolution of project management, projects today play a pivotal role in fostering more sustainable business practices, with the concept of sustainability being intrinsically linked to contemporary project management [6].

In line with the remarkable global trend towards sustainability, sustainable project management has emerged as a focal point for project managers. Nowadays, project managers are expected to assume the responsibility of creating sustainable value for stakeholders [7], [8]. Different from the original concept of project management, sustainable project management places greater emphasis on the environment, economy, social factors, and purpose, as highlighted in Joel Carboni's GPM P5™ Standard study [9].

Despite sustainable project management emerging as an inevitable development trend, the frequent occurrence of natural disasters and outbreaks such as COVID-19 has posed significant challenges for various industries. Since the outbreak of the COVID-19 crisis in March 2020, businesses have been grappling with its ramifications, numerous company reports highlighted substantial disruptions in sales activities [10]. This crisis has critically and negatively affected human activities, economic growth, and the business development, including aspects such as profitability, operations, economics, and access to finance [11], [12]. Moreover, the pandemic has likely heightened people's awareness of the importance of health coverage [13]. Consequently, businesses and policymakers must prioritize the strengthening and development of healthy and safe work practices in the post-pandemic period [14]. Obviously, the COVID-19 crisis brought a great negative impact on the wine industry. Hence, the wine industry stands as a prime candidate for the adoption of novel technologies and innovative practices that enhance its long-term sustainability while concurrently improving product quality [15].

Furthermore, with the rapid development of the internet and the advent of the 5G era, innovation and technology have emerged as crucial factors in enhancing business competitive advantage across various industries. Vignerons and senior management of wineries actively seek tools and strategies to embrace sustainability objectives [16]. Innovation and sustainability emerge as inexorable trends within the French wine industry. Hence, the wine industry stands as a prime candidate for the adoption of novel technologies and innovative practices that enhance its long-term sustainability while concurrently improving product quality [17]. Vignerons and senior management of wineries actively seek tools and strategies to embrace sustainability objectives [18]. Innovation and sustainability emerge as inexorable trends within the French wine industry. Consequently, the transformation of traditional industries driven by innovation has assumed a pivotal role, enabling organizations to create value and survive within an unpredictable environment. Therefore, the Champagne region, as one of the most prestigious wine-producing regions in France, is also a Bellwether in sustainability implementation.

The extreme case sampling was employed due to the region's exemplary status in SDG implementation. The Champagne region initiated a series of sustainable projects and programs approximately 15 years ago, yielding significant achievements. As early as the 2000s, the Champagne AOC recognized the significant influence of the environment. Consequently, a comprehensive environmental impact assessment was conducted by the entire Champagne industry, which identified four pivotal areas for action. There are three main parts of the

sustainable programme for the Champagne area, which are sustainable viticulture, biodiversity and energy management.

In conclusion, in order to solve the problem of how the Champagne region takes action to become more sustainable to face today's opportunities and challenges, two research questions are proposed:

- RQ1: it is necessary to develop a new approach to sustainable project implementation in the Champagne region?
- RQ2: How the Champagne region take action to be more sustainable?

This paper deeply investigates the progress of the sustainability projects implementation in the Champagne region through content analysis and explores the necessary use of innovation-led project management methods to better achieve sustainability and create more value.

2. Research Method

Content analysis was used in this study as one of the main research techniques for the objective, systematic and quantitative description of the manifest content of communication [19]. An in-depth content analysis was used to identify the progress and achievement of sustainable projects in the Champagne region over the past 15 years, which proceeded by detailed and adequate secondary research. The data were collected from the official websites of Comité Interprofessionnel du Vin de Champagne (CIVC), Meiningers Wine Business International, Rystad Energy, Luxe packaging insight, Sustainablewine, Fortescue Future Industries, Thebuyer, Elitetraveler, Rémy Cointreau, LVMH Group, SimplyChampagne, and Decanter. All the information, reports, and articles are from 2020 to 2022.

Conceptual Analysis was chosen to examine the occurrence of selected terms in the data. NVivo 11.4.3 was used to code the text into manageable content categories and then gave the systemic analysis. The process of conceptual analysis will be conducted with respect to Carley's study [20].

2.1. Decide the Level of Analysis

The aim of this paper was to induce the kinds of sustainable projects that have been implemented in the Champagne region, meanwhile, the achievements and developing trends would be discovered. Transcriptions were conducted first. All the information from the website has been transformed into Microsoft Word format and Microsoft PDF format since it would be convenient for leading into NVivo. A single word or a set of words and phrases would be coded, such as "sustainability", "address the energy" and "Life LVMH Environmental Program". NVivo was employed for coding and analyzing.

2.2. Determine the Concepts to Code For

A pre-defined and categories were determined in this phrase. Eight concepts have been defined firstly based on the materials collected of the Champagne region from 2020 to the present which are presented in Figure 2 (EdrawMax made).

A great flexibility was advocated when coding, new relevant categories that were not included in the set were allowed to appear in the coding process, the example was taken as the screenshot shows in Figure 3.



Figure 2. The Concepts Defined

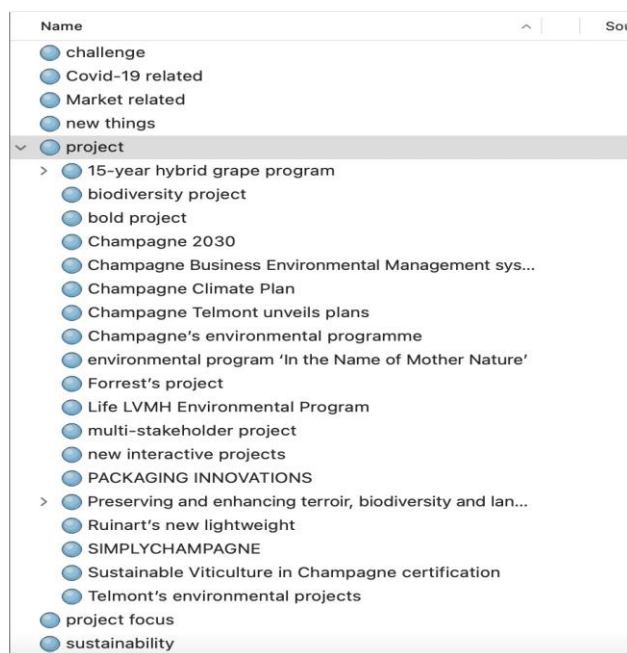


Figure 3. The Subject Categories as An Example

2.3. Decide Whether to Code for The Existence or Frequency of a Concept

After determining a number set of concepts which would be used for coding, word frequency was coded for the next step. The frequency analysis of the information, which includes reports and news from the trustworthy data, would reflect the perspective of the text.

After removing the punctuation marks, numbers, and stop-words, conjunctions, wineries such as LVHM, word frequency which embodies in a minimum length of five was analyzed by NVivo. Afterward, one thousand of the most frequently appeared words were collected as Figure 4 shows below.

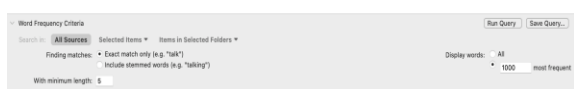


Figure 4. Word frequency example

The concepts were coded exactly when they appear although they would be in different forms, for example, “sustainable” may also appear as “sustainability”, it could be discovered clearly that how often this concept occurs. However, whether to include the concepts with the same meaning in different forms could be chosen in word frequency

analysis depending on the research needs. Figure 4 shows the options for finding matches.

2.4. Develop Rules for Coding the Texts

The translation rules were developed in this stage ensure to streamline and organize the coding process. The translation rule would give a crucial level of consistency and coherence in the coding process.

Initial concepts with a single word or short sentences to form the initial coding at the beginning, the information could be better summarized and analyzed after reviewing these concepts and adding some other themes flexibility in the next stage. The example is presented in Figure 5.

The irrelevant information outside the conceptual themes would be ignored in this phrase. After the preparatory work was completed, the formal coding would be in process, Figure 6. expressed clearly as an example.

3. Discussion and Conclusion

This paper proposed a version of innovative-driven sustainable project implementation in the Champagne region by using a content analysis approach based on the data from secondary research. The findings of the content analysis are discussed, and a specific conclusion is defined. Figure 7 summarizes the main findings.

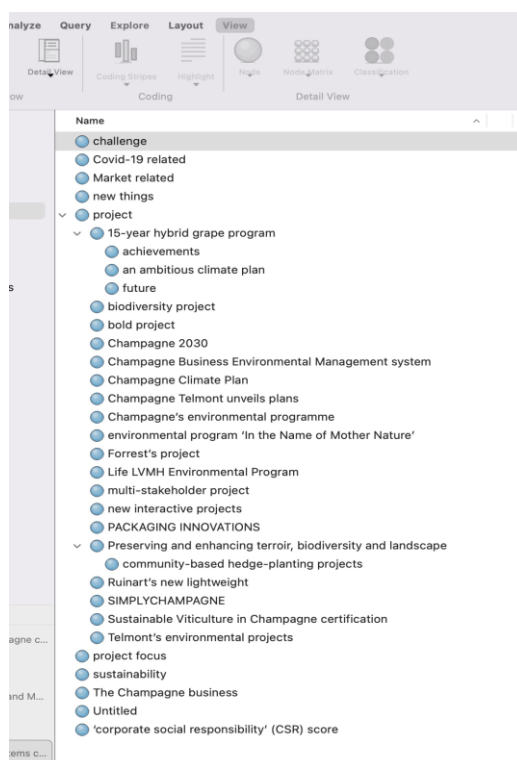


Figure 5. The example of initial concepts reviewed

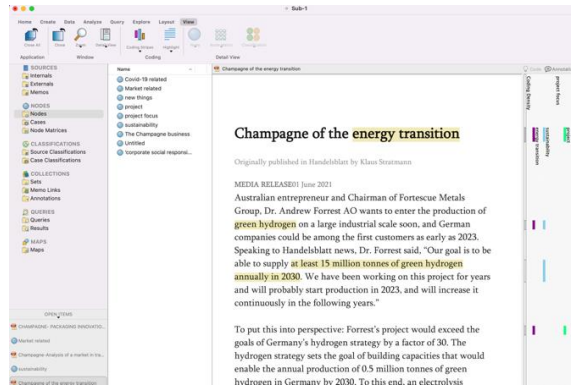


Figure 6. The Example of Formal Coding

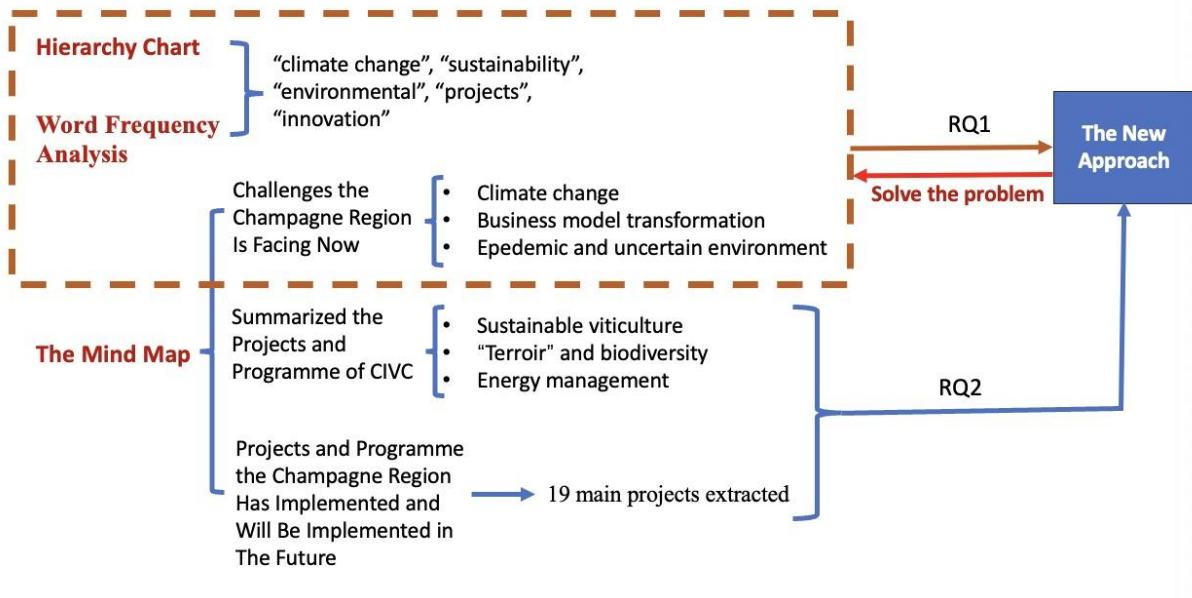


Figure 7. The Overall Findings

3.1. Hierarchy Chart

Hierarchy charts present the attribute value of cases and resources exactly in the coding process. The sunbursts were made by NVivo 11 unfolded in Figure 8.

The tree map is a diagram that shows hierarchical data as a set of nested rectangles of varying sizes [21]. The tree map represents the amount of coding at each node through different sizes of oblongs. The sunburst obviously shows the largest contributing segments in a hierarchy of multiple levels. Hierarchy charts clearly show that the largest proportion of the contents is "sustainability. Therefore, "sustainability" is the concept the most mentioned among the collected

materials, and the importance of innovation leading was closely followed.

3.2. The World Frequency

Word frequency was analyzed. 4 minimum lengths of words have been chosen, and the 30 most frequent words appeared in Figure 9.

All he collected materials described the development process of the Champagne region in recent years, especially highlighting the direction and concerns of the future status. Sustainability is now the most important concept in the Champagne region. Under the premise of sustainability, many projects have been carried out to achieve sustainability and promote business prosperity in the Champagne

region. All aspects will follow the theme of sustainability including cultivation, brewing, production, storage, supply chain, tourism, and marketing. In addition, 2030 is a momentous year for the Champagne region, which represents that all the

wineries in the Champagne region will fully achieve green and sustainable development certificates.

In addition, the 50 most frequent words of “project focus” were analyzed with a minimum length of four words.

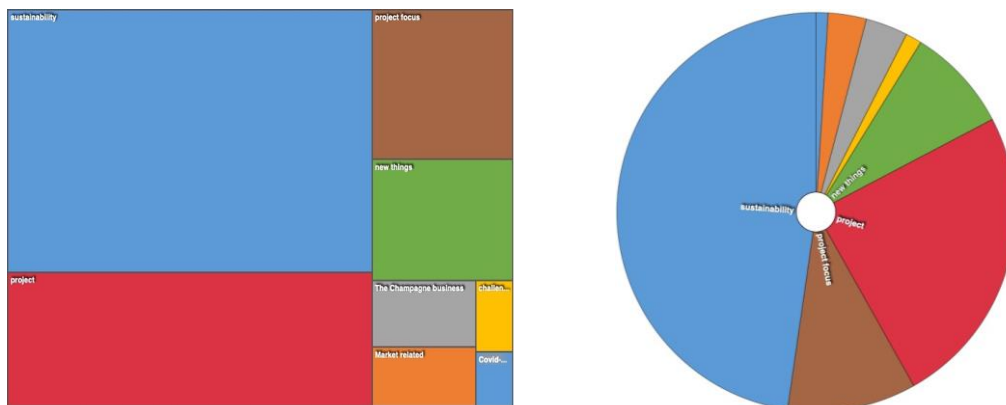


Figure 8. The Hierarchy Charts of Data

| Word | Length | Count | Weighted Percentage |
|----------------|--------|-------|---------------------|
| sustainable | 11 | 52 | 0.53% |
| carbon | 6 | 49 | 0.50% |
| environmental | 13 | 42 | 0.43% |
| bottles | 7 | 40 | 0.41% |
| sustainability | 14 | 38 | 0.39% |
| energy | 6 | 37 | 0.38% |
| bottle | 6 | 35 | 0.36% |
| climate | 7 | 34 | 0.35% |
| footprint | 9 | 34 | 0.35% |
| hydrogen | 8 | 32 | 0.33% |
| water | 5 | 32 | 0.33% |
| biodiversity | 12 | 31 | 0.32% |
| production | 10 | 31 | 0.32% |
| products | 8 | 29 | 0.30% |
| change | 6 | 27 | 0.28% |
| time | 4 | 26 | 0.27% |
| vineyard | 8 | 26 | 0.27% |
| viticulture | 11 | 26 | 0.27% |
| organic | 7 | 25 | 0.26% |
| skin | 4 | 25 | 0.26% |
| certification | 13 | 24 | 0.25% |
| glass | 5 | 24 | 0.25% |
| impact | 6 | 24 | 0.25% |
| working | 7 | 24 | 0.25% |
| future | 6 | 23 | 0.24% |
| green | 5 | 23 | 0.24% |
| soil | 4 | 23 | 0.24% |
| 2030 | 4 | 22 | 0.23% |
| growers | 7 | 22 | 0.23% |
| reduce | 6 | 22 | 0.23% |

Figure 9. The 30 Most Frequent Words



Figure 10. The 50 Most Frequent Words of “Project Focus”

As Figure 10 describes the projects implemented in the Champagne area are closely related to environmental protection, quality concerns, sustainability focus, social responsibility, and innovation utilization.

The two analyses of the frequency of words clearly reflect the current and future development trends of the Champagne region. It can be concluded that future planning will focus on sustainable projects, which will pay more attention to the embodiment of environmental protection and social responsibility, as well as the application of innovative technology that contributes to the three basic elements of time, quality and cost, which boost the development of the Champagne region.

3.3. The Mind Map

The mind map made by NVivo explores more intuitively the connections among different concepts which helps us better analyze the data.

3.3.1. The Challenges in Champagne. In the collected materials, some of the challenges that the Champagne region faces today were summarized after coding with NVivo. The mind map exhibited in Figure 11 was generated.

The challenges in the Champagne region can be roughly divided into six areas based on the collected data. However, it can be concluded in just three main parts. Climate change, business model transformation and epidemic influence. The biggest and most serious challenge is climate change. Climate change has greatly affected the process of wine growing, production, and storage.

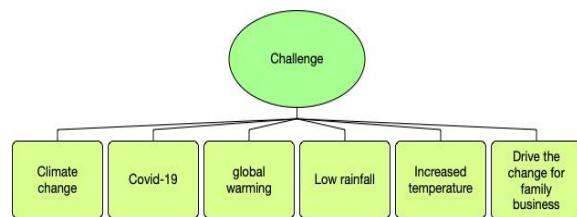


Figure 11. The Mind Map of Challenges the Champagne Region Is Facing Now

However, the Champagne region has been implementing various projects to combat climate change as early as 15 years ago and now with a great achievement. Nonetheless, climate change remains a serious challenge that the Champagne region has to face, which is given high priority in current and future plans.

The COVID-19 crisis was also mentioned as a huge challenge after analyzing the materials collected, especially the impact on the sales and market of Champagne. The report from Formes De Luxe shows that although it is a post-pandemic period today, the domestic market lost nearly 18% in value (€1.6bn) and 20% in volume (113.3 million bottles) in 2020 due to COVID-19. Meanwhile, exports declined by around 16% in value (€2.6bn) at the same time since many countries were in lockdown because of the effective management of the epidemic. However, as soon as most of the lockdowns were rescinded, Champagne was back with flying colors in May 2021. Although COVID-19 has been effectively managed and controlled nowadays, the spread of epidemics around the world has become normalized, which is one of the challenges we have to face. Moreover, in

response to COVID-19, it has been accelerating the development of digitalization and e-commerce. Therefore, the business model has to be transformed to adapt to today’s environment which is stressing the use of innovation and technologies.

3.3.2.The Projects’ Implementation in Champagne Region. The Comité Champagne (Comité Interprofessionnel du Vin de Champagne has a critical position, which is the trade organization established by statute to manage the common interests of growers (‘vignerons’) and Champagne Houses (négociants /producteurs), the mission is to promote the vines and wines of Champagne through a broad remit.

Therefore, CIVC had been aware of the climate change and environmental issues as early as 15 years ago, and it proposed a series of sustainable projects, such as the 15-year hybrid grape program mentioned in Figure 12, under the furtherance of CIVC, many wineries and wine merchants have laid down an increasing number of plans related to sustainable development. Therefore, the data from the CIVC platform has been coded in detail and the main projects related to sustainability have been summarized in Figure 12. It is obvious that “sustainability” is one of the most important concepts in the whole Champagne region.

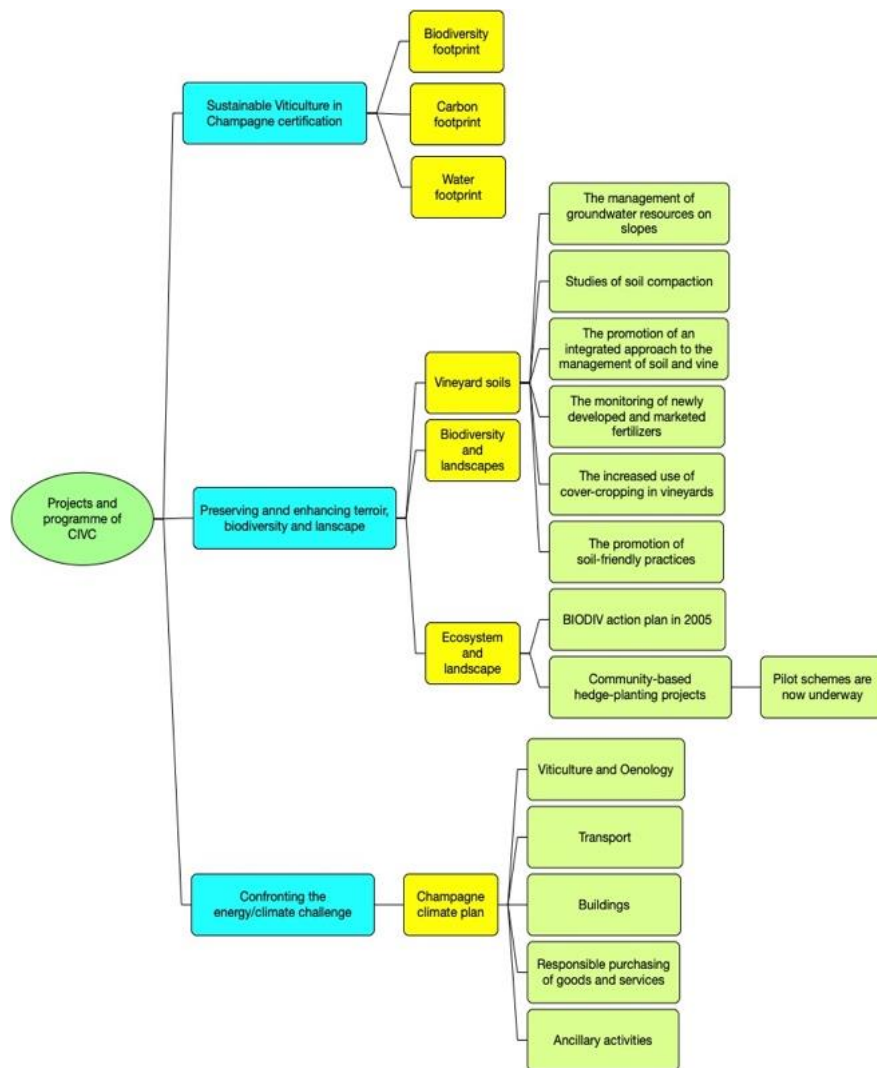


Figure 12. Summarized the Projects and Programme of CIVC

After coding the collected data, some projects that Champagne has implemented nowadays and will be implemented in the future are summarized in Figure 13. More and more wineries are responding to sustainability in various forms. There are 19 main

projects extracted, which cover the current and future project implementation methods and perspectives in the Champagne region. Meanwhile, "value" is a concept that is mentioned many times. Hence, these projects are all under the “sustainability” concept, in

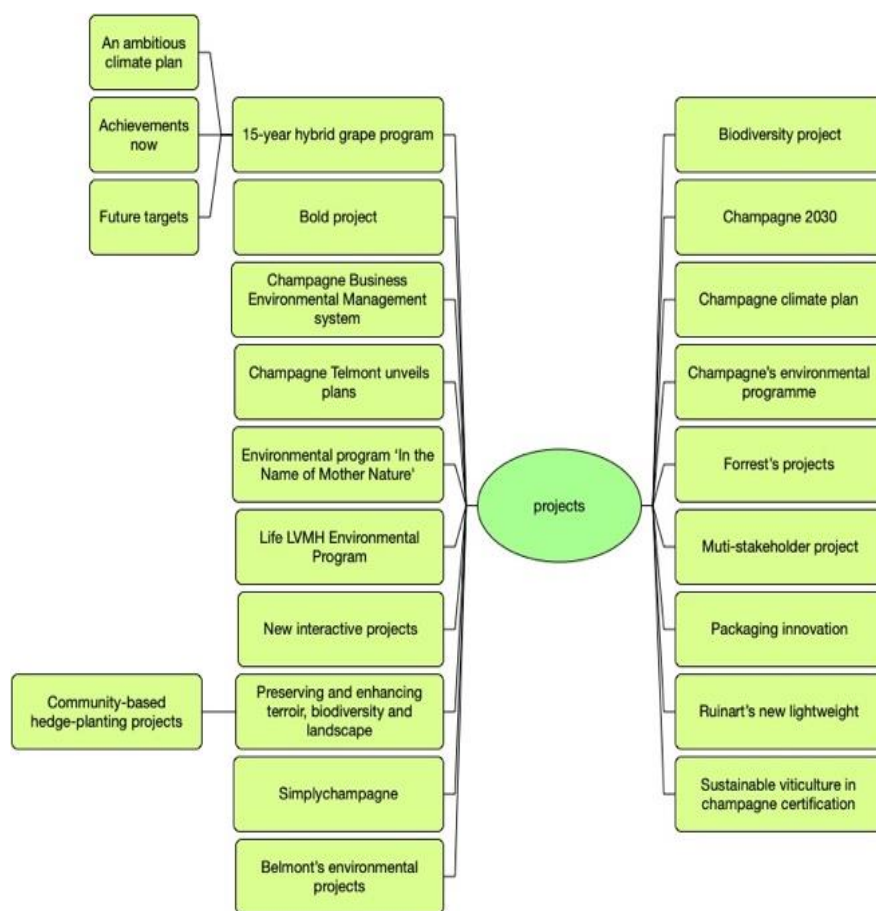


Figure 13. Projects and Programme the Champagne Region Has Implemented Nowadays and Will Be Implemented in The Future

addition, CIVC insists on and advocates the elements of "innovation" and "value-added" to effectively achieve sustainable project management.

In conclusion, although the Champagne region has made some achievements in sustainable projects, it will still need to increase the use of innovative technologies in order to better realize sustainability during the whole wine supply chain, from planting, producing, to bottling and consumption in the future. In the process of implementing innovative-driven sustainable projects, three distinct advantages have been identified: enhanced project performance, attainment of organizational goals, and accomplishment of sustainability targets. However, there are many challenges the wineries have to face.

Firstly, the primary challenge encountered by wineries and organizations is the cost involved. The adoption of technology in production and R&D necessitates a significant capital investment. In traditional industries such as the wine industry, the increased costs give rise to hesitation and careful deliberation. That's the reason why the first innovation-leading wineries are some large wineries

with abundant assets.

Secondly, another challenge lies in balancing short-term and long-term orientations, along with the allocation of numerous resources. Traditional project management method often prioritizes short-term objectives, while sustainability necessitates a long-term perspective to preserve benefits and resources for future generations. Consequently, project managers and top-level management must possess exceptional skills in resource allocation. They need to leverage cutting-edge technologies such as big data and artificial intelligence to aid them in the rational and effective utilization of resources.

Lastly, there is the challenge of reconciling traditional business models with the emerging orientation toward innovative technologies. Small family business requires time to embrace new technologies and innovative ideas. While certain prominent and well-established wineries have taken the lead and wield significant influence, it will still take additional time for innovative sustainable project management to gain recognition and be widely adopted by all wineries in the industry.

Overall, the conclusion of this paper is addressed in three parts. First, it is very necessary to develop a new approach to sustainable project implementation with the involvement of innovation and technology in the Champagne region, although they have made an effort on sustainable projects and have had some achievements over some years. Second, business model transformation is urgently needed which can help wineries to increase competitive advantages. Finally, some challenges the champagne region has to consider such as the cost involved, short-term and long-term orientation with much more resources than before. Moreover, although the Champagne region has been implementing sustainable projects for some years and has made great achievements, it still needs to continue focusing in innovation and the use of new technology on internal and external management methods to better realize value creation on the basis of sustainability.

4. Limitation

Although the exhaustive and persuasive content analysis has been conducted in this paper, there are limitations that need to be indicated. First, although the Champagne region is absolutely representative, there are many wine regions in the world and the findings cannot be definitively generalized to the entire the whole wine industry. Then, it should be acknowledged that this study was conducted during the middle-late stages of the COVID-19 crisis. Data collection is limited in both time and space.

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