

Weathering the storm: wine, tourism, and hospitality resilience in the face of extreme events

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Abstract

Purpose – This study aims to examine the resilience of family small to medium-sized enterprises (SMEs) in New Zealand's wine, tourism and hospitality sectors in the face of extreme events. The authors first focus on the New Zealand wine industry's relationship with tourism and hospitality and explore how these industries maintain innovative and sustainable wine systems. This study concentrates on job attractiveness issues as they relate to the seasonal nature of New Zealand's interconnecting wine, hospitality and tourism industries, where job attractiveness can be exasperated when businesses are affected by extreme events, therefore affecting wine systems. Thus, the authors will address the following question: in the context of extreme events, how do seasonality and job attractiveness affect wine systems for family SMEs in New Zealand's wine and related tourism and hospitality sectors?

Design/methodology/approach – Secondary data were collected from media and industry outlets to identify Hawke's Bay businesses in the wine, tourism and hospitality industries that have struggled, and endured, a recent crisis. A case study design was used as a suitable way to simultaneously reflect on historic experiences and focus on contemporary events. The case study of the Hawke's Bay region is in the context of the extreme weather events that took place in early 2023. The authors draw upon empirical research of organisational resilience from other regions and how it relates to the evolving experiences in innovative and sustainable wine systems.

Findings – In the face of extreme events, the authors found that careful attention needs to be paid to rebuilding the service sector around the winegrowing industry to create high-value, sustainable businesses with quality jobs. Notably, the authors found that smaller family businesses were vulnerable in terms of preparedness and organisational resilience. Moreover, the job attractiveness and employer reputation issues need to be tackled in the context of extreme events, particularly in industries where there are transient seasonal workers.

Research limitations/implications – Focusing on the wine, tourism and hospitality industries plays a direct role in the largest economic arena in New Zealand. This research discerned practical interventions and challenges for sustained growth and resilience in some of New Zealand's most vulnerable industries and locations. Practical implications include bringing to the forefront the need for preparedness and organisational resilience in the case of extreme events. This includes better business–government collaboration and having measures in place to mitigate job attractiveness issues.

Originality/value – The authors have drawn upon complex theoretical discussions of wine systems and their tourism and hospitality interactions in the context of an extreme event in Hawke's Bay, New Zealand. The authors used an event system theory framework to guide this study. Several weaknesses in organisational



resilience and preparedness were highlighted, including the impact of seasonality and employment conditions on the industries' job attractiveness. While there are studies on organisational resilience in wine enterprises and family businesses in hospitality, none explicitly focus on the intersection of these three industries.

Keywords Crisis, Strategy, Family businesses, Job attractiveness, Resilience and preparedness, Change and innovation, Sustainability, Event system theory, Employer reputation

Paper type Research paper

Introduction

This article highlights the need for research on evolving experiences in innovative and sustainable wine systems where we emphasise the wine industry's relationship with the tourism and hospitality sectors (Velikova, *et al.*, 2019; Hill and Fountain, 2022; Alonso *et al.*, 2023; Kotur, 2023). Reflecting global trends, New Zealand's wine industry significantly influences the country's tourism and hospitality sectors as "wine tourism" or "oenotourism" has become a key economic driver, promoting wineries and regions and boosting revenue for related sectors (Carlsen and Charters, 2006; Baird, 2012; Dixit, 2023). Common trends include wine routes between and within regions, cellar door experiences and events and festivals (Alonso *et al.*, 2013). In New Zealand, there are several areas where there is a close connection between the three industries (moving from north to south): Matakana, Auckland (particularly Waiheke Island), Gisborne, Hawke's Bay, Wairarapa and Martinborough, Marlborough, Nelson, North Canterbury, North Otago, Queenstown and Central Otago.

However, wine systems are vulnerable in the face of natural shocks, such as extreme weather, earthquakes and volcanic activity (Baird, Hall and Castka, 2018; Forbes and Wilson, 2018). In this article, we focus on the weather events associated with Cyclone Gabrielle in the Hawke's Bay region during 2023 (NZ Herald, 2023; RNZ, 2023b). While the Hawke's Bay region has experienced adverse weather events previously, Cyclone Gabrielle was fiercer and created more damage than other weather events. Cyclone Gabrielle's storms cut through vineyards, buildings and forests and its rainfall reached 450 mm (a quarter of usual annual rainfall), resulting in 40,000 properties with power cut and with 11 deaths and thousands of displaced people. Numerous businesses had to close temporarily or permanently, and the rebuilding is expected to take years. The cyclone devastation must also be viewed in the context of the COVID-19 lockdowns in New Zealand. During 2020–2023, these lockdowns had a profound effect on the national economy, and the long-term impact on the discussed industries is still unclear. For example, it is still debated in late 2024 whether the tourism industry will fully recover to pre-COVID levels and how many vineyards and hospitality firms will survive in 2024–2025 (Fountain, 2022a; Swerdloff, 2023; Latham, 2024).

As this is specific, groundbreaking research, we have used a single case study method and relied on secondary data sources to establish key themes and trends. We have also drawn on the very complex theoretical discussions of wine systems. Wine systems refer to the interconnected networks of wine production, hospitality and tourism that collectively shape regional economies, experiences and sustainability. These systems include the dynamic relationships between vineyards, cellar doors, tourism services, hospitality and accommodation providers and are influenced by seasonal labour, environmental conditions and innovation practices (von Bertalanffy, 1972; Marques *et al.*, 2021; von Braun *et al.*, 2023; Reinhardt *et al.*, 2024). This has highlighted several weaknesses, including the impact of seasonality and employment conditions on the industries' job attractiveness. On the other hand, recent regional studies – especially after the Canterbury earthquakes – have stressed how businesses can build resilience before and after adverse events

([Fountain and Cradock-Henry, 2020](#)). This contradictory picture is highlighted in our Findings and Discussion sections, where we also emphasise both the limited support of local and national contexts and the awareness and sustainability actions prompted by the cyclone events.

We contribute to the ever-evolving experiences in innovative and sustainable wine systems by exploring job attractiveness challenges in the face of an extreme event, sometimes referred to as an exogenous or external shock ([Miklian and Hoelscher, 2022](#); [Soluk, 2022](#)). Specifically, we identify how the winegrowing industry enhances its links with tourism and hospitality through the lens of event system theory (EST). We highlight different experiences family SMEs have in this context. We offer practical implications regarding preparedness and organisational resilience in the case of extreme events.

Theoretical framework

In the following, we will discuss how the viticultural, tourism and hospitality industries handle seasonality and job attractiveness issues such as labour shortages, low pay, poor conditions, high turnover and limited career paths. We will highlight the recognised seasonal employer (RSE) scheme, immigration and the vulnerability of short-term employment. Our discussion will cover the positive and negative aspects of the prevailing family SMEs in the three selected industries, including innovation. Organisational resilience has been a current research focus and fits with our interest in business impacts of adverse events. Finally, we present an overarching model within a systems theory approach.

Wine industry

Globally, the wine industry holds economic and cultural significance ([Andrade-Suárez and Caamaño-Franco, 2020](#); [Mota et al., 2021](#); [Ruggeri, Corsi and Mazzocchi, 2024](#)). Recent literature has moved towards wider business aspects, climate change and innovation ([Woodfield et al., 2017](#); [Lockshin and Corsi, 2020](#)), including responses to changing temperatures and precipitation ([Galbreath et al., 2020](#); [Jones et al., 2021](#)). The industry is dynamic and globalised, with new world producers adapting to consumer preferences ([Mariani, Pomarici and Boatto, 2012](#)). Innovations include organic winegrowing, biodynamics, water conservation, carbon footprint reduction and new marketing strategies ([Woodfield and Husted, 2022](#)).

New Zealand's wine industry has gained international recognition for quality and innovation, overcoming challenges and pivotal milestones with sustainable practices and innovation ([Baird, Hall and Castka, 2018](#); [Baird et al., 2024](#)). This has led to introducing precision viticulture technologies to address eco-innovation demands as wineries recognise technological advancement is needed ([Bramley, Trought and Praat, 2011](#); [Imre et al., 2013](#); [Sarri et al., 2020](#); [Rabadán and Bernabéu, 2021](#); [Casson et al., 2022](#); [Cricelli, Mauriello and Strazzullo, 2024](#)).

Research highlights New Zealand's unique world position away from major markets, with a necessary focus on competitive advantage strategies ([Gabzdylova, Raffensperger and Castka, 2009](#); [Bicknell and MacDonald, 2012](#); [Woodfield et al., 2017](#)). Environmental stewardship through sustainable winegrowing is a key part of the industry's brand, with most of New Zealand's vineyards certified as sustainable, maintaining yield and wine quality by adapting to environmental challenges ([Remaud, Forbes and de Silva, 2012](#); [De Silva, Nilipour and Mansouri, 2019](#); [Le Roux et al., 2019](#); [De Silva, 2020](#)). Although a small industry on the global stage, New Zealand winegrowers have positioned themselves in premium markets throughout Europe, North America and the Asia region through attention to cultural differences in tastes ([Beverland, 2009](#); [Morrish and Earl, 2021](#)). [Table 1](#) demonstrates the size of the New Zealand wine industry and, by comparison, how much

Table 1. New Zealand wine statistics with a focus on the Hawke's Bay region

Indicator	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<i>Hawke's Bay</i>										
Number of members who sell wine	75	76	79	91	98	100	104	107	106	109
Number of members who only sell grapes	74	71	65	62	58	57	65	59	50	48
Hectares (ha)	4,638	4,641	4,615	4,678	4,883	5,034	4,737	4,722	4,623	4,574
Tonnes	36,057	42,958	33,679	41,061	37,173	43,247	41,138	40,172	38,409	24,143
<i>New Zealand</i>										
Number of members who sell wine	673	675	677	697	716	717	731	744	739	755
Number of members who only sell grapes	762	747	726	699	692	694	732	706	681	671
Hectares (ha)	35,463	36,226	36,943	38,073	39,061	39,934	40,949	41,304	41,991	42,519
Tonnes/ha	9.1	12.0	10.7	11.0	10.7	11.4	9.2	12.9	11.9	9.3
Tonnes	322,713	435,192	395,290	418,803	407,252	455,248	376,731	532,822	499,693	395,427
<i>Hawke's Bay as % of NZ industry</i>										
Number of members who sell wine	11.1%	11.2%†	11.7%†	13.1%†	13.7%†	13.9%†	14.2%†	14.4%†	14.3%↓	14.4%†
Number of members who only sell grapes	9.8%	9.5%↓	8.9%†	8.9%↔	8.4%↓	8.2%↓	8.9%†	8.4%↓	7.3%↓	7.2%↓
Hectares (ha)	13.1%	12.8%↓	12.5%↓	12.3%↓	12.5%†	12.6%†	11.6%↓	11.4%↓	11%↓	10.8%↓
Tonnes	11.2%	9.9%↓	8.5%↓	9.8%†	9.1%↓	9.5%†	10.9%†	7.5%↓	7.7%†	6.1%↓
<i>Number of members who sell wine by size</i>										
Small	587	581	582	603	624	628	645	662	646	661
Medium	69	78	77	77	73	69	67	66	75	76
Large	17	16	18	17	19	20	19	16	18	18
Total	673	675†	677†	697†	716†	717†	731†	744†	739↓	755†
SME (S+M)	656	659†	659↔	680†	697†	697↔	712†	728†	721↓	737†
SME %	97.5%	97.6%	97.3	97.6%	97.3%	97.2%	97.4%	97.8%	97.6%	97.6%
Family SMEs (est. 70% of all businesses)	459	461	461	476	488	488	498	510	505	516

Source(s): Adapted from [New Zealand Winegrowers, \(2024a\)](#)

Hawke's Bay contributes to the industry. There is some evidence that in spite of the severe impact of Cyclone Gabrielle, the total vineyard area in Hawke's Bay remained materially unchanged from 2023 to 2024; however, the tonnage per hectare declined significantly, likely because of the flooding that occurred during the cyclone, with soil saturation being a factor alongside water restrictions that likely disrupted vine physiology and fruit development ([New Zealand Winegrowers, 2024b](#); [Preece, 2025](#)).

The viticulture sector has long faced employment issues because of its seasonal nature, low pay and physical demands. This led to the introduction of the RSE scheme in April 2007. Even the post-GFC downturn and unemployment had limited impact on sourcing regional staff for viticulture and horticulture work. Instead, vineyards became more dependent on RSE workers, mainly from the Pacific Islands, growing from 5,000 workers in 2007 to 19,750 in 2024 ([MBIE, 2024](#)). The Hawke's Bay area – the focus of this study – alone employs nearly 8,000 RSE workers.

Regular RSE surveys since 2008 have shown positive feedback, with high satisfaction levels, especially compared to workers sourced through Work and Income (i.e. being on a benefit). Public and media reports have painted a more complex picture, with concerns about worker exploitation, with increased government oversight being necessary. We focus on three areas: wages and income; accommodation; and health and safety. Low wages and accommodation costs have led MBIE (Ministry of Business, Innovation and Employment) to mandate the statutory minimum wage plus 10% extra in 2023. Some employers have faced warnings or total exclusion from the RSE scheme because of unwarranted cost deductions. Accommodation standards remain an issue, prompting the development of a checklist for employers ([Horticulture New Zealand, 2018](#)). Health and safety risks are significant because of the physical nature of the work, long hours and heavy machinery, with media reports highlighting insufficient employer actions and inadequate medical facilities ([Charlotte Bedford, 2020](#); [Bedford, 2023](#); [Bonnett, 2024](#)).

Tourism and hospitality

Hospitality and tourism are vital to the NZ economy, employing nearly 10% of the workforce and significantly contributing to GDP and revenues. In spite of the COVID-19 period, they have grown significantly in the new millennium, highlighting environmental and employment issues. While New Zealand has not seen the backlash experienced by European tourist hotspots, concerns about overuse, degradation of key tourist destinations and infrastructure maintenance persist ([Hill and Fountain, 2022](#); [Harkison, 2024](#)). Links to winegrowing and cultural experiences have driven growth, with major wine and music events becoming regular fixtures. Moreover, wine routes and trails, tasting experiences and local cuisine contribute to a diverse and interconnected wine system ([Alonso *et al.*, 2013](#); [Madeira, Correia, and Filipe, 2019](#); [Alonso *et al.*, 2023](#)).

Employment opportunities have increased, but unsuitable conditions and volatile, low-profit margins have limited job attractiveness in tourism and hospitality. Issues creating a volatile employment relations environment include low pay, low productivity, high turnover and poor career pathways, exacerbated by labour shortages, (recent) high inflation, rising wages and COVID-19 fallouts ([Williamson and Rasmussen, 2022](#)).

Concerns about these sectors have increased over the past two decades ([MBIE, 2023](#)). Employer organisations have raised alarms about severe job attractiveness issues, difficulties in filling advertised job opportunities and a restrictive business environment, both before and after COVID-19. The 2017–2023 Labour governments launched initiatives for industry transformation and sustainability, but their impact is unclear, and they have since been

discontinued under the current coalition government, with significant staff cuts in the lead ministry (MBIE) and other supporting public sector organisations (Crimp, 2024).

In the new millennium, New Zealand's labour market has often faced tight conditions, with some industries experiencing prolonged staff and skill shortages. This has created obstacles for less desirable industries in terms of employment conditions. While the wine industry has benefited from the RSE scheme, tourism and hospitality have had to rely on short-term immigration. The influx of migrants post-2013 has sparked debate about the economic benefits of employing migrants, particularly young people, on temporary work visas (Fry and Wilson, 2021; NZ Productivity Commission, 2022). Tourism and hospitality face a "vicious circle" because of a predominantly young, transient, low-paid workforce becoming a recipe for high voluntary staff turnover and persistent workforce shortages (NZ Productivity Commission, 2022; Williamson and Rasmussen, 2022).

Vocational education and training structures have also hindered workforce permanency since the 1990s reforms, with insufficient employer and government investments. Skill shortages and mismanagement are well-documented in media and reports (Piercy-Cameron and Rasmussen, 2025). These issues are prevalent in viticulture, tourism and hospitality, which are dominated by regional and small employers, seasonality and limited job attractiveness or employers' reputation. Thus, a well-trained workforce remains a goal rather than a reality for many employers in these sectors. Table 2 highlights the importance of both the hospitality and tourism industries in New Zealand.

Organisational resilience

A growing body of literature focuses on organisational resilience. A resilient organisation can anticipate, prepare for and respond to and recover faster from events that disrupt its operations. Key capabilities of resilience include managing risk, having the ability to adapt and be innovative and the ability to learn from events where knowledge gained through withstanding challenges can formulate improvement in the future (Sullivan-Taylor and Branicki, 2011). Organisational resilience can relate to various natural disaster shocks, including extreme weather events, earthquakes and, more broadly, climate change. Other shocks involve pandemics and other health crises; cyber-attacks (including data breaches) and widespread technological failures; disruptions in the supply chain; economic downturns, including financial crises; changes in regulations and the workforce; negative publicity and shifts in the competitive landscape (Alonso and Bressan, 2015; Navarro *et al.*, 2017; Gilinsky *et al.*, 2020a; Gilinsky *et al.*, 2020b; Guerra *et al.*, 2024).

When considering supply chain resilience, a framework that is often used is *readiness, response and recovery* (Sheffi and Rice, 2005; Ponomarov and Holcomb, 2009; Forbes and Wilson, 2018). Readiness can be a difficult one because in some instances planning and preparation for an extreme event has no precedent. However, having contingency plans in place anticipating known and potential natural disasters can often mitigate unexpected natural disasters. Proactive planning and preparation need to be partly funded by local and national government. For example, the role of the civil defence, regional councils and government agencies and ministries needs to be equipped to support regions when and where needed. Forbes and Wilson (2018) highlight the importance of not underestimating the potential scale of a disaster where businesses typically focus on smaller frequent disruptions.

A New Zealand example, which set a precedent for organisational resilience research, was researched in the aftermath of the Christchurch earthquakes of 2011 (Hall *et al.*, 2016; Chowdhury *et al.*, 2019; Hall *et al.*, 2023). Some businesses had an inherent resilience, including investment in processes. When considering recovery, Forbes and Wilson (2018) found there was a need for effective communication, workforce adaptability and a growing

Table 2. Highlights of the hospitality and tourism industries in New Zealand

Hospitality	Tourism
<i>Selected highlights</i> • Annual sales for the year ended March 2024 reached \$15.7bn, reflecting national sales growth of 5.8% over the previous year. Notably over this period, menu pricing grew by 6.4%, operational costs increased significantly in key areas and inflation overall was 4%, indicating sales growth lags behind cost increases • The restaurant and cafe sector recorded sales growth of 4.6% in 2024, reaching \$7.8bn in annual sales (and posting sales \$344m more than 2023) • In spite of the challenges in 2023 in the aftermath of the country's devastating weather events, in 2024 (year end March), the Gisborne region recorded the largest percentage sales growth over the previous year. Annual sales for the region are \$127.4m • 145,000 employees work in the hospitality industry. Employee growth across the industry was 7.3% from 2022 to 2023. This is a growth rate that far exceeds the growth in outlets over the same period • For the year ended February 2023, there were 19,518 hospitality outlets around New Zealand. This reflects an overall increase of just 27 outlets over the previous year	<i>Selected highlights</i> • Tourism was New Zealand's second largest export earner • Total tourism expenditure was \$44.4bn, the highest it has ever been, and is an increase of 14.6% (\$6.7bn) from the previous year • International tourism expenditure increased 59.9% (\$6.3bn) to \$16.9bn. This is a recovery of 98% compared to 2019 (\$17.2bn) • GST generated from international tourists totalled \$1.7bn, an increase of \$689m • Overseas visitor arrivals to New Zealand increased 45% to 3.2 million • Tourism generated a direct contribution to GDP of \$1.7bn, or 4.4% of GDP, an increase of 16% or \$2.3bn to the New Zealand economy • 182,727 New Zealanders were directly employed in the tourism sector, an increase of 21,729 people from the previous year • In total, 303,420 people were directly or indirectly employed in tourism, or one in nine New Zealanders

Source(s): [New Zealand Tourism, 2025](#); [Restaurant Association of New Zealand, 2025](#)

need for handling stress, well-being and mental health of the workforce. They found there was an importance placed on learning from the experience and having a focus on the mitigation for future events and building back better than previously. Mitigation measures included finding ways to learn from mistakes, building upon successes that would help a faster and less expensive recovery in the future, understanding vulnerabilities of an organisation and having a long-term orientation. Therefore, lessons were learned from the Christchurch earthquakes, not just at a regional level but at a national level, and we draw on this research.

In the context of the New Zealand wine industry, organisational resilience has been in the form of mitigating vine disease and other biosecurity threats or environmental sustainability pressures, changing weather patterns and extreme events. In our three industries, limited resilience aligns with workforce challenges which are often exasperated by the seasonal nature of some work situations and skill shortages and are sometimes related to regulatory workforce changes and various macro-forces, including economic fluctuations, technological shifts, tariff adjustments, trade agreements or changing consumer preferences (Baird, Hall and Castka, 2018; Sautier *et al.*, 2018; Depetris Chauvin, Pinède and Priilaid, 2024; New Zealand Winegrowers, 2024a; Cooper, 2025). As such, there is a growing body of literature addressing specific New Zealand challenges in terms of organisational resilience (Fountain and Cradock-Henry, 2020; Fountain *et al.*, 2021; Fountain, 2022b).

Family business and organisational resilience

Globally, family businesses are about 70% of all organisations, employing 60% of the workforce, and contributing over 50% to national GDP (Smyrniotis and Dana, 2007; Whittaker *et al.*, 2011; Tharawat, 2016; Arregle *et al.*, 2021). Over-represented in the wine industry, family businesses include very large wineries – some of which are hundreds of years old – but proportionately family businesses dominate the small to medium-sized enterprise (SME) landscape (Woodfield *et al.*, 2021). Specifically, the New Zealand wine industry has been dominated by large firms over past decades. However, there has recently been a change with these large (often international) wine and liquor firms selling their wine-producing interests (New Zealand Winegrowers, 2024a; Cooper, 2025). To put this in perspective, New Zealand SMEs are the backbone of the economy, comprising approximately 97% of all businesses, with a significant proportion being family-owned enterprises. In the Hawke's Bay region alone, there are over 21,000 registered businesses, the vast majority of which are SMEs. Of these businesses, the region has around 200 vineyards and more than 30 cellar doors, mostly family-owned businesses tightly integrated with the hospitality and tourism sectors. These interconnected industries are particularly vulnerable to seasonal fluctuations and extreme events, leading to our current research focus on organisational resilience and job attractiveness as critical components of sustainable wine systems (Figure, 2025; KPMG, 2025; StatsNZ, 2025). Building on this, over the past two decades academic interest in family businesses has grown because of their unique characteristics and economic and social contributions (De Massis and Rondi, 2024). Family businesses are frequently intergenerational, have a long-term orientation and experience organisational challenges including succession, internal conflict and nepotism (Woodfield and Husted, 2017; Woodfield *et al.*, 2021).

The winegrowing industry offers extensive research opportunities, from growing and producing wine to the distribution of the products and its links with other industries such as tourism and hospitality (Woodfield and Husted, 2022). In respect of our topic, there seem to be two different interpretations of family businesses and organisational resilience. For example, some literature highlights that family businesses characteristically excel in crisis

(Salvato *et al.*, 2020). This is explained through family businesses, which, though often smaller, build resilience through long-term focus, stakeholder relationships, patient capital, strong family cohesion and decision-making that prioritises socioemotional wealth over financial returns (Calabrò *et al.*, 2021; Caspersz, *et al.*, 2025). However, a second strand of the literature emphasises the vulnerabilities of many SMEs with their limited resources, and this is corroborated by statistics of the high failure rates of SMEs (Paeleman, Vanacker and Zahra, 2024). This contradicts the notion that their long-term orientation enhances resilience, enabling them to unite during challenges and engage with communities, other family businesses and related industries (Pinelli, Debellis and De Massis, 2024). Thus, there is a notable difference in the two strands of the literature, and this implies that it is necessary to specifically address organisational resilience in family SMEs within the wine industry and their links to tourism and hospitality. While there are studies on organisational resilience in wine enterprises and family SMEs in hospitality, none explicitly focus on the intersection of these three interconnected industries. This is the focus of our empirical research.

Systems perspective

Given the complex business environment, the systems approach offers an additional framework that helps us to understand organisational resilience amongst particular types of firms and sectors. For example, the wine, tourism and hospitality industries constitute a complex array of interconnected systems that are interdependent on each other. Given this interconnectedness, wine systems are influenced by other industries alongside more internal concerns (that is, to the wine industry) such as job attractiveness, sustainable practices, innovation and the like. With its foundation in general systems theory (Von Bertalanffy, 1972), the systems' perspective views organisations as integrated, and the many isolated parts are in continuous interaction within their particular context. Extending this perspective, Morgeson *et al.* (2015) emphasise external events have been significant when understanding organisational behaviour and dynamics. They argue that the critical role of events is often overlooked, whether they are discrete organisational occurrences or more significant events such as the global financial crisis, earthquakes or climate events (Kennedy and Linnenluecke, 2022; Linnenluecke, 2022; Carrasco *et al.*, 2023).

EST builds on general systems theory, positing that events have different characteristics – including the frequency, intensity and duration – affecting organisations and their members. As a framework, EST provides a heuristic tool for examining decision-making communication and performance and highlights the interplay between the events themselves, the organisation and its members. Morgeson *et al.* (2015) suggest that EST moves away from organisational theories that are more static towards recognising organisational phenomena being more dynamic in nature, where a focus on events draws attention to dynamics, change and system interrelationships and forces researchers to generate insights that consider space, time and where phenomena may have downstream consequences. Instead of concentrating on processes and relationships, EST provides insights into how events might disrupt or reinforce dynamics in the system (Morgeson *et al.*, 2024).

Figure 1 refers to how behaviours, features and events can be viewed through differing directions of event effects. For this study, we concentrate on the “top-down direct effects” and “bottom-up direct effects”, which closely align with the experiences during the extreme event outlined in this article. Additionally, it is the moderating effect between the two that elucidates the need for a wider contextual understanding of organisational resilience. We identify incongruences between the extreme event and organisations through the EST framework to extend our current understanding of organisational resilience. We do this by focusing on the Hawke's Bay region and Cyclone Gabrielle, an extraordinary event that

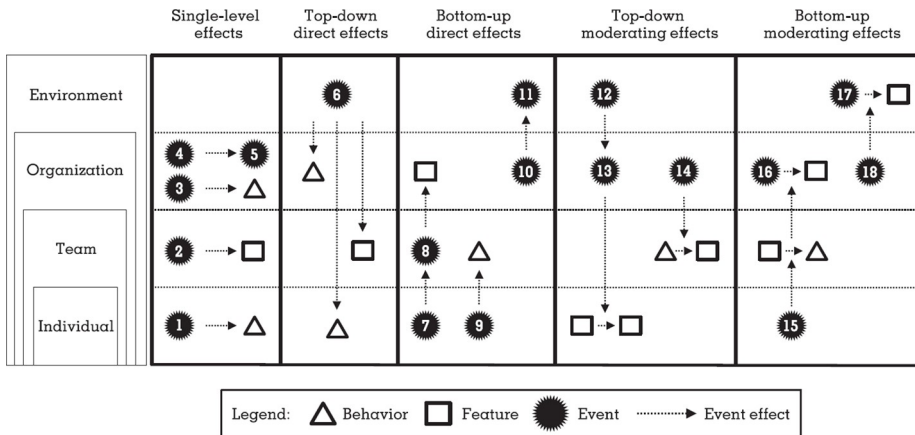


Figure 1. Prototypical effects of events on entities
Source: Morgeson *et al.* (2015, p. 523)

caused widespread crisis and destruction in one of New Zealand's larger, profitable regions. We identify internal factors that relate to the organisation, that is, family SMEs, and the wine industry itself. We also recognise external factors imposed on the wine and related hospitality and tourism industries, including job attractiveness and extenuating circumstances caused by other industries.

Methodology

We used a single case study design centred on the Hawke's Bay region affected by Cyclone Gabrielle. Case studies are a suitable way to simultaneously reflect on historic experiences and focus on contemporary events (De Massis and Kotlar, 2014). We focused on family-owned winegrowing businesses and their relationships with the hospitality and tourism industries to explore convergent concepts, patterns, differences and similarities that ultimately underpinned any theoretical contribution (Charmaz, 2014; Shah and Corley, 2006). Thus, we used a qualitative approach based on secondary data in archival evidence, including reports, articles and other relevant media information. Conducting a content analysis allowed for a deep understanding of complex phenomena, providing an understanding of emerging themes in the context of extreme events – in this case Cyclone Gabrielle. The methodology aligns with the aim of our study to explore how the winegrowing industry maintains innovative wine systems and enhances its links with tourism and hospitality in the face of extreme events.

Our data collection consisted of gathering reports, articles and media information through academic databases, including Scopus and EBSCO, and media databases (including NewsText), which led to a pool of nearly 20,000 articles related to Cyclone Gabrielle, of which and nearly 3,000 were related to Hawke's Bay. We used Google Scholar and Google Search for reports and policy papers. The types of sources were as follows:

- media, including newspaper articles, feature stories, national and local news outlets and media published by associations and institutes;
- academic articles, including peer-reviewed journal articles and conference papers;

- official reports, including government documents, policy papers, white papers and impact reports. These also included reports from local government, associations and institutes; and
- historical documents and records.

We were guided by the relevant sources we had in relation to the research question. The breadth of the archival and media evidence collected provided a diverse perspective of the effects of Cyclone Gabrielle on the wine industry in relationship with the hospitality and tourism industries. Given the high volume of relevant reporting prior to, during and after the extreme event, we were able to collect data that were longitudinal.

The retrospective data was important for understanding previous challenges and how prepared the region was for the extreme event. Moreover, there was regional, national and international reporting on Cyclone Gabrielle from the time the path of the cyclone was predicted and in real time as the cyclone hit the region, followed by a spike in reporting in the aftermath as the extent of the catastrophe was realised. Many of the reports established an understanding of the preparedness (or not) of the region. We conducted a content analysis approach which included the following steps:

- Initial reading to provide a broad view of the patterns and themes.
- Auto-coding using NVivo to get an initial impression of the emerging themes and patterns relevant to the research questions.
- Manually coding to inform themes and establish sub-themes.
- Conducting text searches to establish contextual information relating to the wine, tourism and hospitality industries in the Hawke's Bay region. This allowed us to identify themes within their historical, social and cultural contexts.
- Compared and contrasted findings across data sources to ensure a comprehensive analysis.

In conducting secondary data analysis, we were not bound by ethical considerations. However, we were meticulous with the data collection, including using proper citations and accurate representation of original contexts. In spite of potential biases in source selection and interpretation, these were mitigated by consulting diverse sources and conducting regular peer review briefings between authors to ensure reliability and validity. Leveraging secondary data and archival evidence offered a robust framework for exploring research angles, enabling a nuanced understanding of complex phenomena. As such, EST provides the ability to analyse the complex and dynamic nature of events such as Cyclone Gabrielle. Importantly, this theory provides a framework for understanding the interplay between events and organisational responses, particularly the "top-down direct effects" and "bottom-up direct effects" (refer to [Figure 1](#)).

Findings

Cyclone Gabrielle caused significant damage to infrastructure in Hawke's Bay, not just contained to roads and bridges but also to power grids and communication networks ([Transpower, 2023](#)). A reason for the extent of the damage was the known underinvestment exposed after the cyclone ([Infrastructure New Zealand, 2022](#)). The cyclone exposed vulnerabilities in the transportation infrastructure, and the flooding of substations meant the complete loss of power to parts of Hawke's Bay, which had a flow-on effect on communication networks, hampering emergency response efforts ([NZ Herald, 2023](#)).

Substantial funding was received from the government after Cyclone Gabrielle. Initially, financial aid packages were targeted to support relief and recovery. Aid reached \$50m to support businesses and a further \$25m to support farmers and growers (Murphy, 2023; RNZ, 2023b; RNZ, 2023a). A general \$1bn package was allocated in the national budget for repairing affected roads, restoration of essential transport networks and other disaster resilience support, including flood defences, stop banks, school repairs, community-led well-being initiatives and support for employment and cost of living (NZ Government, 2023c).

Furthermore, Hawke's Bay received \$133m for silt and debris removal (Hawke's Bay Today, 2023b), with, some months later, a further \$2.1m granted to boost waste-processing capacity (NZ Government, 2023c). A separate fund of \$51m was provided by the Ministry of Primary Industries (MPI) recovery fund, which was available for farmers and growers (Ministry of Primary Industries, 2023; Warr, 2023). Additionally, various funds were obtained from Red Cross, Hawke's Bay Winegrowers Charitable Trust, New Zealand vineyards and New Zealand Winegrowers (Bevin, 2023; Cowan, 2023; Gregan, 2023). A special Lotto draw had a significant funding impact (Cyclone Appeal, 2024; Department Of Internal Affairs, 2024). With time, the government provided a further \$25m, which allowed businesses to apply for up to \$40,000 in grants (NZ Government, 2023b). Finally, the government supported mental health efforts with \$3.25m (NZ Government, 2023a).

The underinvestment of infrastructure was exacerbated by forestry practices. Although there would have been significant damage from the cyclone on its own, the impact of the damage and the subsequent recovery was worsened with the amount of 'slash' – the debris such as logs and branches left over from forestry harvesting – around roads, bridges and tracks. The "slash" was carried off downstream with heavy downfalls blocking rivers, destroying bridges and generally diverting water (Bloomberg, 2023; Scoop, 2023). Unfortunately, the "slash" issue was a recurring issue which has not been sufficiently remedied, even with the knowledge about environmental damage from past storms (Edwards, 2023; McConnell, 2023). Unsurprisingly, this has led to further financial impact on the region and for the forestry sector itself, where processing plants were closed, and jobs were lost. Cyclone Gabriel has presented an argument for transitioning from pine plantations to native forests to mitigate extreme weather events causing more damage (Bathgate, 2023; Hawke's Bay Today, 2023c).

While the RSE scheme had managed to bridge some of the workforce shortages, it also placed a lot of regulatory and practical responsibilities on employers. The cyclone highlighted health and safety risks, accommodation and pastoral responsibilities. Some RSE workers had to be rescued by helicopter from their lodgings, other RSE workers were without accommodation, and overall, many RSE workers were stranded in Hawke's Bay (Hamilton-Irvine, 2023b). A particular issue was that RSE workers were not allowed, according to their employment conditions, to participate in repair and cleaning-up operations. This forced a regulatory change by government decree. There were media reports of widespread employer and community support of RSE workers (Rovoi, 2023), and this probably explains why many of the same RSE workers have returned to Hawke's Bay in 2024.

Hawke's Bay's wine, tourism and hospitality industries had suffered embedded job attractiveness and difficulties in filling advertised job opportunities prior to COVID-19, and these problems constituted organisational vulnerability in a drastically changing environment (Cox, 2024; Williamson and Harris, 2024). The inability to continue the RSE scheme both meant that some overseas workers were stranded in New Zealand and that sufficient overseas workers could not enter New Zealand. The potential inability to harvest became a perennial preoccupation for wine and horticulture employers. Likewise, the deep-seated job attractiveness problems of the tourism and hospitality workforce were further

entrenched during the COVID-19 lockdowns. This clearly undermined workforce adaptability, as many tourism and hospitality workers had limited industry- and job-specific experiences. The traditional reliance on a few core staff – sometimes family members – presented obstacles in handling new forms of pressures. The working environment findings also highlighted a stressful job situation and sometimes exploitative management practices prior to the COVID-19 lockdowns. This made many businesses less resilient and thus, unable to handle the growing need of managing workforce stress and well-being following the cyclone (Hyde, 2023; SIL Research, 2024).

Many of the businesses represented in the winegrowing, hospitality and tourism industries are SMEs made up predominantly of family businesses. Although there are reports of widespread destruction to businesses in these industries, there were plenty of examples of resilience in the face of having meagre resources compared to larger businesses. This painted a contradictory picture, as family businesses typically have a long-term orientation; however, many were reportedly less prepared for an extreme event. Instead, they focused on day-to-day survival rather than having evidence of preparedness and prioritising resilience. One example is the wedding venue Meadowood House, where their accommodation was destroyed and equipment damaged. Although they received a comparably small grant given the destruction, they did receive significant assistance from volunteer groups (Ellingham, 2023). Linden Estate winery was also significantly damaged, with silt covering their vineyards and cellar. However, their team and their community, including strangers, banded together to help with their recovery (Hall, 2024; RNZ, 2024a). The Puketapu Pub experienced flooding with water charging in the front door. Resigned to the fact they could not do much, they helped stranded RSE workers, and in the days following, the family business became a community hub as a haven for a chat and a check-in for mental health and well-being. Moreover, the owner's son resigned from his job to join in the rebuilding of the pub, and with the help of community support, including local tradespeople, the pub was reinstated (Jeffares, 2023). These examples show the positive effect of the community in recovery of smaller businesses, often, family businesses.

The losses of businesses and accommodation can explain the initial decline in migrant labour, but this was countered by record-high immigration in 2023–24 (RNZ, 2024c). Although the unusually high immigration level was partly related to regulatory adjustments to accommodate post-COVID demand, it ensured sufficient workers for tourism and hospitality businesses. Instead, the issue became the survival of existing businesses with a weak uptake in tourism – still around the 2015 level at the end of 2024 (Dann, 2024b) – and with hospitality faced with weak customer demand (RNZ, 2024b).

In 2023–24, there have been several initiatives to raise the wine-tourism-hospitality profile of Hawke's Bay. It has been highlighted that Hawke's Bay has been named as a Great Wine Capital of the World (Hamilton-Irvine, 2023a), and there have been several festivals and vineyard events as well as the Hawke's Bay Hospitality Awards and Art Deco Week (Hawke's Bay Today, 2023a; Hawke's Bay Today, 2024). The return of cruise ships is also driving higher activity levels. In December 2024, the government announced an additional \$3m to support research efforts in tourism and hospitality (Raynel, 2024). However, visitor numbers and hospitality activity are still down on pre-cyclone and pre-COVID levels in Hawke's Bay, which indicates that it will take some time before the external shocks are overcome.

Discussion

Family businesses, though often smaller, build resilience through long-term focus, stakeholder relationships, patient capital, strong family cohesion and decision-making that prioritises socioemotional wealth over financial returns. Moreover, they have a willingness

to make sacrifices and take risks that sustains the business over generations (Pieper and Klein, 2007; Woodfield and Husted, 2017; Calabrò *et al.*, 2021). Family SMEs characteristically excel in crisis, enabling them to survive challenging times and quickly regain their performance (Amann and Jaussaud, 2012; Calabrò *et al.*, 2021; Bürgel, Hiebl and Pielsticker, 2023).

The extreme events experienced in the Hawke's Bay area are well documented in our findings, and we are focusing on the wider positive and negative impacts in this section. While survival and continuation of day-to-day business operations were paramount in the immediate post-cyclone period, the wider impacts and true nature of devastation are still unfolding. Initially, it became obvious that some vineyards and tourism and hospitality operations were unsalvageable. While some general business and infrastructure ramifications were alluded to in media and regional reports, as well as government interventions, many businesses had to absorb the damages by short-term emergency measures. The timing of the cyclone was also a key concern as it followed three years of COVID-19 disruptions. This had influenced the flow of goods, services and staff, including tourism and hospitality being ordered to close for several periods and, thereby, profoundly affected economic activity. Closed borders halted wine exports, and tourism and hospitality activities were restricted or totally locked down (Fountain, 2022a; Swerdloff, 2023; Latham, 2024). Generally, the findings showed complex and contradictory patterns that are both negative and positive. While we initially will discuss the vulnerability of Hawke's Bay winegrowing, tourism and hospitality industries, we subsequently point to innovation and resilience below as they relate to wine systems, that is, the interconnected networks of wine production, hospitality and tourism that collectively shape regional economies, experiences and sustainability.

What did the findings show regarding the vulnerability of Hawke's Bay winegrowing, tourism and hospitality industries and ultimately trying to provide sustainable wine systems? Surviving businesses showed considerable resilience as they reorganised, encouraged the team spirit of their staff and weathered the financial fallout. A year after the cyclone, some surviving businesses are in a precarious situation, and others will take years to overcome the cyclone's impact (NZ Herald, 2023; RNZ, 2023b). There is now greater awareness that adverse weather events will be a more regular occurrence, and businesses are collaborating locally to establish better protection measures. There also appears to be better business – local authorities – government collaboration, although more urgency from government and local authorities would be helpful. Finally, businesses are focusing on improved organisational resilience and how more staff awareness and sustainable employment patterns can play a crucial role in providing a sustainable wine system.

Overall, many businesses have survived and changed their business strategies in light of lessons learned from the cyclone devastation, but the findings also indicate that they have faced an insufficient supporting environment. The issue of "slash" and unsustainable forest logging is now well-recognised, but there seem to be very limited changes undertaken (Bush International Consulting, 2024). Based on our findings, we are wondering whether there is a certain time lag, whether the financial burdens are too cumbersome, or whether the forestry industry's predominant overseas ownership is being an obstacle.

The job attractiveness and employer reputation issues are still to be tackled. The continuous extension of the RSE scheme raises fundamental questions: will the inability to recruit sufficient workers in the local labour market become worse as more RSE workers arrive? Will the low wages of RSE workers become a benchmark? Are better growing and machinery solutions being stymied by the RSE scheme? The overall benefits and drawbacks for Pacific Island nations also need consideration. The reliance on short-term and casual workers also undermines organisational resilience. Whether the sharp downward correction

of migration in 2024 will create major problems is unclear in light of the reduction in tourism and hospitality activity. However, better employment conditions, career paths and industry training measures are clearly necessary to avoid future job attractiveness and employer reputation weaknesses. Thus, the cyclone devastation was an unpleasant wake-up call for most businesses; lessons have been recognised; and pre-emptive measures undertaken. Still, contextual factors – forestry practices, job attractiveness and long-term public and private investments – are less positive, and these create concerns about how to deal adequately with further adverse events.

So how do our findings and especially organisational resilience tie into the EST framework? First, the cyclone event was external, bounded in time and space, impacting interconnected entities (Morgeson, Mitchell and Liu, 2015). These include family winegrowers and related hospitality and tourism industries, resulting in an immediate impact on job attractiveness. For a period, there was no work because of infrastructural damage, meaning there was a lack of accommodation, particularly for transient workers and RSE workers. Relying on a transient workforce only further exasperated the tenuous relationship these industries had with job attractiveness. Morgeson *et al.* (2015) stated that through the EST framework “the idea of top-down direct effects is that the event itself directly influences lower-level phenomena... higher-level environmental events can have a direct effect on lower level behavior, changing what had been fairly stable organization-level behavior” (pp 523–524; see also Figure 1). In other words, an extreme weather event can affect staffing and the general work environment. At the environmental level, Cyclone Gabrielle triggered subsequent events that affected organisations: for example, there were labour shortages, shifts in consumer demand and disruptions to supply chains, all of which tested the resilience of predominant family firms in these industries.

As highlighted in the EST model, while there were “top-down direct effects” from the extreme event, organisations also suffered “bottom-up direct effects”, where higher level environmental effects had an effect on lower level behaviour within the organisation (individuals, teams, etc.), which changed the organisations’ behaviour from stability to fragility, where new phenomena emerged (Hitt *et al.*, 2007; Morgeson, Mitchell and Liu, 2015). Morgeson and colleagues allude to obvious effects on organisational performance and emerging evidence where disruptions are caused by “stars” or “strategically core” employees leaving the organisation, which can lead to an outcome where “contagious” turnover occurs (Felps *et al.*, 2009). However, this is less likely to be true in intergenerational family businesses, which typically have a long-term orientation. Non-family businesses may experience employees moving on from their jobs, whereas family members are less likely to move on. Moreover, family business employees can possess a social identity of “being part of the family” where they work with the family as resilience is needed (Deephhouse and Jaskiewicz, 2013; Pinelli, Debellis and De Massis, 2024).

The contexts for organisational resilience are crucial. According to Morgeson *et al.* (2015), higher level and lower level moderating effects differ according to context – that is, whether the moderating effect emanates from the lower level events (e.g. job attractiveness, employer reputation concerns or death of the founder) or emanates from the higher level (e.g. Cyclone Gabrielle precipitating bankruptcy and closure of businesses, or causing the displacement of RSE workers reliant on seasonal work, or new governmental regulations imposed on the organisation). Some of the moderating effects highlighted in our findings included the rallying around of the community to help mitigate the strain caused by the external disruption, or the role of the local government in making sure the national regulations are met (e.g. job attractiveness through the RSE scheme is implemented

according to human rights conditions and safety regulations, or regulations regarding slash from the forestry industry is adhered to).

In terms of family SMEs and organisational resilience, our general findings are contradictory. On the one hand, some family SMEs experienced negative outcomes. For these family SMEs, there can be resource constraints, struggling to prioritise resilience and job attractiveness, compared with the capacity for disaster preparedness larger organisations can afford and implement (Sullivan-Taylor and Branicki, 2011). Many of the Hawke's Bay wine businesses and complementary hospitality and tourism businesses are SMEs with financial, operational and human resources constraints and job attractiveness issues. Sullivan-Taylor and Branicki (2011) suggest that SMEs struggle to prioritise resilience activities over the day-to-day demands of running the business. We see evidence of this in our findings wherein the aftermath of Cyclone Gabrielle, businesses struggled with repair costs, disruptions in their supply chain, and perhaps more obviously, lost revenue from the downtime involved in cleaning up alongside the loss of crops, equipment and the already produced wine. As our findings show, SMEs focus on immediate threats and, as Sullivan-Taylor and Branicki (2011) eloquently say, "muddle through" crises rather than having proactive and contingency planning in place, leaving businesses less prepared for the kinds of damage, disruption and time needed to recover from an extreme event.

On the other hand, SMEs and specifically family businesses can be nimbler in their decision-making where there is uncertainty. They can adapt quicker, mobilise resources and be adept at finding innovative solutions in the face of challenges. One reason for this is that there can be institutional knowledge that is maintained from having "skin in the game" with the same people over a long term. Researchers tend to agree that there is not a "one-size-fits-all" approach to building resilience where heterogeneity needs to be considered (Sullivan-Taylor and Branicki, 2011; Yilmaz *et al.*, 2024). Family businesses can differ in size and have different generational participation, business structure or access to resources. This speaks to the need to understand nuances because of this heterogeneity to tailor support where specific needs need to be met.

Conclusions and implications

We contribute to the ever-evolving experiences in innovative and sustainable wine systems by exploring job attractiveness challenges in the face of an extreme event. Through the lens of organisational resilience and EST, we identified how the winegrowing industry enhances its links with tourism and hospitality and highlighted different experiences family SMEs have in this context.

A way to mitigate a backward step in the ever-evolving experiences in innovative and sustainable wine systems in the face of extreme events would be to pay careful attention to rebuilding the service sector around the winegrowing industry to create high-value, sustainable businesses with quality jobs (Williamson, Rasmussen and Palao, 2022). As Williamson *et al.* (2022) assert for the broader tourism and hospitality industry, creating a roadmap for an improved sector, including improvements of employment conditions, and perhaps even driving out employers who fail to provide minimum requirements and, thereby, lifting service quality and employment standards. By addressing challenges in the tourism and hospitality sectors, there is potential for fostering innovation, long-term sustainability and better work conditions.

Beyond supporting what an organisation has control over internally, we identified through the EST framework that organisational resilience can come from external sources, including relationships they may have with local and national government, suppliers, industry organisations, customers and the myriads of stakeholders with which an organisation shares

information and coordinates emergency response. While we found stronger relationships between wineries and the hospitality and tourism sectors, it was less obvious that working closely with governing bodies to form resilience was successful. This may stymie the implementation of known best practices and strategies used in past natural disasters. Practical implications include bringing to the forefront the need for preparedness and organisational resilience in the case of extreme events. This includes having measures in place to mitigate job attractiveness issues given the transient and seasonal nature of the winegrowing and related hospitality and tourism industries.

In summary, a resilient organisation would have proactive planning, a robust infrastructure, a resilient workforce and strong networks that pull together in a common cause (Sullivan-Taylor and Branicki, 2011) and can mitigate negative consequences of crises through a “pre-shock” strategic emphasis on innovation (Engelen *et al.*, 2024). Indeed, a natural event could influence innovation both positively and negatively, for example, where disruption spurs innovation. However, immediately after the event there could be inertia created where innovation takes a back seat while recovery takes precedence, including retaining typically transient employees in interconnected wine, tourism and hospitality industries.

Ultimately, the impact of Cyclone Gabrielle on family SMEs highlights the need for strengthened organisational resilience – both from external top-down effects and internal threats or crises that have a bottom-up direct effect (Morgeson *et al.*, 2015). These insights are applicable to other regions facing similar extreme weather events that affect organisations and, more generally, other industries. Future research could investigate underlying causes of yield variability in the aftermath of extreme events such as Cyclone Gabrielle. While an extreme environmental disruption is plausible given the extent of the damage caused, there can be other alternative explanations that may factor in alongside these, including outdated viticultural practices, the maturation stage of replanted vines, or broader systemic issues in vineyard management. Additionally, as indicated in Table 1, the relationship between declining yield per hectare and seasonal employment deserves closer exploration, as reduced harvest volumes likely directly impact labour demand. Alternatively, research on instances where wine production remains stable in spite of adversity could also uncover latent resilience within regional wine systems.

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