

**The Market for Non-Alcoholic Wine in Germany  
– Structural Analysis and Implications for Competitive Strategies**

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## 35 **Abstract**

36 Non-alcoholic wines have become increasingly important in recent years in Germany. A constant  
37 stream of new market players and products is evidence of a dynamic market development and for the  
38 creation of a new branch in the highly competitive wine sector. Thus, the central aim of this article is  
39 to provide a first analysis of the structure of the German market for non-alcoholic wines in order to  
40 derive implications for industry competition and possible competitive strategies of individual market  
41 participants. An explorative research approach has been applied including in-depth interviews with  
42 experts from various companies along the value chain (n=24). Results show that competition in the  
43 market for non-alcoholic wines must be regarded as dynamic due to strong external market forces. A  
44 high risk of new companies entering the market can be emphasised as well as the high bargaining  
45 power of the retail and a high threat of substitutes. Within the industry, however, rivalry is currently  
46 considered to be low, resulting in low profitability and a tendency towards high fluctuation of market  
47 participants. With regard to possible competitive strategies it becomes clear that especially for smaller  
48 wineries, a long-term successful survival within the market can only be realised with strong  
49 differentiation. Ultimately, the transfer of the products into an own category which departs from the  
50 classic image of non-alcoholic wine represents a promising approach in order to address entirely new  
51 target groups.

52  
53 **Keywords:** Non-alcoholic wine, dealcoholisation, structural analysis, five forces, competitive  
54 strategies, competition

## 56 **1. Introduction**

57 In the European Union, a steady decline in wine consumption can be observed for decades,  
58 particularly in the main wine-growing countries of France, Italy and Spain [1,2]. In Germany, wine  
59 and sparkling wine consumption has long remained at a constant level of around 24 litres per capita.  
60 Since 2019, however, a slight decline of around one litre per capita was observable [3]. While overall  
61 alcohol consumption is decreasing in Germany and the EU – not only with regard to wine<sup>1</sup> – non-  
62 alcoholic alternatives are becoming more and more important [5]. This development is often  
63 associated with increasing health awareness and new lifestyle trends, especially in younger

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<sup>1</sup> For instance, beer consumption in Germany dropped from 141 litres per capita in 1970 to 95 litres in 2020 [4].

64 generations [6]. Not only in Germany, wine producers are therefore focusing on non-alcoholic<sup>2</sup> wines,  
65 which differ from grape juices and sparkling wines in that the alcohol is removed from already  
66 fermented wine through the use of a dealcoholisation process [7].

67 Germany is a special market for non-alcoholic wines in several respects. On the one hand, the process  
68 of dealcoholising wine was developed and patented in the winegrowing region Rheingau at the  
69 beginning of the 20th century. This makes Germany the pioneer in the field of wine dealcoholisation,  
70 which is ultimately reflected in the comparably high number of five domestic service providers for  
71 this refinement step. At the same time, Germany has become the most important market for products  
72 in the “no & low” category<sup>3</sup> [8], including non-alcoholic still and sparkling wines. Non-alcoholic  
73 sparkling wines accounted for around five per cent of the total German sparkling wine market in  
74 2020. Still wines are less significant with a market share of under one per cent [9]. According to the  
75 market research institute IRI, the main distribution channel is food retail, where sales of non-alcoholic  
76 still wines totalled 3.7 million bottles in 2020, while sales of sparkling wines amounted to 21.7 million  
77 bottles [10].

78 Despite its still minor importance, the market is developing dynamically in comparison to the  
79 traditional alcoholic wine products, which are increasingly less consumed. For instance, the  
80 compound annual growth rate for non-alcoholic wine is indicated at 9 percent for the period from  
81 2021 to 2025 [8]. While the overall data situation is so far still rather uncertain, a look at the market  
82 reveals clear trends: Large companies in the sparkling wine industry, such as Henkell-Freixenet and  
83 Rotkäppchen-Mumm, are increasingly being joined by wine cellars, cooperatives and small and  
84 medium-sized wineries with vineyards of less than 50 hectares. While non-alcoholic wines are  
85 primarily produced by existing companies in the wine industry, which are mostly focusing on  
86 complementing their portfolios of alcoholic wines, start-ups and winegrowing companies that focus  
87 exclusively on marketing non-alcoholic wines are also entering the market.

88 These developments not only raise questions about suitable production processes, the optimization  
89 of sensory characteristics or marketing issues [11–16]. One relevant aspect that has so far remained  
90 untouched is the strategic positioning of individual companies. This seems all the more important as  
91 companies in a young, rapidly developing (sub)sector are sometimes faced with major challenges due  
92 to technological and strategic uncertainties, high costs, spin-offs and the confrontation with first-time

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<sup>2</sup> According to the German law, the term can be used for products with an alcohol content of up to 0,5 ABV.

<sup>3</sup> In a recent study conducted on behalf of the European Commission, products in the no & low category are defined as “any beverage whose market positioning recalls, mimics or evokes that of an alcoholic beverage, but whose alcoholic content is lower than the minimum required for the alcoholic beverage of reference, or equal to zero” [5].

93 buyers [17], which go far beyond the search for suitable manufacturing processes or possible  
94 marketing issues. Rather, the question of strategic positioning is essential for consolidating a  
95 company's market position and for long-term success. In the face of steadily declining wine  
96 consumption, which could be strongly influenced by social trends and developments in alcohol policy  
97 in the future, the discussion of non-alcoholic alternatives represents an important building block for  
98 the development of the industry. With its long history and the comparatively high market relevance  
99 of non-alcoholic wines today, Germany is a particularly good case to consider.

100 The aim of this paper is therefore (1) to provide an initial comprehensive overview of the structure  
101 of the non-alcoholic wine industry in Germany and (2) to derive strategic implications for (potential)  
102 market participants from the data collected. For this purpose, an explorative approach in the form of  
103 expert interviews with a subsequent qualitative content analysis was chosen. A total of 24 interviews  
104 were conducted with experts from nine different types of companies along the value chain.

105 The remainder of this article is structured as follows: Section two outlines the development of the  
106 market for non-alcoholic wines in Germany. In addition, the basic production processes and the legal  
107 framework are presented. In section three, these initial findings are translated into a framework for  
108 analysing the intensity of competition according to Porter [16]. Section four is dedicated to the  
109 qualitative research approach. Section five presents the most important implications of the findings  
110 for possible competitive strategies. Finally, the results of the article will be discussed in section six.

111

## 112 **2. Non-Alcoholic Wines in Germany**

### 113 *2.1 Market Development of Non-Alcoholic Wines in Germany*

114 Non-alcoholic wines have been produced for over 100 years. In 1907, the German winegrower Carl  
115 Jung applied for a patent for his invention of vacuum distillation for wine. This process made it  
116 possible to separate the ethanol under vacuum low temperatures, which served to better preserve the  
117 volatile flavour components of wine. The development of the technology, which is still used today,  
118 took place at a time when the critical social and political debate about alcoholic beverages such as  
119 spirits, beer and wine reached a peak in Germany [18]. The First World War and the lack of a legal  
120 framework for production of non-alcoholic wines put an early brake on the success of the products.  
121 A second development stage began at the end of the 1980s, when innovative products were sought as  
122 a reaction to a new health movement, the so-called “light wave” [19]. Although there was a significant  
123 increase in production at this time, non-alcoholic wines did not achieve significant market shares  
124 [20].

125 Over the past five years, however, a dynamic market development can be observed, even if the  
126 absolute share of the products is still at a very low level in the context of the overall German wine  
127 market. As noted, the market share of non-alcoholic sparkling wines in Germany was estimated at  
128 around five per cent, that of still wines at under one per cent in 2020. The market volume of non-  
129 alcoholic sparkling wines in the overall sparkling wine market would therefore amount to around 14  
130 million litres, while that of still wines would be even higher in relation to the total German market  
131 for still wines (approx. 16.9 million hectolitres in 2018) - in 2020, however, the German Wine  
132 Institute (DWI) assumed only three to five million litres, which would correspond to a market share  
133 of less than 0.3 per cent [9].

134 In summary, non-alcoholic sparkling wines have higher market relevance than their counterparts in  
135 the still wine sector.

136 Despite their low relevance for the German wine market as a whole, both categories are recognised  
137 as having high growth figures. According to IRI, non-alcoholic wine recorded sales and turnover  
138 growth of 40.8 per cent and 42.7 per cent respectively in the German food retail sector in 2020. Non-  
139 alcoholic sparkling wines grew at a much slower rate, with sales up 1.6 per cent and volumes up 5.9  
140 per cent [10]. These developments are also reflected in an increasing variety of products. In 2023, the  
141 world's largest wine fair ProWein dedicated a separate area to the category of non-alcoholic products  
142 for the first time [21].

143

## 144 *2.2 Manufacturing processes*

145 According to the legal framework in Germany, thermal processes and membrane processes are  
146 permitted for the dealcoholisation of wines. Thermal processes rely on distilling the wine under  
147 reduced atmospheric pressure, whereby the ethanol contained in the wine vaporises at temperatures  
148 of around 30 degrees Celsius [22]. The spinning cone column is one of the most widespread variants  
149 of distillation under vacuum [16]. In this process, the wine to be dealcoholised is passed over a  
150 moving, rapidly rotating cone, reducing the necessary dwell time in the column compared to classic  
151 vacuum rectification [23].

152 Membrane processes, on the other hand, work by separating the ethanol through special membranes  
153 that are only passable for certain volatile substances in the wine [24]. Although these systems do not  
154 require the product to be heated, membrane processes also have several disadvantages such as a high  
155 amount of water input or a significantly longer process time for complete dealcoholisation [25]. Thus,

156 four of the five service providers for dealcoholisation operating in Germany are working with thermal  
157 processes. They play an overall important role, as the purchase of an in-house dealcoholisation plant  
158 is hardly feasible for smaller companies for financial reasons. At the same time, they offer  
159 dealcoholisation from small minimum quantities starting at 300 litres [26].

160 Before the process of dealcoholisation, a suitable base wine is required. While dealcoholisation can  
161 be applied for both red and white wine, grape varieties with a high aroma concentration such as  
162 Gewürztraminer, Muscat or Sauvignon Blanc are particularly recommended for dealcoholisation. In  
163 addition, the shortest possible time between fermentation and dealcoholisation is suggested in order  
164 to achieve the highest possible aroma concentration [27]. Nevertheless, some of the products differ  
165 greatly from the original in terms of flavour as the processes are associated with a changed sensory  
166 profile due to a loss of certain characteristics such as body and fullness [11]. Additionally, the  
167 concentration of acidity through the process and the volume loss of up to 20 per cent necessitates the  
168 addition of sugar, which is why many non-alcoholic contain residual sugar levels of 40 grams or more  
169 per litre.

170

### 171 *2.3 Legal Framework for Non-Alcoholic Wines in Germany*

172 As products with an alcohol content below 0,5 ABV, non-alcoholic wines have some special legal  
173 characteristics, such as the mandatory labelling with a best-before date. With Regulation 2021/2117,  
174 the European Union has decided to standardise the product designation of non-alcoholic wine  
175 throughout the EU as part of the revision of the Common Agricultural Policy (CAP) (European  
176 Union, 2021). Accordingly, the term "alcohol-free" will be changed to "dealcoholised". Even after  
177 the new EU legislation comes into force, the term "alcohol-free" will remain an optional addition to  
178 the mandatory term "dealcoholised".

179 With EU Regulation 2021/2117, further regulations for non-alcoholic wines were adopted, which are  
180 to be transposed into national law. Accordingly, in the German case, non-alcoholic wines will in  
181 future be treated as products within the meaning of the German wine law. Although much discussed,  
182 this has no consequences for the indication of grape varieties on the labels: the varieties specified in  
183 Paragraph 42 of the German wine regulation, including Riesling, Spätburgunder, Weißburgunder or  
184 Grauburgunder, may therefore continue to be indicated on the label of non-alcoholic wines in future.

185 Furthermore, the EU regulation provides for the prohibition of the dealcoholisation of wines which  
186 have been chaptalized before alcoholic fermentation [28]. Legal obstacles also occur due to the

187 current ban on the production of non-alcoholic organic wines in the European Union, as  
188 dealcoholisation as a permissible oenological process has not been included in the legislation for  
189 organic products (EU 848/2018).

190 While the legal framework conditions in the EU are being standardised, regulatory intervention in the  
191 market is also becoming increasingly important, as shown by the EU Parliament's recent decisions to  
192 beating cancer [29,30]. Although the focus here is specifically on ethanol as one of the main risk  
193 factors for cancer, the latest accusations of “alibi marketing” show that non-alcoholic beverages could  
194 also be the centre of EU alcohol policy in the future [31,32]. Alibi marketing refers to attempts by  
195 companies in the alcohol industry to promote their brands without explicitly advertising products  
196 containing alcohol or excessive sugars which they also manufacture. Beer producers, for example,  
197 often use the same brand images and slogans for their non-alcoholic beverages as for their alcoholic  
198 products [33].

199 In summary, non-alcoholic are the subject of extensive regulatory adjustments and efforts that will  
200 have a far-reaching impact on the beverages and still leave unanswered questions for producers and  
201 sellers.

202

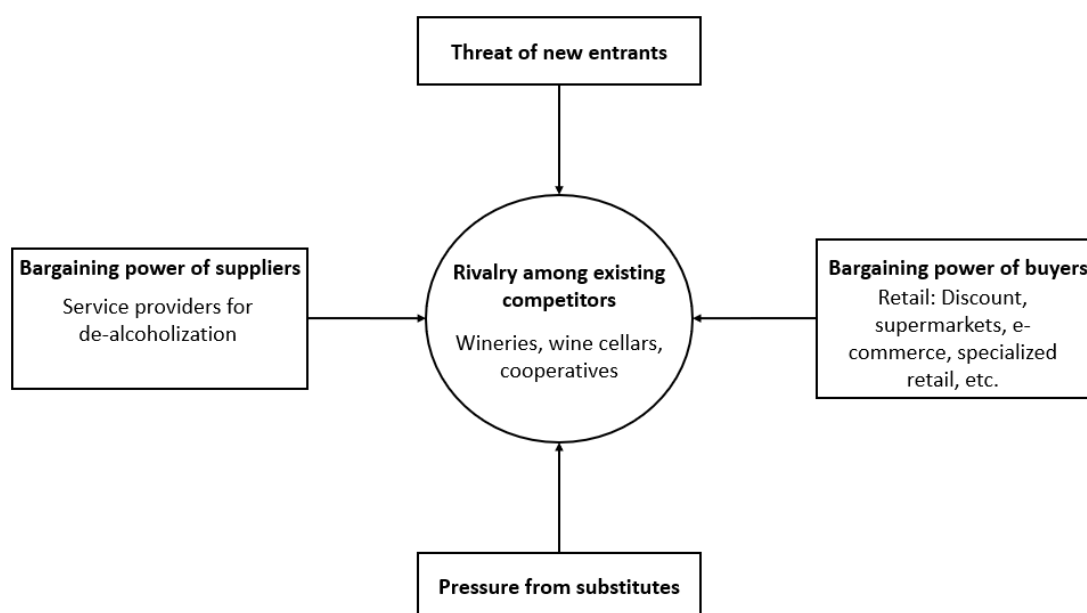
### 203 **3. Framework of Competition Intensity**

#### 204 *3.1 Porters Five Forces*

205 The five forces analysis based on Porter [17,34] has established itself as a classic instrument for  
206 analysing industries and is has already been applied to analyse different aspects of the international  
207 wine sector [35,36]. Richter and Hanf [35] used the model to derive strategic implications for  
208 winegrowers' cooperatives in the highly competitive German wine market. In an international  
209 context, Mizik and Balogh [37] analysed the structure of the Chinese wine market using the Five  
210 Forces. Bitsch et al. [36] have done the same for the largely unexplored Armenian wine market, also  
211 taking a qualitative approach. Lorenzo et al. [38] analysed generic strategies of different types of  
212 companies in the Spanish wine industry.

213 According to this market-oriented approach, the structure of an industry is a key factor influencing  
214 industry competition and the strategic options of individual companies. An industry is interpreted as  
215 a space within whose boundaries companies are exposed to five competitive forces, whose intensity  
216 ultimately determines the attractiveness of an industry. (1) **The risk of new companies entering the**  
217 **market** leads to reduced profitability as prices are depressed or costs for existing market players are

218 increased. Barriers to entry, which are increased by the existence of economies of scale or existing  
 219 product differentiation, are considered a decisive factor for the market entry of potential competitors.  
 220 (2) **Rivalry between existing companies in an industry** is increased, for example, by slow industry  
 221 growth or greater competition for market share. In addition, there are possible exit barriers, which are  
 222 defined as those factors that cause a company not to leave the industry, even if they "generate lower  
 223 or even negative rates of return" by staying. These include, for example, specialised assets or  
 224 emotional barriers. (3) The **threat of substitutes** limits the profit potential of companies in the sector,  
 225 as pricing for companies in a sector is restricted by the pricing of substitute products. At the same  
 226 time, competition is intensified by the possible use of the same distribution channels and co-operation  
 227 with the same supplier groups. Finally, the (4) **bargaining power of suppliers** and the (5) **bargaining**  
 228 **power of buyers** can also exert an increasing influence on competition in the sector, especially if  
 229 both groups are dominated by only a few companies. In view of the description of the market for non-  
 230 alcoholic wines in Section 2, this provides an initial rough picture of the industry, which is shown in  
 231 Figure 1. Consequently, service providers for de-alcoholization are in the position of suppliers,  
 232 wineries and cellars make use of the service and pass the products on to the retail, which consists of  
 233 various types of companies.



235  
 236 Figure 1: Framework for market structure  
 237



238 In the following, the findings from section 2 are transferred to the model in order to develop  
239 predictions for the empirical analysis.

240

### 241 *3.2 Threat of New Entrants*

242 As described in section 2, the constant adjustments to the legal framework conditions or the possible  
243 accusation of alibi marketing tend to lead to a high level of uncertainty on the part of producers,  
244 service providers and retailers, leading to potentially high administrative barriers. On the other hand,  
245 low entry barriers can be assumed in the area of production, as smaller companies are allowed to  
246 deliver small minimum quantities from 300 litres to contractors. Purchasing own equipment to  
247 vertically integrate is not economically worthwhile for smaller companies in view of the small  
248 quantities produced. While high economies of scale can also be expected in the non-alcoholic wine  
249 sector if production is increased beyond a certain point, the low minimum quantities requested  
250 suggest that this aspect is rather irrelevant for market entry. Apart from the potentially high costs for  
251 marketing and distribution, non-alcoholic products can be produced without major capital  
252 expenditure: Base wines can be purchased on the bulk wine market and service providers can be  
253 commissioned to deal with dealcoholisation, filling and packaging. As most industry players produce  
254 non-alcoholic wines as a supplement to their existing portfolio, the additional capital expenditure, for  
255 example in the areas of marketing and sales, is rather low as existing structures can be used.

256 For vertically integrated companies with own dealcoholisation plants, there is no possibility to offer  
257 other non-alcoholic products made from wine using the dealcoholisation process. The capital invested  
258 therefore represents sunk costs. In smaller, non-vertically integrated companies, on the other hand,  
259 low switching costs can be expected, as other non-alcoholic products made from grapes can easily be  
260 offered, such as grape juice, still wine or sparkling wine.

261 The German wine market is highly competitive due to a large oversupply, and retailers in particular  
262 have great negotiating power. Thus, entry to distribution channels can be challenging. Existing  
263 companies in the wine industry, such as Rotkäppchen-Mumm or Henkell-Freixenet, already serve  
264 existing distribution channels with their dealcoholised products. Potential newcomers to the industry  
265 must therefore either persuade the channels to favour their product or create entirely new distribution  
266 channels. However, as the industry can still be considered in an early development phase, access to  
267 retail channels may still be more open than in the wine and sparkling wine sector.

268

269 *Prediction 1: Except from administrative obstacles, barriers to entry in the market for non-alcoholic*  
270 *wines are low.*

271

### 272 *3.3. Rivalry Among Existing Competitors*

273 At the moment, there are still comparatively few competitors in the market for non-alcoholic wines,  
274 although major companies in the German wine industry are already operating in this sector, such as  
275 the sparkling wine producer Rotkäppchen Mumm, which holds a market share of 50 per cent in the  
276 sparkling wine market [39]. At the same time, the market for non-alcoholic wines is characterised  
277 by dynamic growth, which means that companies are already improving their results by keeping up  
278 within the industry [17], indicating an overall low rivalry. As non-alcoholic wines must display a  
279 best-before date, this "deadline" implies that the products are difficult to store and must be marketed  
280 comparatively quickly. Companies are therefore more tempted to lower prices unnoticed (price  
281 shading), ultimately leading to high rivalry. On the other hand, product differentiation may still be  
282 possible due to the dynamic development of the sector – the buyer's decision is not based solely on  
283 price and service.

284 High exit barriers which ultimately lead to an increased competition arise primarily for vertically  
285 integrated companies with their own dealcoholisation plant due to highly specialised assets and sunk  
286 costs. For smaller companies without own plants there exist low exit barriers as the switching costs  
287 to traditional wine production are low.

288 *Prediction 2: The intra-industry competition in the market for non-alcoholic wines is low.*

289

### 290 *3.4 Threat of Substitutes*

291 In theory, all non-alcoholic drinks can be counted as possible substitutes for non-alcoholic wines.  
292 There is a wide range on offer in Germany, from juices and soft drinks to non-alcoholic beer.  
293 Following mineral water, non-alcoholic refreshments including lemonade and juices were the most  
294 popular beverage category in Germany in 2023, with a consumption of 124.9 litres per capita [40].  
295 Non-alcoholic beers have steadily gained in importance in recent years and now account for seven  
296 per cent of the beer market [41]. Furthermore, flavoured wine-based drinks are introduced as well as  
297 new innovations in the field of juices and sparkling juices. With regard to the entire non-alcoholic  
298 beverage market, the threat from substitute can therefore be considered high. Additionally, substitutes  
299 can be purchased in all traditional sales channels and consumers have low switching costs.

300 *Prediction 3: The threat of substitutes in the market for non-alcoholic wines is high.*

301

### 302 *3.5 Bargaining Power of Buyers*

303 The food retail in Germany operates as an important buyer of wine and is highly concentrated in  
304 Germany. In 2018, almost 90 per cent of wine in Germany was sold through retailers. Discount stores  
305 (50 per cent) and supermarkets (28 per cent) were the strongest channels. In food retail, the five  
306 largest market players have a combined market share of 75 per cent. This conditions may lead to a  
307 high bargaining power in the context of non-alcoholic wines. Furthermore, the range of non-alcoholic  
308 alternatives on offer in Germany is wide, the switching costs for retailers therefore low. Ultimately,  
309 the variety of non-alcoholic wines is constantly increasing. A wide selection of different products  
310 increases the bargaining power of retailers, especially when product differentiation is low.

311 *Prediction 4: The bargaining power of the buyers (retail) is high.*

312

### 313 *3.6 Bargaining Power of Suppliers*

314 The group of companies which offer dealcoholisation is dominated by a small number of companies  
315 and is more concentrated than the group producers (wineries and wine cellars), leading to a high  
316 bargaining power of the suppliers. However, producers of non-alcoholic wine alternatives (wineries  
317 or cellars) often have the opportunity to produce close substitutes such as grape sparkling wines or  
318 grape juices, lowering the bargaining power of the service providers as suppliers of non-alcoholic  
319 wines. Three of the five German service providers specialise in the dealcoholisation of wines. The  
320 performance of wineries and wine cellars is therefore of great importance to the service providers,  
321 leading to a lower bargaining power of suppliers. Within the industry for non-alcoholic wines, there  
322 are only a few companies that exclusively offer these products. Rather, there are wineries that  
323 supplement their portfolio with non-alcoholic products. This ultimately leads to a low bargaining  
324 power of suppliers (service providers for dealcoholisation) as their product/service is currently not a  
325 key input for the business of most buyers.

326 *Prediction 5: Due to the high concentration of service providers but an overall lower importance of*  
327 *non-alcoholic wines for wineries and wine cellars, the bargaining power of the service providers as*  
328 *suppliers is medium.*

329

<i>Market Force</i>	<i>Prediction</i>
<i>Threat of new entrants</i>	<i>High</i>
<i>Rivalry among existing competitors</i>	<i>Low</i>
<i>Pressure from substitute products</i>	<i>High</i>
<i>Bargaining power of buyers</i>	<i>High</i>
<i>Bargaining power of suppliers</i>	<i>Medium</i>

Table 1: Summary of predictions for competition intensity

331

332

## 333 4. Empirical Study

### 334 4.1 Methodology

335 To answer the research questions, an explorative approach in the form of guided expert interviews  
 336 with a subsequent qualitative content analysis was chosen. This takes the following facts into account:  
 337 Firstly, no industry structure analysis of the market for dealcoholised wines is available to date, which  
 338 means that no existing knowledge can be used as a basis. Secondly, an explorative research approach  
 339 seems particularly suitable for gathering initial insights into the characteristics of previously  
 340 unconsolidated market structures. Thirdly, a qualitative approach is generally recommended in the  
 341 context of industry structure analyses (Porter, 2013).

342 Between July and October 2022, a total of 24 interviews were conducted with experts from various  
 343 types of companies along the value chain. The selection was based on the aim of examining the  
 344 market for dealcoholised wines as broadly as possible. Experts from the following companies were  
 345 interviewed:

346 - 5 dealcoholisation service providers

347 - 5 wineries

348 - 5 wine cellars

349 - 9 retail companies: discount (1), supermarket (1), specialised trade (2), online trade (2), gastronomy  
 350 (1), distribution (1), consulting (1)

351

352 The survey of all five operating dealcoholisation service providers in Germany thus ensured  
353 representativeness in this area. This cannot be achieved with wine estates and wine cellars due to their  
354 large number in the German wine market. In the selection of interviewees from wineries and wine  
355 cellars, attention was paid to the availability of non-alcoholic wine in the assortments. Furthermore,  
356 differences in the strategic and regional orientation were considered. While wineries tend to have  
357 smaller business structures and their own vineyards as well as more regional distribution, wine cellars  
358 are considerably larger and are usually characterised by the purchase of bulk wine and large-scale  
359 distribution to the food retail. The same selection process applies to retail, where interviews with all  
360 key sales channels were carried out in order to obtain maximum diversity of information. The experts  
361 selected hold the position of managing directors, sales managers and marketing managers. All  
362 interview partners agreed to the recording of the interview. The average duration of the interviews  
363 was 30 minutes. In total, guidelines were designed for five groups in advance of the interviews:  
364 Contractors/service providers, wineries and wine cellars, specialist retailers, supermarkets and  
365 discounters, and gastronomy. The semi-structured interview guidelines were oriented towards the  
366 theoretical framework of the five forces outlined in chapter three. Together with the predictions made  
367 about the intensity of the competitive forces, open interview questions were formulated. These  
368 guidelines were adapted depending on the position of the companies within the value chain. For  
369 instance, the guideline for wineries and cellars included the topics supplier relationship and buyer  
370 relationship. The guideline for the retail companies, on the other hand, focussed in particular on the  
371 buyer relationship due to the position of companies as purchasers and distributors of the products.  
372 Substitutes as well as the perception of general competition in the market were addressed in all  
373 interviews. Overall, questions were asked in an open manner to ensure a sufficient degree of freedom  
374 and a natural dialogue. This favoured obtaining as much information as possible from the  
375 interviewees and strengthened the explorative character of the study.

376 The interviews were fully transcribed and anonymised. A qualitative content analysis was carried out  
377 using MAXQDA software. For this purpose, a search grid was initially created based on the Five  
378 Forces. Each competitive force represented a superordinate category to which information from the  
379 interview texts was assigned in the form of sub-categories during the extraction process. For instance,  
380 information on possible minimum quantities for dealcoholisation, legal requirements such as the best  
381 before date, cost drivers or obstacles in the product development contributed to the analysis of market  
382 entry barriers. This information was therefore recorded in the search grid under the superordinate  
383 category "Threat of new entrants". A total of 31 subcategories were identified and assigned to the  
384 superordinate Five Forces.

385 *4.2 Empirical Results*

386 Regarding **threat of new entrants**, nine out of ten wineries and cellars describe extensive  
387 administrative barriers in the market for non-alcoholic wines. One central issue is the labelling  
388 according to deviating legal requirements. In addition, at the time of the interviews, there was a  
389 general uncertainty regarding the further development of the legal framework, particularly concerning  
390 the adoption of non-alcoholic wines in the German wine law, the indication of grape varieties on the  
391 label or the option of dealcoholising chaptalised wines.

392 On the other hand, the entry barrier for potential newcomers to the industry are kept at a low level as  
393 all service providers offer dealcoholisation from low minimum quantities of between 300 litres and  
394 5,000 litres. However, two of the five service providers made it clear that they tend to focus on batch  
395 sizes from 10,000 to 12,000 litres for reasons of profitability. The high cost factor due to the already  
396 very time- and energy-intensive "start-up and shut-down" of the vacuum distillation systems is  
397 emphasised. Therefore, the consideration of economies of scale shows the financial advantage of  
398 large quantities for service providers. One of the experts from the part of the wine cellars also  
399 emphasises that larger batches in his company help to compensate for volume losses incurred during  
400 the process. As the service providers describe, dealcoholisation is associated with a loss of volume  
401 during the process of around 15 percent.

402 In terms of production costs, the service provider that uses the membrane process described that the  
403 unit costs remain at a stable level of around one euro per litre when the production volume is increased  
404 from 1,000 litres to 5,000 litres. To summarise, economies of scale are only relevant for wineries with  
405 large batches as an increase in the production volume has no significant influence on unit costs if  
406 production is already low.

407 The analyses also show that possible backward integration, leading to cost advantages and  
408 complicating the market entry of newcomers, does not play a relevant role. Acquiring an own  
409 dealcoholisation plant is associated with enormous costs, which is why even three of the five wine  
410 cellars interviewed work with service providers. According to one expert from a wine cellar,  
411 purchasing their own vacuum distillation primarily helped to minimise production risks. However,  
412 the company also continues to rely on external services in order to be able to react flexibly in the  
413 event of bottlenecks. Smaller newcomers, on the other hand, can engage the support of service  
414 providers, who even offer the option of purchasing pre-bottled dealcoholised wines.

415 A high level of existing product differentiation would make it more difficult for new companies to

416 enter the market. The statement of a sales manager of an internationally operating wine cellar is  
417 noteworthy here: According to him, non-alcoholic wines under newly introduced brand names have  
418 not been successful on the market, whereas they have been very successful to date as an addition to  
419 an already established brand. An interviewee from a winery described a different approach: The  
420 winery would like to differentiate the non-alcoholic range as far as possible from the alcoholic wines  
421 so as not to create a comparison between the alcoholic and non-alcoholic products for the end  
422 consumer. Still, the industry appears to be primarily utilising existing consumer loyalty for non-  
423 alcoholic wines, although consumer loyalty can overall be described as rather weak in the German  
424 wine industry due to the lack of strong brands. Product differentiation therefore tends to play a  
425 subordinate role in the German market for non-alcoholic wines so far, leading to a low barrier to  
426 entry.

427 In general, high switching costs to the production of other products could prevail the entrant of  
428 newcomers. However, two experts from wineries emphasise low switching costs because to the  
429 possibility of producing alcoholic wines always remains.

430 Finally, sales channels are also highly relevant for the potential market entry of newcomers. In four  
431 out of five cases, the experts from the wine cellars stated that they use the same channels as for their  
432 alcoholic wines. Only one expert emphasised the focus on export business as part of a collaboration  
433 with British supermarket chains. A more differentiated picture emerges among the wineries surveyed:  
434 Here, the experts describe the search for new distribution channels specifically for non-alcoholic  
435 products. In this respect, the information on the attitude of the retail towards non-alcoholic wines is  
436 remarkable: On the one hand, it is emphasised that the marketing of the products requires a great deal  
437 of explanation as consumers don't know much about them. On the other hand, problems with the  
438 sensory profiles of the products are described as well as the fact that the products have not been able  
439 to assert themselves in the test runs to date.

440 The combination of the producer's and retailer's views makes it clear that access to distribution  
441 channels is likely to become more limited in the future, although it still tends to be easier at the  
442 moment due to an overall dynamic market development. In summary, the first assumption is  
443 confirmed: Besides the uncertainties concerning administrative issues, barriers to entry are low,  
444 leading to a high threat of new entrants.

445 The **degree of rivalry among existing market players** initially depends on the number of  
446 competitors in the market. Four of the ten experts from wineries and wine cellars interviewed  
447 recognise that more and more competitors are appearing on the market. At the same time, the market

448 structures are considered to be rather "unstable". The fact that the number of competitors is perceived  
449 as growing, but not as a threat, is well illustrated by the following statement: *"And yes, that's why I*  
450 *don't see myself facing too much competition at the moment, because there is simply still so much*  
451 *open space that everyone can find their customers"*. A look at the statements by the service providers  
452 and retailers also shows that the actors perceive an increased competition but emphasise that the  
453 number of participants currently remains low.

454 Furthermore, 17 of the 24 experts interviewed describe gradual growth in the market for non-  
455 alcoholic wines. The remaining seven companies did not provide any information on this. Seven out  
456 of the ten experts from wine cellars and wineries emphasised a steady increase in demand and  
457 production. One sales manager stated that the strongest demand in the entire portfolio can currently  
458 be observed in the non-alcoholic wine segment.

459 Possible price shading for non-alcoholic wines could arise primarily because the products are subject  
460 to a "deadline" due to their best-before date, which may lead to an unnoticed price reduction by  
461 competitors. According to several experts, the best-before date does lead to a certain amount of sales  
462 pressure, but the possibility of influencing pricing was not mentioned.

463 Possible sunk costs could lead to high exit barriers and ultimately to high industry rivalry. As eight  
464 of the ten wineries and wine cellars work with external service providers to carry out dealcoholisation,  
465 sunk costs in production are kept at a low level. If there are no long-term contracts in place, the costs  
466 of exiting the market are expected to be low. Overall, the second assumption is confirmed: The intra-  
467 industry rivalry is low due to still no pronounced competition and a so far rather "unstable" market  
468 structure.

469 Concerning the **pressure from substitute products**, 18 of the 24 experts interviewed named one or  
470 more substitutes for non-alcoholic wines. The spectrum ranges from carbonated juices and non-  
471 alcoholic spirits, to tea drinks and beer through to soft drinks. Five of the eight experts from retail  
472 stated that they also market the named substitutes themselves. Switching to competing products is  
473 therefore easy for the end consumer. The experts named several products that have been developed  
474 and launched on the market in recent years as close substitutes that could create the same "moment  
475 of pleasure" as drinking a glass of wine: Kombucha, wines and sparkling made from old fruit varieties  
476 or aperitif drinks such as sparkling tea. It can therefore be assumed that these product innovations are  
477 not only recognised by retailers, but are also increasingly included in their portfolios. Ultimately, the  
478 interviews show that four of the eight retail companies do currently not consider the inclusion of non-  
479 alcoholic wines into their portfolios to be a necessity. Only one interviewee from food retail described



480 non-alcoholic wines as a "must" on the shelf. In summary, the third prediction of a high threat of  
481 substitutes is confirmed.

482 Regarding the **bargaining power of buyers**, all wineries and wine estates market their products  
483 through retailers, primarily in co-operation with the food retail and specialised retail. The latter  
484 distribution channel is primarily used by wineries, although they also market a proportion via direct  
485 sales. In summary, the food retail trade, which is highly concentrated in Germany, is an important  
486 distribution channel for non-alcoholic wines, both via central listings and via independently managed  
487 markets. This leads to a high bargaining power of the retail, as the retail in German is highly  
488 concentrated [42] and accounts for a large share of the total turnover of suppliers of non-alcoholic  
489 wines.

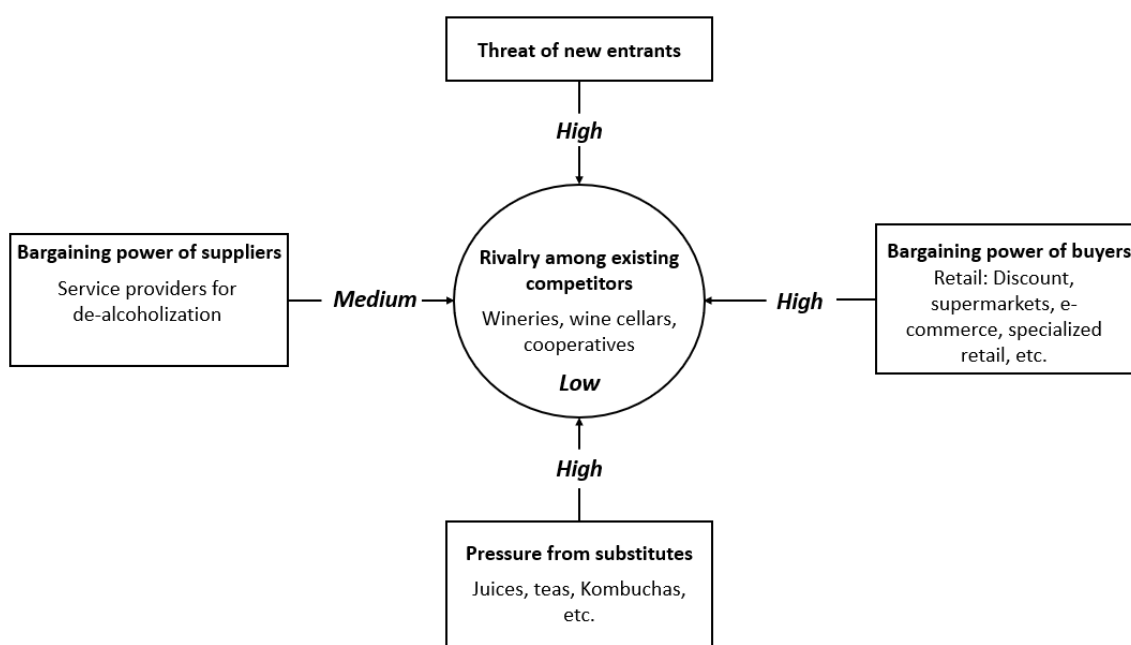
490 In addition, as already described, four of the eight retail companies surveyed do not currently regard  
491 the inclusion of de-alcoholised wines as a necessity. Ultimately, both experts interviewed from the  
492 specialised retail describe an enormous number of wines that are sent in for tasting every week.  
493 Considering this development, the following statement by the consultant interviewed is remarkable:  
494 *"There are times when I think: Wait, wait, wait, isn't the supply growing faster than the demand?"*.  
495 In summary, prediction 4 of a high bargaining power of the retail is confirmed.

496 Regarding the **bargaining power of suppliers**, both the service providers and the wineries and wine  
497 cellars estimate the overall number of contractors that carry out dealcoholisation to be low. The  
498 experts from the service providers emphasise high capacity utilisation due to numerous enquiries -  
499 one expert even spoke of selecting enquiries, leading to high bargaining power. On the other hand,  
500 only one of the five service providers based in Germany specialises purely in the dealcoholisation  
501 process. The remaining four companies offer the service in addition to their main business (bottling  
502 plant, winery, fruit juice company and producer of natural aromas). Furthermore, the dealcoholisation  
503 process is used or can potentially be used for other products in all companies: In addition to non-  
504 alcoholic beer, the production of non-alcoholic fruit wines and chemical flavourings is discussed by  
505 the experts. One expert emphasises that the vacuum distillation system was only purchased because  
506 it also enables the desulphurisation of sweet reserve and thus the production of grape juices.  
507 Ultimately, this allows the service providers to spread their risk. This is reinforced by the fact that  
508 five service providers based in Germany rely different minimum quantities required and slightly  
509 modified technologies. For instance, one service provider works with a special absorber resin that is  
510 supposed to better preserve the flavours. Companies that decide in favour of a service provider could  
511 therefore be exposed to high switching costs. However, only one of the ten wineries and wine cellars

512 specialises purely in the non-alcoholic wine segment. The remaining companies focus on alcoholic  
 513 wines and have added non-alcoholic wines to their portfolios in recent years. Although several experts  
 514 emphasise the growing importance of these products, a status as a "central input" cannot be derived  
 515 from this, which ultimately lowers the bargaining power of the suppliers. Overall, prediction 5 of a  
 516 medium bargaining power of the suppliers is confirmed due to a high concentration of service  
 517 providers but an overall low importance of non-alcoholic wines for wineries and wine cellars.

518 Figure 2 summarises the findings on the intensity of competition in the market for non-alcoholic  
 519 wines.

520



521

522 Figure 2: Framework for competition in the market for non-alcoholic wines

523

## 524 **5. Implications for Competition and Competitive Strategies in the Market for Non-** 525 **Alcoholic Wines**

526 Although the market for non-alcoholic wines has only developed significantly in recent years, the  
 527 competition in the market for non-alcoholic wines must already be regarded as dynamic, as the  
 528 industry is subject to strong market forces.

529 While the service providers as suppliers are characterized by a medium bargaining power, the retail

530 finds itself in a much stronger position. In addition, there is high pressure from substitutes. On the  
531 other hand, the current low rivalry between the existing companies in the sector plays an important  
532 role for the strategic positioning of individual companies, also due to a pronounced atmosphere of  
533 "trial and error". Ultimately, the importance of strategic considerations is reinforced by low entry  
534 barriers and a rising number of competitors within the market. Following on from the Five Forces,  
535 the generic competitive strategies according to Porter [17] are discussed for the market of non-  
536 alcoholic wines in Germany. Companies in the wine industry should thus either choose one of the  
537 following strategies: cost leadership, differentiation or focus strategy. The latter refers to a focus on  
538 market niches and thus on specific customer groups, specific products within the overall product  
539 range or on a specific geographical region [16]. This form of competitive strategy is therefore  
540 particularly relevant for smaller companies in the wine industry. Downstream, the focus strategy is  
541 also orientated towards cost leadership or differentiation.

542

#### 543 *Cost Leadership and Cost Focus Strategy*

544 The aim of cost leadership is to achieve a competitive advantage through the lowest possible cost  
545 positioning compared to the competitors. An important prerequisite for the realisation of this strategy  
546 is the consistent pursuit of cost advantages, e.g. realized by economies of scale. In the market for non-  
547 alcoholic wines, this is particularly relevant for larger, vertically integrated wine cellars with own  
548 dealcoholisation plants. For smaller companies, dealcoholisation via service providers is unavoidable  
549 in view of a possible entry into the market for non-alcoholic wines. As a result, the negotiating power  
550 of suppliers only becomes effective for smaller companies. At the same time, the service has an  
551 impact on the cost position: The lower volumes result in comparatively high unit costs, which in turn  
552 are reflected in higher product prices for smaller wineries.

553

#### 554 *Differentiation and Differentiation Focus Strategy*

555 To differentiate themselves from competitors and thus gain a competitive advantage, several experts  
556 from smaller wineries emphasise certain product attributes as a possible strategic dimension. For  
557 instance, some wineries rely on dealcoholisation of wines from specially selected vineyard parcels  
558 are from wines that have been matured in barrique barrels. It can be assumed that such attributes in a  
559 young, rapidly developing industry could still be more relevant than in the overall German wine  
560 industry, where product attributes that are associated with quality have largely been harmonised at a

561 consistent high level over the past few decades [43]. It is therefore questionable to what extent this  
562 strategic dimension in the market for non-alcoholic wines can ensure a sustainable competitive  
563 advantage in the long term.

564 A classic way to achieve competitive advantages through differentiation is to establish brands which  
565 provide orientation, recognition value and an identification function for the customer [44].  
566 Ultimately, establishing strong brands is about giving the customer added value and retaining their  
567 loyalty to the product in the long term. This strategy, however, is time-consuming and cost-intensive  
568 and is particularly feasible for larger companies. Still, the interviews show that in the non-alcoholic  
569 wine segment, large companies are primarily focussing on their existing brands and supplementing  
570 them with non-alcoholic variants.

571 A deeper look at the analyses shows that smaller companies with low brand strength almost entirely  
572 supplement their portfolios with non-alcoholic wines without clear differentiation from their  
573 alcoholic products. This group of "followers", which is expected to grow steadily in view of the  
574 growing demand for dealcoholisation is strategically positioned between companies who are either  
575 focusing on cost leadership or differentiation. In view of the competitive forces affecting the market,  
576 this can be estimated as unfavourable position. Still, these companies are currently able to "survive"  
577 in the market primarily due to the fact that in a young industry, "running with the pack" already leads  
578 to profits. It is this group that is likely to be characterised by enormous fluctuation in the long term –  
579 low entry and exit barriers are likely to show their full effect here.

580 Some market players, on the other hand, tend to position their non-alcoholic products as an extension  
581 of their range and thus deliberately attempt to differentiate their products from alcoholic wines. A  
582 classic example of this is the Dr. Loosen winery, which markets its non-alcoholic wines under the  
583 name "Dr. Lo".

584 Still, these considerations raise the question of whether the positioning of the products is sufficient to  
585 secure long-term competitive advantages in a steadily growing and successively more saturated  
586 market. A closer look at way companies are positioning their products reveals that the companies  
587 focus strongly on the characteristics of the "originals" when marketing non-alcoholic wines. This  
588 circumstance repeatedly leads to comparisons between the two products and negatively emphasises  
589 unavoidable differences in their sensory properties, which ultimately leads certain retail companies  
590 in Germany to take a rather cautious view of the products as the interviews showed. Therefore, one  
591 promising approach of differentiation for smaller businesses could be to transfer non-alcoholic wines  
592 into a separate category by communicating independent and ultimately unique product characteristics,

593 creating a product range that is completely different from the appearance of the remaining portfolio.  
594 In view of the growing number of young people who do not consume any alcohol at all [41], this  
595 could ultimately open up completely new target groups: People who have not yet consumed wine.  
596 The experts from wineries and cellars interviewed mostly perceive those people as a target group who  
597 have to refrain from consuming wine due to pregnancy, age-related restrictions or participation in  
598 road traffic. However, the possibility of addressing completely new target groups that were previously  
599 not part of the customer base is also being addressed. Placing the products as an independent category  
600 could ultimately give companies a comfortable competitive position, albeit with higher strategic risk  
601 but also higher profit potential.

602

## 603 **6. Discussion**

604 Compared to the late 1980s, when non-alcoholic wines failed to achieve a market breakthrough in  
605 Germany, the framework conditions influencing the market have changed significantly today. While  
606 back in the 1980s, an increased health and fitness awareness was primarily identified as the motive  
607 for the consumption of alcohol-free wines, the fundamental social attitude towards alcoholic  
608 beverages has gradually changed at the latest since the beginning of the 2010s: The consumption of  
609 non-alcoholic beverages is increasingly accepted in the social environment, abstinence is even  
610 perceived as desirable and is an increasingly insignificant factor for marginalisation, especially  
611 among the younger generations. Increased health awareness is particularly evident among this  
612 population group, which manifests itself in social trends such as "Dry January" or "Sober October",  
613 in which people actively call for temporary abstinence [45]. In September 2022, a study by the market  
614 and opinion research institute YouGov caused a stir, according to which almost half (49%) of young  
615 adults (aged 18 to 24) living in Germany do not consume alcohol [46].

616 It can therefore be assumed that alcohol-free alternatives will become increasingly relevant in the  
617 future, also due to the growing influence of the European alcohol policy [47]. One e-commerce  
618 company interviewed for this study is already actively incorporating the increased regulatory efforts  
619 for alcoholic beverages into its corporate strategy as a possible alternative to counteract future  
620 advertising restrictions. This reinforces the impression that non-alcoholic wines could represent an  
621 important market for the German wine industry in the future.

622 However, as the interviews show, expectations are far from uniform. The assessment of the expert  
623 from the discount sector stands out in particular. Accordingly, non-alcoholic wines will have minor  
624 relevance for this type of company in the German food retail sector in the future. Other experts are

625 sceptical with regard to the sensory properties and pricing of non-alcoholic wines, as the additional  
626 production step is associated with additional energy input and volume losses.

627 It is therefore of central importance to what extent the market for non-alcoholic wines could currently  
628 be "overestimated". The findings on the industry structure gathered in this study paint a rather  
629 sobering picture: the industry is characterised by strong competitive forces, low barriers to entry and  
630 exit, and a tendency towards a high fluctuation of market participants in the future, which ultimately  
631 also leads to a small size of the market in the long term. In view of the analyses carried out, one  
632 promising approach is to transfer non-alcoholic wines into a new, independent category - similar to  
633 what the German company "Bionade" has successfully achieved by moving away from classic  
634 lemonade.

635 This approach could also be highly relevant in order to be able to assert non-alcoholic wines against  
636 ever more diverse substitutes. Tea drinks, Kombucha, lemonades, alcohol-free craft beers – the  
637 number of innovative alcohol alternatives is constantly increasing. Compared to these substitutes,  
638 non-alcoholic wines are clearly a niche product that is strongly oriented towards the sensory and  
639 emotional characteristics of its "original product".

640 New innovations in the field of wine, such as fermentation of vine leaves [48,49], represent promising  
641 opportunities to create something "new" that can also stand out from strong substitutes. Additionally,  
642 products in the "low" category should not be neglected, as they are not only becoming increasingly  
643 important, but could prove to be very promising when it comes to "introducing" consumers to non-  
644 alcoholic variants.

645 Overall, the study highlights the need for further research in the field of non-alcoholic wines with  
646 regard to consumer research and market strategies. This study has made a first attempt to analyse the  
647 structure of the market for non-alcoholic wine in Germany and to derive possible strategic  
648 implications for existing and potential market participants. The explorative approach chosen, in  
649 conjunction with the expert interviews conducted, has made an initial contribution to this. In  
650 particular, the qualitative approach has helped to better understand the current uncertainty of industry  
651 participants with regard to legal changes, competitors or market developments through personal  
652 dialogue. Due to the limitations of qualitative research, this initial approach should be quantified with  
653 further research. For instance, surveys of individual company types on a broader scale are  
654 conceivable, which would enable an enhanced depiction of the different perceptions of market  
655 players. As shown, this study revealed slight differences in the attitudes towards non-alcoholic wines  
656 between specialised retailers, supermarkets and the discount with the latter tending to be less open to

657 the products than the former.

658 Germany was a suitable case for this initial look at a market for non-alcoholic wine. With its highly  
659 competitive wine market, the country has some special features that significantly increase the  
660 relevance of competitive strategies. Ultimately, the findings gathered may not only be relevant to the  
661 German market, but also to other markets in which non-alcoholic wines are becoming increasingly  
662 important.

663

## 664 **7. Summary**

665 Although non-alcoholic wines still occupy a clear niche position in the German wine industry, they  
666 are currently one of the most discussed products in view of the declining wine consumption in most  
667 European countries. The aim of this study was therefore to gain an initial overview of the structure  
668 of the German market for non-alcoholic wines and to derive implications for market competition and  
669 possible strategic positioning of individual market participants. On the supplier side, service providers  
670 for dealcoholisation play a central role, especially with regard to the market participation of smaller  
671 wineries. As the mood of “trial and error” still seems to be pronounced at the moment, competition  
672 in the market between wineries, cellars and co-operatives is currently limited. Low entry barriers  
673 make it easy for new companies to enter the market. The retail has undiminished bargaining power,  
674 while at the same a wide range of substitutes exerts high pressure on non-alcoholic wines. Clear  
675 differentiation strategies therefore appear to be important for strategic positioning and long-term  
676 survival in the market, especially for small companies. Ultimately, this could also help to transform  
677 non-alcoholic wines into a stand-alone category, thereby separating the products from their originals  
678 and reaching entirely new target groups.

679

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