# UNIVERSITY OF SOUTHERN QUEENSLAND

**INVESTIGATING THE FORESIGHT AND STRATEGIC THINKING CAPABILITIES OF AUSTRALIAN AGRICULTURAL LEADERS: A MIXED METHODS WORK-BASED STUDY**

A Thesis submitted by

Eric Perez

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# ABSTRACT

Australian agricultural leaders are facing volatile markets both domestically and internationally. The market and socio-economic dynamics of the Asia Pacific region will place new demands on these Australian leaders to respond to change, devise strategies to effectively operate and identify possible futures. To date, academic inquiry regarding foresight and strategic thinking as critical leader capabilities has been rare. There is also a dearth of literature that provides insights regarding these capabilities in the context of the Australian agriculture sector.

Strategic leadership theory suggests that the abilities and characteristics of leaders reflect how an organisation or industry will appear in the future. The appearance of an industry in the future is characterised by agricultural leaders that understand their capabilities with respect to strategy and possible, realisable futures. As such, foresight and strategic thinking are capability proxies that can help understand the future of an organisation or industry. Furthermore, having a baseline of these critical leader capabilities can inform practice and capacity building within the Australian agriculture sector. The baseline in this study reflects the current baseline strategic thinking and foresight profile amongst Australian agricultural leaders in this study.

Foresight and strategic thinking capabilities are complex constructs. Specifically, these capabilities have been examined as critical amongst strategy level leaders. For the purpose of this research, foresight and strategic thinking are defined as:

- Foresight is a human ability to creatively envision possible futures, understand the complexity and ambiguity of systems and provide input for the taking of provident care in detecting and avoiding hazards while envisioning desired futures; and
- Strategic thinking is the synthesis of systematic analysis (rational) and creative (generative) thought processes that seek to determine the longer-term direction of the organisation.

The purpose of the study is to make an original knowledge contribution to professional practice by developing an industry benchmark to inform the development of leader capabilities that are futures focussed. As an explanatory study, it answered research

questions regarding foresight and strategic thinking capabilities, their links to strategy formulation and leader training in the Australian agriculture sector based on an identified gap in the literature.

This study adopted an explanatory sequential design and was operationalised in two research phases.

- Quantitative research included – the use of a validated and reliable survey to determine a baseline foresight and strategic thinking profile amongst Australian agricultural leaders; and

- Qualitative research included the use of a Delphi method seeking expert input and feedback to triangulate the findings of Phase 1 of the research.

The survey data in Phase 1 was analysed using descriptive statistics, correlation analysis and exploratory factor analysis (EFA).  In Phase 2, a thematic analysis was applied.

The research yielded an indicative baseline of the foresight and strategic thinking capabilities of Australian agricultural leaders which is summarised as follows:

- Agricultural leaders are dominantly focussed on the present;

- Agricultural leaders are mostly focussed on current operational and market concerns while showing some consideration of possible futures; and

- In terms of strategic thinking, agricultural leaders predominantly adopt an analytical approach, with a limited focus on conceptual / generative inputs in terms of strategy development.

Strategy development was identified as a 'top-down' process.  Conversely, agricultural leaders favouring a collaborative approach but are constrained in terms of anticipating significant change and generating innovative ideas.  The findings regarding strategy formulation revealed that employees in the agriculture sector had limited influence on the formulation of strategy.

The outcomes observed related to industry leadership training were that training provided an opportunity to engage in critical thinking, and chances to lead behaviour

change.  Training had multiple benefits and allowed leaders to develop skills and abilities such as applying objective judgement, decision-making, developing participatory leadership openness, and communication skills.  Training was also cited as desirable and beneficial in building future possibilities and strategic decision-making.  Encouraging leader futures-focused development was considered both an individual and organisational priority and responsibility.  While generic leader capability building was valued, industry-specific leader development was considered an essential element of training.

# CERTIFICATION OF THESIS

This thesis is entirely the work of Eric Perez except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

Principal Supervisor:      Associate Professor, Dr Luke van der Laan

Associate Supervisor:      Dr Patrick Hone

Student and supervisors' signatures of endorsement are held at the University.

# ACKNOWLEDGMENTS

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# ACRONYMS

ABARES: Australian Bureau of Agricultural and Resource Economics and Sciences

ABS: Australian Bureau of Statistics

AMPC: Australian Meat Processing Corporation

ANOVA: Analysis of Variance

APIL: Australian Pork Industry Limited

APL: Australian Pork Limited

APSC: Australian Public Service Commission

ASEAN: Association of Southeast Asian Nations

CA: Cotton Australia

CFA: Confirmatory Factor Analysis

CFI: Comparative Fit Index

CRDC: Cotton Research and Development Corporation

CRRDC: Council of Rural Research Development Corporations

DAWR: Department of Agriculture and Water Resources

DPRS: Doctor of Professional Studies

DSI: Decision Styles Inventory

FAO: Food and Agriculture Organisation of the United Nations

FRDC: Fisheries Research and Development Corporation

FSA: Foresight Styles Assessment

FWPA: Forest and Wood Products Australia Limited

GFI: Goodness-of-fit Index

HI: Horticulture Innovation Australia

HREC: Human Research Ethics Committee

ICT: Information and Communication Technology

IMF: International Monetary Fund

IRG: Indigenous Reference Group

IT: Information technology

NFF: National Farmers' Federation

NHMRC: National Health and Medical Research Council

QFF: Queensland Farmers Federation

RD&E: Research, Development and Extension

RIRDC: Rural Industries Research and Development Corporation

RMSEA: Root Mean-Square of Error of Approximation

Rural RDCs: Rural Research and Development Corporations

SEM: Structural Equation Model

SLT: Strategic leadership theory

SRMR: Standardised Root Mean Square Residual

TLI: Tucker-Lewis Index

TSI: TimeStyle Inventory

TMT: Top Management Team

UET: Upper Echelons Theory

USQ: University of Southern Queensland

# CHAPTER 1. INTRODUCTION

## 1.1. Introduction

This study focused on Australian agricultural leadership and is the product of work-based research under the Doctor of Professional Studies (DPRS) program at the University of Southern Queensland (USQ). The purpose of the study was to investigate the critical capabilities of foresight and strategic thinking among agricultural leaders as an indicator of their future orientation and ability to conceptualise new ideas. This was predicated on a gap in the literature from a practice perspective and understanding of Australian agricultural sector leader capabilities. For the purposes of this study, the term 'agricultural leader' incorporates leaders working across the agriculture, forestry and fishing industries that grow crops, raise animals, grow or harvest timber, fish or other animals from farms or their natural habitats (Australian Bureau of Statistics 2021).

The Australian agriculture sector is a significant contributor to the national economy. According to the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), the gross value of Australian agricultural production (crop and livestock commodities) was $78 billion in 2021-22 (ABARES 2022a), while fisheries production for example, has been valued at $3.15 billion (ABARES 2022b). This level of production across the agriculture sector can be linked, in part, to the work of Australian agricultural leaders.

Leaders across the Australian agriculture sector face increasingly volatile domestic and international markets (Lockie 2015; Lowe 2021). Hamel (2013) provides a rationale for leaders to engage with and understand change. Leaders operate with a diminishing link to the past while working amongst continually changing socio-economic and business circumstances.

Hamel's observation suggests a need to envisage alternate futures requiring leaders with the knowledge, skills, and abilities to navigate continually changing business environments. Change presents a clear risk to the industry and requires leaders with capabilities such as foresight and strategic thinking to articulate possible alternate

futures and create pathways to realise those futures (Organisation for Economic Co-operation and Development 2016; Bühring & Liedtka 2018).

The critical foundational concepts in this study are foresight and strategic thinking. They are innate human cognitive capabilities. Foresight as applied by leaders vary according to the context in which individual leader operates. Individuals can utilise more than one way of conceiving possible future scenarios (Perry & Gavrilets 2020; Touahmia et al. 2020). Strategic thinking is also an innate human cognitive capability that assists in developing direction and a set of activities to achieve a possible and desired future (Goldman 2007; Shaik & Dhir 2020).

Foresight and strategic thinking amongst leaders have been examined in multiple contexts, including: (1) the university sector, (2) amongst post-graduate students, (3) members of specialist institutes, (4) financial services, (5) retail, (6) manufacturing and (7) the mining and resources sectors (van der Laan 2010; van der Laan & Erwee 2012, 2013). There is no baseline foresight and strategic thinking profile amongst leaders in the Australian agriculture sector. This research developed a baseline profile of foresight and strategic thinking among agricultural leaders that contributed to the existing research knowledge and a basis for informing professional practice and the development of the sector.

## 1.2. Background to the Study

Leaders engaging with national and international markets face changing business, regulatory and social environments. Underpinning change in local, regional and global agriculture markets requires leaders who can understand the future needs of the Australian agriculture sector. The market environment facing Australian agricultural leaders is complex, requiring a change in thinking that is focussed on past, present and future time frames and thinking that fosters organisational creativity and innovation.

There is an expectation that Australian agricultural leaders have the capabilities to engage with change while being expected to develop a vision for the future, lead their organisations and teams, build individual and business capacity, and ensure the long-term viability of their organisations (Hickman & Dvorak 2019). Across domestic and international markets, leaders need to use and develop leadership capabilities that will

guide individual businesses' long-term viability (Ressia et al. 2020; Ulvenblad et al. 2020).

Developing leaders across the Australian agriculture sector remains the focus of considerable government and private sector investment. The creation of a $5 million fund titled 'Leadership in Agricultural Industries' by the Department of Agriculture and Water Resources (DAWR) in 2017 suggests the importance of agricultural leaders in the Australian context (Department of Agriculture and Water Resources 2017).

The National Farmers' Federation (NFF) has set an Australian agriculture goal to generate $100 billion in primary production industry output by 2030, including ongoing investment in developing agriculture leaders (National Farmers Federation 2018). While the Fisheries Research and Development Corporation (FRDC) has invested almost $1.55 million in developing industry operators and leaders in the Australian seafood industry (Fisheries Rsearch and Development Corporation 2016).

Australian agricultural leaders operate in volatile markets and are responsible for billions in food production. Investigating strategic thinking and foresight will provide a more detailed understanding of these leader capabilities.

## 1.3. Purpose of the Study

There is an increasing acknowledgement that foresight and strategic thinking capabilities contribute to effective, future-orientated organisations (Bühring & Liedtka 2018; Srivastava & D'Souza 2021). Foresight and strategic thinking leader capabilities are complex, interrelated concepts. This view is supported by van der Laan and Yap (2016, p. 1) who argued that:

> Foresight and strategic thinking are often mentioned but little understood concepts. Many organizations claim to be 'foresightful' and 'strategic' yet this often does not extend beyond empty statements, intuition, recipes of past success and the hubris of individual executives. Increasing business failures illustrate that this is not sufficient in meeting the demands of rapid change in an increasingly complex social and economic environment.

Van der Laan and Yap (2016) argue that organisations and leaders have a surface level appreciation for the potential benefits of foresight and strategic thinking capabilities within their organisations.

The study aimed to investigate the critical capabilities of foresight and strategic thinking amongst Australian agricultural leaders as indicative of their future orientation and ability to conceptualise new ideas. As an explanatory study it (1) developed an industry benchmark, (2) shared insights of the agricultural leaders to inform the development of future leaders and (3) contributed to industry capabilities that are futures focussed.

## 1.4. Problem Statement

There is a gap in the literature from a practice perspective and understanding of Australian agricultural sector leader capabilities. Specifically, there is no baseline foresight and strategic thinking leader capability profile. Therefore, the logic of this study was that by knowing the level of the critical leader capabilities of foresight and strategic thinking will provide an evidence base that will help in improving processes such as decision-making, strategy formulation, leader development and training.

## 1.5. Global Agriculture Context

Australian agricultural leaders work in and are highly dependent on engaging with global markets, particularly the Asia Pacific region. Leaders who understand Asia's market dynamics are more likely to secure positive trade outcomes (Torok & Holper 2017). The importance of the region is highlighted by the Economic and Social Commission for Asia and the Pacific stating that China accounts for approximately 87% of the Asia Pacific's population base (Economic and Social Commission for Asia and the Pacific 2019). Australian agricultural leaders will also need to consider the growth in the Association of Southeast Asian Nations (ASEAN) and the region may become the world's fourth-largest economic region by 2030 (Australian Trade and Investment Commission 2021).

## 1.6. Rural Research and Development Corporations

Rural research and development corporations (rural RDCs) have demonstrated their ongoing commitment to developing Australian agriculture leaders through specific

expenditure on leadership training. In addition, the rural RDC network routinely engages in the development of leaders through the creation of initiatives that help develop leader capability (Luck 2020; AgriFutures Australia 2021). Some examples of the development of leaders by rural RDCs include:

- The Rural Industries Research and Development Corporation (RIRDC) developed a framework for rural RDCs concerning their capacity building that included leadership development (Bath & Chudleigh 2015). Bath and Chudleigh (2015) argued that improved leadership capacity may lead to industry innovation and improve industry and market development and better policy making.

- The Cotton Research Development Corporation (CRDC), Cotton Australia (CA) and Agrifood Skills Solutions developed an on-farm workforce development strategy (Cotton Research and Development Corporation and Cotton Australia 2016). Under the workforce development strategy, the CRDC and CA, 'support the participation of emerging and established leaders in recognised agricultural leadership courses' (Cotton Research and Development Corporation & Cotton Australia 2016, p. 4).

Rural RDCs are dependent on agricultural leaders to create strategy that informs what research is needed. This requires leaders who can use research outputs and adopt those outputs (Department of Agriculture 2019; National Farmers Federation 2019). Adopting of these outputs requires leaders who can understand research and, just as importantly, define the question they want research to address.

Rural RDCs have been prepared to invest in leadership development to ensure the viability of the Australian agriculture sector. A crucial part of the leadership development process is identifying critical leader capabilities; for this study, those are foresight and strategic thinking.

## 1.7. Key Concepts

This study's key concepts are foresight and strategic thinking, examined at the individual leader level.

### 1.7.1. Foresight

Foresight has been conceptualised as an individual's ability to perceive, analyse, process data, and engage in a course of action to help achieve a preferable future vision (Amsteus 2008). The complexity of defining foresight has been identified by van der Laan and Yap (2016), who argue that the construct can be conceptualised using five categories including (1) a form of thinking, (2) activity, (3) purpose, (4) differentiation, and (5) capacity.

Table 1: Defining Foresight

| Type of Thinking | This type of thinking is 'Prospective, explorative, creative' (van der Laan & Yap 2016, p. 93). |
|---|---|
| Activity | Activity is defined as 'Future orientated cognitive processing of incomplete information. The detection of patterns and the creative envisioning alternative possible futures' (van der Laan & Yap 2016, p. 93). |
| Purpose | In terms of purpose, foresight is defined as 'Enhancing the knowledge value chain. Envisioning alternative possible futures; detection of associated hazards and risks; consequence assessment; developing desired futures' (van der Laan & Yap 2016, p. 93). |
| Differentiation | Foresight is differentiated by '(a) foresight as a cognitive capacity from foresight as a technique or method, and (b) foresight from strategic foresight' (van der Laan & Yap 2016, p. 94). |
| Capacity | In terms of capacity 'It is described as 'innate', 'a human capacity', 'a vision of the mind' and based on 'deep insight and understanding' (van der Laan & Yap 2016, p. 94). |

Source: van der Laan and Yap (2016).

Van der Laan and Yap clearly articulate the level of complexity in defining foresight, stating that the construct can be conceptualised as: (1) a way to contemplate the future or identify creative possibilities, (2) using existing and incomplete knowledge to imagine possible futures, (3) an innately human capability, and (4) a cognitive process that is reliant on an individual's experiences. Foresight is defined as:

> A human ability to creatively envision possible futures, understand the complexity and ambiguity of systems and provide input for the taking of provident care in detecting and avoiding hazards while envisioning desired futures. (van der Laan & Yap 2016, p. 97)

### 1.7.2. Strategic Thinking

Liedtka (1998) conceptualised strategic thinking as an individual's strategy-related activity influenced by the context within which that activity occurs. There are many

elements to strategic thinking. It is a multi-dimensional construct, like foresight, as outlined in Table 2.

Table 2. Strategic Thinking

| Type of thinking | This type of thinking is defined as incorporating 'Synthesis, inductive, conceptual, rational and generative' (van der Laan & Yap 2016, p. 93). |
|---|---|
| Activity | Activity is defined as the 'Formulation of an integrated perspective or single vision of where the organization should be heading. Re-evaluating strategy is enhanced by numerous cognitive abilities and inputs, one of which is foresight' (van der Laan & Yap 2016, p. 93). |
| Purpose | The purpose of strategic thinking is the 'Exploration of strategic options and formulating applicable choices while considering all aspects related to the longer-term direction of the organization. Includes re-evaluation of strategy in iterative cycle' van der Laan and Yap (2016, p. 93). |
| Differentiation | Strategic thinking is differentiated, according to Liedtka (1998, pp. 122-3) by five key elements including '(1) Systems perspective, (2) Intent-focussed, (3) Intelligent opportunism, (4) Thinking in time and (5) Hypothesis-driven'. |
| Capacity | In terms of capacity, strategic thinking has been defined as 'an integrated perspective of the enterprise, a not-too-precisely articulated vision of direction' (Mintzberg 1994a, p. 108). |

Source: Mintzberg (1994a), Liedtka (1998) and van der Laan and Yap (2016).

Goldman (2007) provides a synthesis of the definitions in Table 2 arguing that strategic thinking is (1) a unique managerial activity to discover original and creative strategies which can alter the way a market operates, (2) a process to identify potential futures that are different from existing circumstances and (3) a process that is opportunistic, directional, theoretical and systems-oriented. Strategic thinking is defined as 'the synthesis of systematic analysis (rational) and creative (generative) thought processes that seek to determine the longer-term direction of the organisation' (van der Laan & Yap 2016, p. 102).

### 1.7.3. Strategic Leadership Theory

Strategic leadership theory (SLT) was a progression from the work of Hambrick and Mason (1984), the authors of the Upper Echelons Theory (UET). The UET states that: (1) leader attributes such as demographics influence and decision-making ultimately influence organisational outcomes, and (2) demographic characteristics are linked to leader cognitions, beliefs, and perceptions that influence the decision-making of leaders (Hambrick & Mason 1984; Nishii, Gotte & Raver 2007).

Strategic leadership theory extends the UET framework and helps to explain how dominant coalitions impact organisational outcomes, influence leaders and industry outcomes (Vera & Crossan 2004). In addition, the theory provides a view of leadership at the individual leader level and the impacts of their thinking on the organisation (van der Laan 2010).

### 1.7.4. Leadership Development

There is a distinction between leader development and leadership development. The former relates to the development of the individual, and the latter relates to the development of leader capacity at an organisational, sectoral and industry level (Moldoveanu & Narayandas 2019; Liu et al. 2020). However, there are challenges in developing leadership at the individual versus organisational level, which may increase costs and limit leadership capacity within organisations (Mate et al. 2019).

The development of individual leaders 'takes time for leaders to progress from a conceptual understanding of their facilitative role to the procedural expression of their leadership competence through specific facilitative behaviors' (Day et al. 2014, p. 66). Improving organisational innovation and improving leadership capabilities across a business is dependent on many factors, including: (1) an individual's capacity to listen, (2) engage in learning and (3) motivate others.

### 1.7.5. Leadership Theories

There are numerous leadership theories, and no theory is universally accepted. Each leadership theory provides a way to understand the individual as a leader, power relationships, leadership traits, leader behaviour, and how multiple leadership variables interact (Allio 2013; Dinh et al. 2014). Therefore, this study could not adequately address an investigation of leadership capabilities without a discussion of leadership theory.

There are many competing views of leadership and their theoretical underpinnings (Winston & Patterson 2006; Gardner et al. 2010). The proliferation of leadership theories suggests the ongoing challenges facing leaders (Dinh et al. 2014) or agreement on the definition of leadership (Winston & Patterson 2006). For the

purposes of this study, SLT was used to provide a context to examine foresight and strategic thinking as critical leader capabilities.

## 1.8. Research Questions

There is no foresight or strategic thinking baseline for leaders across the Australian agriculture sector. To develop an industry baseline and insights to inform the development of future leader and industry capability, the following research questions were developed for this study:

**Research Question 1:** *What are the foresight and strategic thinking capability profiles of Australian agricultural leaders?*

**Research Question 2:** *What are the perceived associations between foresight, strategic thinking, and strategy formulation of Australian agricultural leaders?*

**Research Question 3:** *What are the perceived associations between industry leader training, foresight, and strategic thinking of Australian agricultural leaders?*

## 1.9. Objectives

This study had a series of objectives:

- The publication of a baseline foresight and strategic thinking agricultural leader profile using the TripleV foresight and strategic thinking measure (van der Laan 2010; van der Laan & Erwee 2012, 2013);
- Using the Delphi method to triangulate the results of the TripleV measure as considered by a panel of experts;
- The creation of leader development guidelines informed by the baseline foresight and strategic thinking profiles identified in this study, as well as the input of industry experts; and
- To contribute to the professional practice of leadership development across the Australian agriculture sector.

## 1.10. Research Design

The research design adopted for this study was an explanatory sequential mixed-methods design, which is outlined in Figure 1. The explanatory sequential design encompasses two distinct phases, a quantitative phase followed by a qualitative phase used to gain a broader explanation and deeper understanding of the quantitative results (Creswell & Clark 2011).

Figure 1. Explanatory Sequential Design
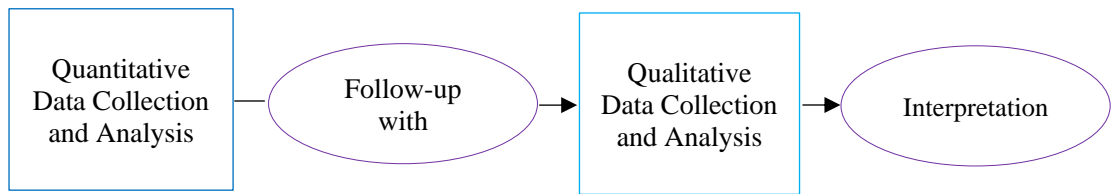


Source: Creswell and Clark (2011, p. 69).

To operationalise an explanatory sequential design, the study was undertaken in two phases. The design used qualitative data to provide a deeper understanding of quantitative data results (Creswell & Clark 2011; Stentza, Clark & Matkin 2012).

The research method is summarised in Figure 2 and includes:

- Phase 1 (quantitative data collection) using the TripleV foresight and strategic thinking measure; and
- Phase 2 (qualitative data collection) involved using a Delphi process.

A non-probability sampling approach was adopted for the study, specifically, a purposive sample of Australian agricultural leaders.

Figure 2. Research Method
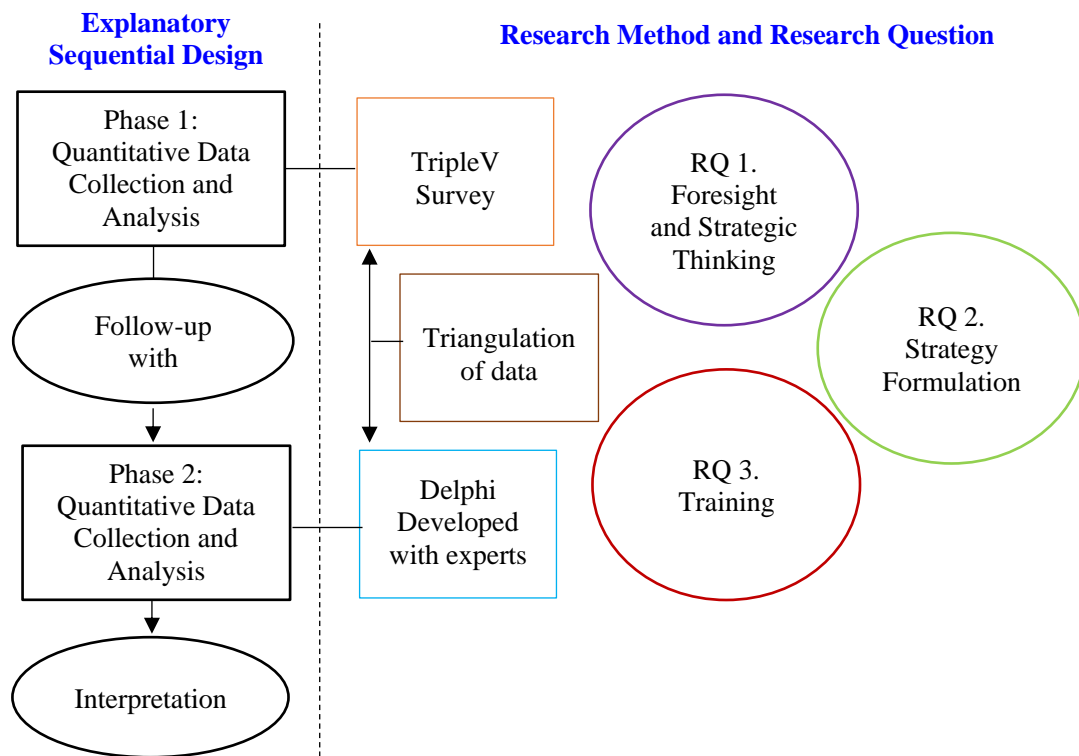


Source: Developed for this study.

## 1.11. Target Population

The target populations differed between research phases, with a focus on Australian agricultural leaders affiliated with RDCs in the study's first phase. An analysis of the baseline foresight and strategic thinking profile by a panel of experts formed part of the Delphi process in the study's second phase.

Phase 1 – The population in this phase of the study was defined as: (1) male or female leaders working in private organisations across the Australian agriculture sector and have a moderate to high influence on the strategy and direction of their organisations.

Phase 2 – The population in this phase of the study was defined as: (1) males and females in private or public research organisations, or (2) Australian agriculture business leaders that have expertise in how the agriculture industry operates from an operational, strategic, or academic level.

## 1.12. Ethical Considerations

The study was guided by the National Statement on Ethical Conduct in Human Research 2007, as outlined by the National Health and Medical Research Council (NHMRC). This research followed the guidelines, particularly Guideline 2.2.2, stating that participation, 'is voluntary and based on sufficient information requires an adequate understanding of the purpose, methods, demands, risks and potential benefits of the research' (NHMRC 2007, p. 16).

## 1.13. Summary

This chapter provided an overview of the research problem, the research questions, objectives of the study and research methodology. It is intended that this research will make constructive and considered contributions on multiple levels. These include academic, professional practice, and the research practitioner's personal and professional development.

The next chapter will review the existing literature as it relates to the research problem, the research context, definition and discussion of key concepts and conclude by illustrating the associated theoretical foundations and conceptual model underpinning the study.

# CHAPTER 2. LITERATURE REVIEW

## 2.1. Introduction

The likelihood of increasing demand for food in the Asia Pacific region and the Australian domestic food market suggests a need for agricultural leaders who can respond to change in those markets and contemplate or frame possible future market scenarios. Businesses, industry bodies, and governments that fail to identify leader capability gaps that may jeopardise their business and industry long-term viability (O'Brien & Robertson 2009; Church & Silzer 2014). Furthermore, from an Asia Pacific perspective, Australian agricultural leaders that do not understand cultural norms and market trends may fail to secure regional markets (Reid & Zyglidopoulos 2004).

This chapter presents a review of the relevant literature associated with the context of the study, that is, the Australian agriculture sector and research associated with the critical leadership capabilities of foresight and strategic thinking. The chapter is organised as follows:

- The agriculture context;
- Leadership development;
- Examples of rural RDC expenditure and leader development;
- Leadership theories;
- Leadership and strategy;
- Foresight and strategic thinking capabilities;
- Research questions; and
- The study's conceptual model.

## 2.2. The Agriculture Context

In 2012, the Australian Government released a white paper focusing on a growing Asia Pacific region, suggesting a need for increased domestic agricultural production to meet the needs of a growing region and increased production of high-value food (Department of the Prime Minister and Cabinet 2012). The white paper also noted that markets in the Asia Pacific region would require developing increasingly complex

consumer products, building materials and food items (Department of the Prime Minister and Cabinet 2012).

The need for Australian agricultural leaders to identify possible futures was highlighted in the 2014 PricewaterhouseCoopers Chief Executive Officer (CEO) Australian survey results. The data indicated that leaders would need the foresight to understand domestic workforce requirements and explore new ways to engage with businesses across the Asia Pacific region (PricewaterhouseCoopers 2014). This finding is supported by the need to plan for demographic changes, the urbanisation of the Australian community and the potential impact of those changes on food production (Binks et al. 2018).

### 2.2.1. Population

The Food and Agriculture Organisation of the United Nations (FAO) stated that the long-term projections for global population growth to 2050 and 2100 are approximately 10 and 11 billion, respectively (FAO 2017). The Australian Bureau of Statistics (ABS) estimates that the Australian population may grow between 37 and 48 million people by 2061, and 42 to 70 million by 2101 respectively (Australian Bureau of Statistics 2012a). Therefore, Australian agricultural leaders will need to consider the patterns in population change and standard of living across Australia, the Asia-Pacific region and other international markets as they imagine alternate futures in those markets (van der Laan & Yap 2016).

There are over 220,000 individuals employed across the food, beverage, and fibre manufacturing supply chain across Australia (Binks et al. 2018). While wholesale trade businesses employ approximately 470,000 individuals (Binks et al. 2018). Urbanisation will create labour challenges for agriculture leaders as the trend toward people's movement and labour to Australia's capital cities may decrease the employment pool and potentially curtail food production in coastal, rural and regional areas (Daley 2016; FAO 2017).

In terms of the population ageing, particularly in regional areas, the FAO noted that agricultural production may be impacted through the ageing of the rural labour force (FAO 2017). In addition, the ageing of the population may have impacts on the

capacity of domestic food production leading to debates regarding an ageing industry sector (Productivity Commission 2005; Australian Buraeu of Statistics 2012b). Australian agricultural leaders will also need to engage with scenarios regarding workforce demographics and the recruitment of leaders amongst an ageing agriculture workforce.

### 2.2.2. Economic Growth

According to the International Monetary Fund (IMF), Australian agricultural leaders should be aware that 'South Asia will need to strengthen agricultural productivity and promote the sustainable expansion of manufacturing and higher-skilled services' (IMF 2019, p.2). Regional gross domestic product growth provides a strong rationale for engaging in Asian markets and requires Australian agricultural leaders that understand these markets.

The value of Australian agriculture, fisheries, and forestry production between 1999-2000 and 2018-19 increased by 19% adjusted for inflation growing from approximately $58 billion to $69 billion (Jackson, Zammit & Hatfield-Dodds 2020). Asia is the fastest-growing export region presenting Australian agricultural leaders with the following market characteristics: (1) growth in export value to $33 billion or 60 per cent of the total value of agriculture exports in the 2018-19 financial year, and (2) demand for agriculture and food products may double between 2007 and 2050 (Jackson, Zammit & Hatfield-Dodds 2020).

### 2.2.3. Information Technology

The Australian agriculture sector is heavily involved with the ongoing development of information technology (IT). Hamilton et al. (2019) investigated the emergence of technologies across the agriculture sector, arguing for the need to engage with these technologies, including: (1) biotechnology and genomics, (2) robotics and artificial intelligence, (3) business model, and (4) advanced material technologies. In this context, leaders must employ their foresight and strategic thinking skills to identify possible access to new markets or production technology changes.

Acknowledging the complexity of the Australian agriculture sector, Hamilton et al. (2019) identified a range of factors leaders will need to consider from IT perspective:

(1) product-related factors such as increasing demand for food, fraud, food safety and consumers and their knowledge base regarding food options, (2) workforce-related factors including workforce changes, inefficiencies and declines in profits, (3) environmental factors incorporating considerations such as ecosystems impacts, climate change and natural resources limitations, (4) technology factors included technological innovation, digital preparedness and using current technology, and (5) other factors relating to domestic and international market change and level of farming diversification. As such, agricultural leaders will need to engage with technological change at the domestic and export market levels.

In 2016-17, ABARES inquired into the contribution of information and communication technologies (ICT) to agriculture productivity by identifying the areas in which ICT is used and the barriers to using new ICT across broadacre, dairy and vegetable farms (Dufty & Jackson 2018). In total, ABARES collected 2,200 responses regarding barriers to ICT that included: (1) a lack of skills, (2) difficulties with internet access, (3) ICT costs, (4) nothing new of interest, and (5) other factors included an operator's age and lack of interest (Dufty & Jackson 2018). Duffy and Jackson's findings suggest that leaders will need to apply foresight and strategic thinking skills to future industry ICT needs.

### 2.2.4. Impacts of Climate Change

The Australian agriculture sector is vulnerable to climate variability and must continually adapt to seasonal variability (An-Vo et al. 2021; Hughes et al. 2022). It has been argued that in the Australian context, agricultural leaders are confronting sustained periods of drought, increasing temperature impacting rainfall and water distribution patterns (Cullen et al. 2021; Roberts 2021). Understanding the implications for food production, impacts on-farm productivity, damage to waterways and infrastructure are key variables agricultural leaders will need to consider in the context of their strategic thinking that underpins possible, future industry production.

### 2.2.5. Summary

Within the global context population change, economic growth, innovations in IT and climate change are key trends that Australian agricultural leaders will interact with in the Asia Pacific region. Australia is an exporter of both goods and services and the

significance of this trade is reflected in the demand for Australian agriculture commodities. Agricultural leaders will need to understand the strategic issues in which their industry operates. They will also need to consider the market and socio-economic issues and possible future business and market scenarios.

## 2.3. Leadership Development

### 2.3.1. Introduction

Leader development involves the process of developing an individual's capacities as they relate to the leader function (Day, Harrison & Halpin 2009; Liu et al. 2020). Leadership development involves the building of organisational capacity. Effective leadership has positive organisational benefits such as fostering innovation and improving leadership skills and capabilities (McMillan 2010; Curry et al. 2020).

### 2.3.2. Defining Leader Development

Van Velsor and McCauley state that leader development is achieved by identifying how leaders grow their own abilities and how an organisation may assist their leader development (cited in McCauley & Van Velsor 2004). The authors developed a three-factor model underlying developmental experiences and the organisational context in which leader development takes place. The three factors include assessment, challenge and support or more specifically: (1) leader self-awareness, (2) taking on a challenge that pushes the skills and abilities of a leader, and (3) a supportive organisation (McCauley & Van Velsor 2004; Farr & Brazil 2009). The leader development process is continuous, with leaders taking both an active and passive role in their learning (McCauley 2008).

Developing individual leaders does not come without costs. These can include but are not limited to: (1) time away from the business, (2) developing in-house workshops or classes, (3) attendance at offsite workshops, (4) retreats, and (5) coaching. Avolio and Hannah (2008) have identified additional leader development considerations:

- The use of pre-intervention assessments to determine leader readiness for development;

- Preparing the leader to model one of the five developmental readiness factors (learning goal orientation, developmental efficacy, self-concept clarity, self-complexity, metacognitive ability);

- Aligning internal business reward structures directed at leaders that: (a) engage in self-assessment and change their behaviour, (b) engage in one of the five developmental readiness factors and (c) strengthen learning versus performance; and

- Measuring the impact of leadership development at the individual and organisational levels.

### 2.3.3. Defining Leadership Development

Leadership development has been conceptualised as a network of individuals each with workplace development needs. Petrie (2014) noted a change was needed in how leadership development is conceptualised to include: (1) a reliance on leadership consultancies, (2) a greater emphasis on the individual employee leading their own professional development, (3) creating a sense of shared leadership within the organisation and (4) the identification and use of innovative ways to transfer knowledge and help build organisation capacity. This suggests that leadership development is an organisation-wide concern linked to the formulation of strategy.

The study of leadership development has been linked to building human capital within organisations, individual self-development, and cognitive skills (Day 2001; Day et al. 2014). There are different motivators in providing leadership development, such as mandatory professional development or individual leaders self-selecting a course or program. Day (2001) and Trapp (2014) argue that some organisations consider leadership development as providing a competitive organisational advantage.

Kraus and Wilson (2012) argued that leadership development programs are formal. Processes should be established to identify employees who demonstrate leadership potential, and those training opportunities are structured and incorporate experiential learning. The authors noted that leadership development is concerned with meeting organisational needs arguing that: 'setting long-term development goals directs practices that harness leadership aligned with organisational strategies and can help

maximise the value of whichever technique an organisation chooses' (Kraus & Wilson 2012, p.4). The pursuit of leadership development reflects the need to upskill the workforce to achieve a competitive advantage (Day 2001; Kraus & Wilson 2012).

### 2.3.4. Summary

There is a distinction between leader and leadership development but fundamentally, both are processes that build human and social capital (Day 2001). The development of human capital relates to developing a greater awareness of the self and those issues that motivate a leader whereas social capital relates to the construction or reinforcement of leader and follower trust (Day 2001; McDermott, Kidney & Flood 2011). The following section provides an overview of the investments in leader development across the Australian rural RDCs.

### 2.4. Leadership Theories

Considerable research efforts have been directed toward the development of theories to explain what leadership is. Dinh and her colleagues identified 66 leadership theories with each theory providing a way to understand leaders and how multiple leadership variables interact (Dinh et al. 2014). The proliferation of leadership theories and groupings suggests that leadership is a multi-dimensional construct.

It is unlikely that one theoretical framework helps how leadership is understood. Dinh et al. (2014) support this contention by noting that multiple leadership frameworks may be needed to explore and better understand leadership. Dugan (2017) also supports this view by arguing that for a socially constructed phenomenon, such as the leadership construct multiple theoretical perspectives are needed to understand it.

Outlined in Table 3 are 23 leadership theory groupings to categorise 66 individual leadership theories as developed by Dinh et al. (2014).

Table 3. Leadership Theory Groupings

| Thematic Category | Leadership Theory Categories | Thematic Category | Leadership Theory Categories |
|---|---|---|---|
| 1 | Neo-Charismatic - Authentic Leadership | 13 | Team Leadership |
| 2 | Information Processing – Attribution Theory | 14 | Leadership Emergence and Development |
| 3 | Social Exchange – Leader-Member Exchange Theory | 15 | Ethical/Moral Leadership |
| 4 | Dispositional – Trait Theory | 16 | Leading for Creativity and Change |
| 5 | Diversity – Gender | 17 | Identity-Based Leadership |
| 6 | Follower Centric – Followership | 18 | Emotions and Leadership |
| 7 | Behavioural – Behavioural Theory | 19 | Destructive Leadership |
| 8 | Contingency – Situational Leadership Theory | 20 | Biological Approaches to Leadership |
| 9 | Power and Influence – Power Motivation | 21 | E-leadership Theories |
| 10 | Strategic Leadership | 22 | Leader Error and Recovery |
| 11 | Contextual Leadership | 23 | Entrepreneurial Leadership |
| 12 | Complexity and Systems Leadership | | |

Source: Dinh et al. (2014, pp. 56-8).

According to van der Laan (2010) leadership theories have shifted away from a focus on leader traits, leader behavioural styles or the potential influence of a situation in which leaders may find themselves to integrated leadership theories. Dinh and her colleagues argue that the development of leadership theories will more than likely focus on creating integrated theories to help more fully understand the leadership phenomenon.

> By understanding how leaders influence underlying processes that lead to organisational outcomes, scholars can also develop integrative perspectives that unify diverse theories and stimulate novel leadership research in the new millennium. (Dinh et al. 2014, p. 55)

The following section provides the theoretical underpinning of this study using SLT to justify a focus in this study on the critical leader capabilities of foresight and strategic thinking.

## 2.5. Leadership and Strategy

The focus of this study is the identification of a baseline foresight and strategic thinking profile amongst Australian agricultural leaders. The theoretical basis underpinning this study is SLT. This research assumes that there is a link between leadership theory and the strategy development process and that both require the cognitive processes of foresight and strategic thinking.

### 2.5.1. Strategic Leadership Theory

The seminal work of Hambrick and Mason focused on 'macro-organisational research: an emphasis on the dominant coalition of the organisation, in particular its top managers' (Hambrick & Mason 1984, p. 193). Hambrick and Mason (1984) specifically examined the influence of 'dominant' coalitions of senior managers due to their ability to impact two organisational outcomes: (1) the development of strategies and (2) organisational effectiveness which reflected the values and thinking of senior managers. This approach led to the development of upper echelon theory (UET). Hambrick provides a summary of the central elements of the theory.

> The central idea in our original paper, and the core of upper echelons theory, has two interconnected parts: (1) executives act on the basis of their personalized interpretations of the strategic situations they face, and (2) these personalized construals are a function of the executives' experiences, values, and personalities. (Hambrick 2007, p. 334)

The theory states that top executives grouped as top management teams (TMT) play a unique role in achieving organisational goals (Hambrick & Mason 1984; Hambrick 2007). Carpenter, Geletkanycz & Sanders (2004) have argued that the UET is a valid and generalisable leadership theory, it provides a way to examine both new and mature firms or businesses within the public and not-for-profit sectors. The authors also note that TMT demographics impact the development of strategy at multiple levels beyond the organisation in relation to alliance formation, business acquisitions, the development of international business relations and strategic decision-making (Carpenter, Geletkanycz & Sanders 2004).

Literature regarding TMTs in the context of UET assumes that an executive's influence on their organisation is the result of their experience (Carpenter, Geletkanycz & Sanders 2004; Hambrick 2007). Miner et al. (2011) expanded on UET by examining the extent to which prior experience influences TMT members' practices and if they either deliberately or unconsciously influence organisational strategies and outcomes. Sixty firms across IT, drug and biotechnology sectors participated in the study with 60 executives interviewed (Miner et al. 2011). The findings of this study suggested that senior executives' routines shaped organisational outcomes.

Abatecola and Cristofaro (2020) argued that UET is underpinned by two assumptions; the first is a focus on the strategic posture adopted by senior executives and the second assumption relates that the socio-economic attributes of senior executives are proxies for individual leader cognitions. When organisations are exposed to and quickly experience rejuvenation, younger executives become colleagues of established, senior executives and move from a subordinate role which can lead to inter-executive conflict and potentially heterogeneous thinking (Hambrick & Mason 1984). An individual or cohort of younger, senior managers' efforts may lead to organisational growth (Bolo, Muchemi & Ogutu 2011).

Quttainah (2015) examined the impact of a TMT's community and physical location on the decision-making of CEO and senior executives. The author utilised UET to examine how a community may influence the thinking and values of TMTs and potentially explain differences in decisions amongst TMTs. Quttainah (2015) research efforts suggested that communities are a contributing factor in TMT thinking and organisational performance insofar as the more similar a community is to the TMT the more effective organisation is likely to be and conversely, communities with disparate beliefs and features are likely to dimmish TMT effectiveness. The author also noted that a 'TMT comprised of individuals that have been shaped by multiple diverse communities, will likely have a unique set of cognitions that influence decisions' (Quttainah 2015, p. 178).

UET involves drawing on individual leader experience, their personal values, how leaders apply their own cognitive style, and how individual personality traits of top-

level managers impact an organisation's strategic leader choices and decisions (Hambrick & Mason 1984; Wang, Waldman & Zhang 2012). The process of developing and extending theory is ongoing across the leadership and strategy domains (Marion & Uhl-Bien 2001; Avolio 2007). The theory evolved into SLT as a way to understand how strategic decision-making affects organisational outcomes (Finkelstein & Hambrick 1996; Shao 2019).

Strategic leadership theory differs from UET and helps to explain how dominant coalitions not only impact organisational outcomes, but they influence the internal, senior leadership and organisational culture (Vera & Crossan 2004). The theory is focused on strategy and the influence that leaders may have on individual performance, the impacts of their strategic decisions and, in turn, organisational outcomes (Cannella Jr & Monroe 1997). The theory provides a multifaceted view of leadership at the individual leader level and the subsequent impacts of their cognitions on the organisation in which they work (Carpenter et al. 2004).

Carpenter et al. (2004) argued that SLT can be conceived as both theory and a methodological approach to understanding leadership. They indicated that from a theoretical perspective, the leader cognitions and the values of the most influential leaders impact organisational outcomes. Cannella Jr and Monroe (1997) argued that SLT can be conceptualised specifically as a decision-making theory. As a methodological approach, demographic proxies are considered legitimate representations of fundamental leader cognition and behaviour (Carpenter et al. 2004).

Finkelstein and Hambrick (1996) and Hambrick (2007) indicated that the ability to measure executive cognition is a difficult proposition. Van der Laan (2010) notes this issue as being the 'black box' of strategy formulation, characteristics and proxies can generally predict their strategic decision-making tendencies. The research and development of strategy reflect a historical attempt to understand the cognitive processes that inform possible organisational futures, options and trade-offs generated from the 'black box'.

Strategic leadership 'involves the capacity to learn, the capacity to change, and managerial wisdom' (Boal & Hooijberg 2000, p. 515). Focussing on social intelligence, behavioural and cognitive complexity are precursors to increased research attention on leader personality and behaviours (Boal & Hooijberg 2000). Essentially, SLT is focused on leader cognitions and the effects those cognitions will have on strategic decision-making and articulating organisational strategy-making (Vera & Crossan 2004; Shao 2019).

Van der Laan (2010) argued that both cognitive processes are critical for decision-makers in their development of strategy at the organisational level. Figure 3 depicts a link between foresight elements and other sources of inputs to strategic thinking and in turn, their contributions to strategy formulation as manifested by strategic decision-making.

Figure 3. Inputs and purpose of Strategic Thinking
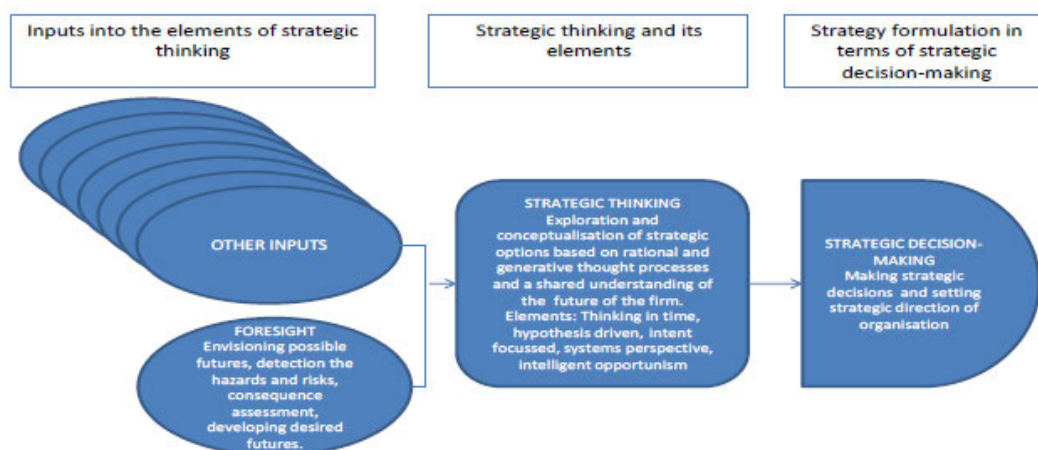


Source: van der Laan (2010, p. 83).

Despite significant research efforts across the strategy and leadership fields, no research had been undertaken to explore the relationship between foresight and strategic thinking (van der Laan 2010). The empirical research undertaken by van der Laan (2010) addressed this research gap and was the first, systematic attempt to understand the relationship between the constructs. Strategic leadership theory provided a theoretical basis to argue that both foresight and strategic thinking, as cognitive processes, are employed by strategy-level leaders and determine to a large extent, how the organisation will evolve (van der Laan 2010).

## 2.5.2. Strategy Process

Strategy formulation was typically conceptualised as a linear and deliberate process (Azhar et al. 2013). Research regarding the nature of strategy formulation developed over time as a complex, multi-layered human endeavour involving a mix of conscious and subconscious thinking which suggests the process is not a linear exercise (Mintzberg 1994a). In other words, strategy is developed either deliberately or is emergent and as such, is a dynamic rather than linear process (Mintzberg 1994a, 1994b).

Developing strategy can be the function of chance, insight or a formal analysis process or it can be the product of ongoing trial and error (Markides 1999). The strategy process is dependent on many factors including an appreciation for and knowledge of time and history. An organisation 'that fails to put the company in its historical context runs the risk of being dangerous' (Markides 1999, p. 6). This view is supported by van der Laan (2010) who highlights the highly complex nature of the strategy development process considering internal and external factors and compliments the work of Porter (1979, 2008) that focussed on strategy and competition. Van der Laan's dynamic model of strategy process outlined in Figure 4 supports the argument regarding the complexity of strategy formulation.

Figure 4. van der Laan's dynamic model of strategy process
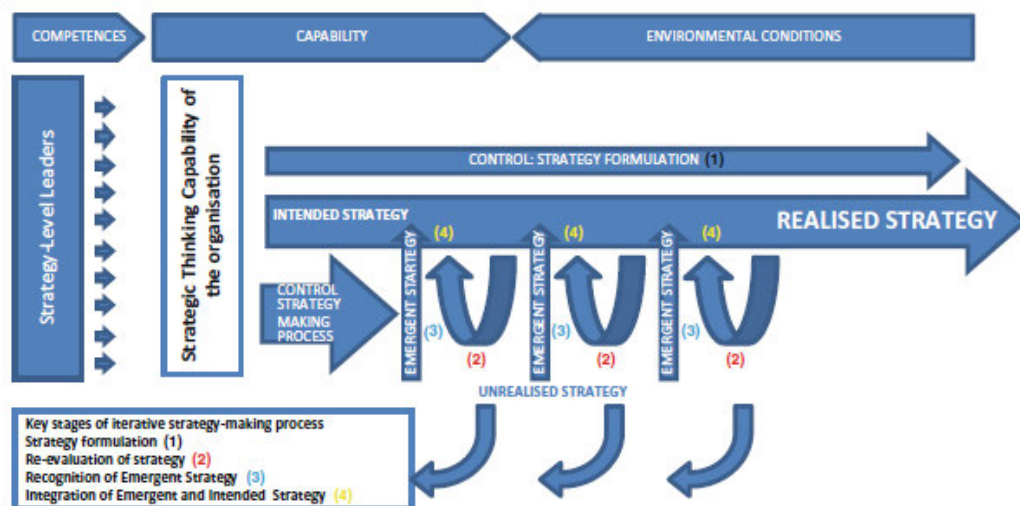


Source: van der Laan and Yap (2016, p. 74).

The dynamic model of the strategy process highlights the nonlinear nature of the strategy process. The model incorporates: (1) foresight and strategic thinking as related and separate inputs necessary for the strategy formulation process, (2) action learning cycles are integral to the process, (3) the model recognises the influence of time (past action and possible futures) and (4) the model opposes a linear and deliberate strategy process. The strategy process is influenced by the environmental and organisational context in which it occurs (Pettigrew 1997; Hutzschenreuter & Kleindienst 2006).

Strategy formulation and subsequent implementation require organisational leaders to continually analyse and evaluate their cognitions regarding strategy building (Markides 1999). Hutzschenreuter and Kleindienst (2006) examined the strategy process and in particular the influence of individuals in that process. The authors identified a range of issues in terms of managerial practice including: (1) senior managers need to recognise the changing nature of the strategy process, (2) senior managers need to focus on cognitive processes that inform the strategy process and (3) the strategy development process is designed to allow staff to contribute to its design (Hutzschenreuter & Kleindienst 2006). Van der Laan's dynamic model of strategy process responds to the issues identified by Hutzschenreuter and Kleindienst (2006) combining their findings in a framework that recognises leader cognitions in the organisational context.

### 2.5.3. Summary

The idea of convergence as identified by van der Laan (2010) is a critical component of this study insofar as foresight and strategic thinking can be conceptualised as a link between SLT and the strategy process. In this research, a link between leadership theory and the strategy formulation process is depicted in Figure 5. According to the conceptual model developed for this study in Figure 5, the critical link between SLT and the strategy development process are the foresight and strategic thinking constructs operationalised as key leader capabilities. This research conceptualises that drawing together SLT, and the strategy development process provides a solid platform to identify a baseline foresight and strategic thinking profile for Australian agricultural leaders.

Figure 5. Leadership Theory and the Strategy Formulation Process



**Strategic Leadership Theory**

Foresight Capability    Strategic Thinking Capability

*Strategy Formulation Process*

Foresight → Strategy Formulation → Strategic Planning

Develop possible futures

Examination of feasible possibilities not prediction

Strategy considerations: (risk tolerance, resource availability, market structures)

Articulation of a preferred viable future aligned with purpose: (vision, mission, and priorities)

Roadmap (actions)

The allocation of a firm's resources

Source: Developed for this study.

The following sections examine the foresight and strategic thinking capabilities to address the gap in the literature. As there is no baseline foresight and strategic thinking leader capability profile for the sector, the following sections will provide a rationale for the importance of foresight and strategic thinking as key leader capabilities.

## 2.6. Foresight and Strategic Thinking Capabilities

### 2.6.1. Introduction

Foresight and strategic thinking are critical capabilities of organisational leaders and essential abilities needed for improved organisational performance and strategy development (Perry & Gavrilets 2020). Gahan et al. (2016) surveyed approximately 8,000 leaders at varying organisational levels and found that the most significant challenges facing organisations were: (1) uncertainty and economic instability, (2) market and competition pressures, (3) technological disturbance, (4) operations, (5) human resources and (6) government regulation. The development of individual leader foresight and strategic thinking could help organisations to address the challenges raised by Gahan and his colleagues.

## 2.6.2. Conceptualising Foresight

Foresight has been identified as a critical leader and organisational capability (Hamel & Prahalad 1994; Williamson 1999). Foresight is a critical ability that when utilised might ensure future survival in the context of changing social or economic environments by avoiding potential hazards (Hayward 2005; Suddendorf et al. 2009). There has been a debate about whether foresight refers primarily to an individual capability or a process (Major et al. 2001; Amsteus 2008). The concept has also been used to capture a group of techniques or programs (Horton 1999; Amsteus 2008).

Foresight is the outcome of focussed consideration and unpacking of how individuals think (Yip, Ernst & Campbell 2009; Paliokaitė & Pačėsa 2015). It has been argued that foresight is a valued capability amongst organisational leaders and as an overall organisational asset (Chia 2004; Zarim & Zaki 2015). Foresight has also been characterised as underpinning the development vision (Ratcliffe & Ratcliffe 2015; Nafari 2016).

Day and Schoemaker (2008) collected survey data from 119 senior business managers regarding their organisation's capacity and desire for peripheral vision, which included leader foresight. Peripheral vision was conceptualised as the 'faint but vital signals that will help them give their companies an edge' (Day & Schoemaker 2008, p. 43). The authors examined foresight in the context of a leader's capacity examined along a continuum, comprising of 'vigilant' leader versus an operational leader. A vigilant leader is characterised by understanding opportunities and threats in the business environment and has an external strategic orientation versus an operational leader focused on the business's internal functions (Day & Schoemaker 2008).

## 2.6.2.1. Individual Foresight in Organisations

In the business context, an individual's foresight is enhanced by exposure to and participation in discussions regarding foresight concepts, methodologies and application (Neef & Daheim 2005; Alsan 2008; Bereznoy 2017). Individual foresight is not obtained through training but is an innate part of a shared human condition suggesting all 'human perceptions and meanings are characterized by an original future intention, which is invariably linked to experience, intentions rooted in the past' (Hideg 2007, p. 2).

Voros (2003) argued that foresight (an element of strategic thinking) is characterised as being organisationally disruptive, is derived from individual intuition, and generates multiple 'what if' scenarios. Conway and Voros (2003) support the proposition that foresight is an element of strategic thinking, arguing that the combination of creativity, foresight and individual intuition helps develop an organisational vision. Hammoud and Nash (2014) further support Voros' proposition that foresight challenges organisational thinking and re-images organisational vision.

Foresight capability is a critical element of strategy-level leaders' function and, according to van der Laan (2010) part of the human strategic decision-making process, as outlined in Figure 6. In the organisational context, foresight 'is an aspect of strategic thinking, which is meant to open up an expanded range of perceptions of the strategic options available, so that strategy-making is potentially wiser' (Voros 2003, p. 12). This is separate from actions required in terms of strategic planning or implementation activities needed to enable strategy.

Figure 6. Strategic decision-making as a human cognitive process
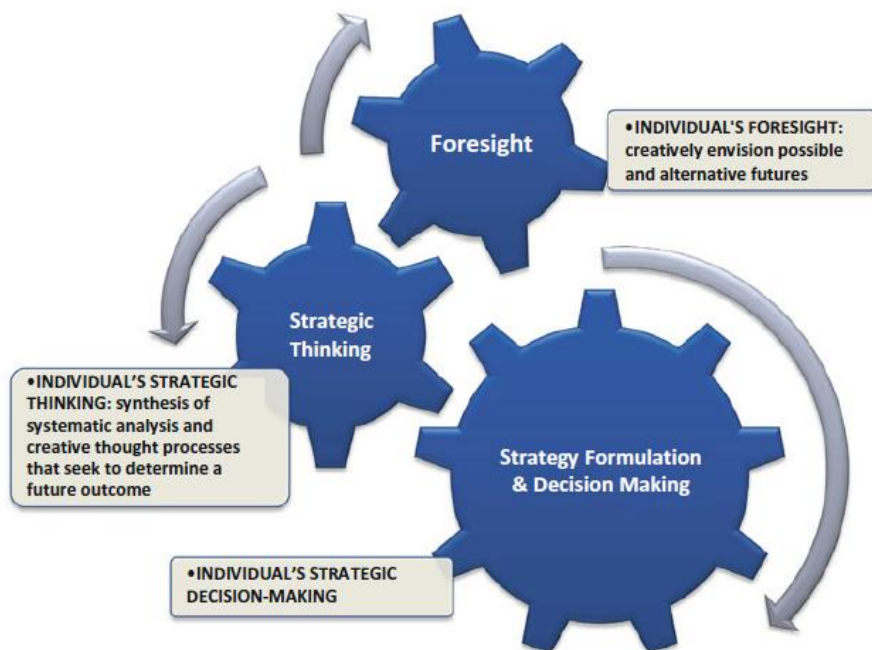


Source: van der Laan and Yap (2016, p. 143).

## 2.6.2.2. Defining Foresight

Hamel and Prahalad (1994) state that individual foresight is derived from long-term insights gained from working within an organisation and an industry context. Hamel and Prahalad (1994) further argue that organisational foresight is the sum of an individual's foresight within the organisation, and it is the function of leaders to harness employee insights, thus improving organisational strategy. This supports research highlighting the importance of grouping individual strategy capability to develop organisations (Sanchez 2004).

The strength of an organisation is drawn from the whole system, not a single element. Hamel and Prahalad argued for the idea that organisations are comprised of core competencies (Hamel & Prahalad 1989, 1993, 1994, 1995, 2005). Hamel and Prahalad (1994) argued that information, expertise, workforce intellectual assets, and competencies are the primary drivers of organisational performance.

There is no singular, agreed definition of foresight within the literature. Major, Asch and Cordey-Hayes (2001) have provided three ways to understand and group foresight as a process, human attribute, or competency. This grouping approach was adopted by van der Laan (2010) as capability, human cognition, and technique, respectively.

Foresight as a process – Georghiou (1996) conceptualised foresight as a methodical approach to evaluating technological developments that may have an impact on competitiveness, the creation of wealth and an individual's quality of life. Horton (1999) expanded the definition by arguing that the process is contemplating possible futures and developing a level of understanding to allow for informed decision-making to realise possible futures.

Foresight as a human cognition – Slaughter (1996) defined foresight as an evolving individual capacity leading to forward-thinking and responsible behaviour concentrating on long-term considerations. While Tsoukas and Shepherd (2004b) defined foresight as an ability to pre-empt an outcome that also incorporates time as crucial to envisioning a future state or point in time. Boe-Lillegraven and Monterde (2015) defined foresight as a critical cognitive process drawing on experiences outside the norm.

Foresight as a capability – Foresight, is a core leader capability and critical as a catalyst for organisational innovation (Day & Schoemaker 2008; Hamel 2009).  O'Brien and Robertson (2009) contend that new, complex and emerging business environments will require leadership skills oriented toward future business requirements.  Amsteus (2008) and McDermott et al. (2011) suggest that modern businesses need to consider their leaders' foresight capabilities, arguing that leaders need the ability to change the way they operate and develop resilience in an increasingly high-pressure operating environment.  Spears (2010) supports this perspective by arguing that foresight capability amongst leaders to enact changes draws from an understanding of the past, issues in the present and the potential consequences of future decision-making.

For the purposes of this study, foresight is defined as a critical, innate, cognitive capability.

> A human ability to creatively envision possible futures, understand the complexity and ambiguity of systems and provide input for the taking of provident care in detecting and avoiding hazards while envisioning desired futures.  (van der Laan & Yap 2016, p. 97)

### 2.6.2.3. Summary

Foresight is a multi-faceted construct and an important element of the leadership function.  An individual leader's ability to identify possible future scenarios, incorporating and appreciating the complex nature of business environments and industry stakeholders suggests foresight is a critical leadership capability.  The following section examines the strategic thinking construct.

### 2.6.3. Conceptualising Strategic Thinking

Strategic thinking continues to be an important concept within the leadership literature. According to O'Shannassy (1999), strategic thinking can be conceptualised as: (1) art, (2) science, or (3) a combination of the two.  Table 4 provides a summary of O'Shannassy's perspectives regarding strategic thinking.

Table 4. Strategy as Art, Science or Art and Science

| |
|---|
| Strategic thinking as art may incorporate the following elements:<br>• The strategic planning process is not strategic thinking.<br>• Strategic thinking is a cognitive process.<br>• The process of strategic thinking addresses organisational change and uncertainty.<br>• Socio-political context may impact the strategic thinking process.<br>• The process is a leader and potentially whole of organisation endeavour. |
| Strategic thinking as science may incorporate the following elements:<br>• Strategies are created as the product of a thoughtful and deliberate process.<br>• The process is an analytical not intuitive process. |
| Strategic thinking as both art and science may incorporate the following elements:<br>• The art and science perspectives seem diametrically opposed are in fact part of the overall, cognitive process needed to formulate strategy.<br>• The process is complex drawing on organisational resources and informed by internal and external stakeholder groups. |

Source: O'Shannassy (1999).

O'Shannassy (1999) underscores the idea that strategic thinking is not only a cognitive process but an organisation-wide concern. This view is supported by van der Laan and Erwee who stated that strategy 'is embedded in the need to contemplate the future of the organisation within the context of a holistic and systematic understanding of the organisation and its environment' (van der Laan & Erwee 2012, p. 375). This perspective has also been supported by Ohmae who argued that strategic thinking is 'a combination of rational analysis, based on the real nature of things, and imaginative reintegration of all the different items into a new pattern, using nonlinear brainpower' (Ohmae 1982, pp. 13-4). Essentially, Ohmae (1982) and O'Shannassy (1999) support the idea that strategic thinking will benefit the organisation if it is a product of both nonlinear thinking and systematic analysis.

Bonn (2001) and Goldman (2007) argue that strategic thinking functions on two levels, the first at the individual level and the second at the organisational level. Bonn (2001) notes the importance of strategic thinking and its link to foresight competence as inputs to strategic considerations within the organisation. Strategic thinking has been conceptualised as a whole organisation endeavour providing senior staff with opportunities to develop their strategic thinking skills base of staff for the overall benefit of the organisation (Goldman 2007).

### 2.6.3.1. Elements and Outputs of Strategic Thinking

Mintzberg (1994a) argued that the strategy process is the ability to synthesise learning, including personal experiences and the understandings of others instead of the use of data and developing a vision. Developing individual strategic leadership capacity has organisational benefits including but not limited to improving organisational alignment, identifying intervention pathways, building organisational capacity, orienting business strategy, and translating strategy into actions (Davies & Davies 2004).

Liedtka (1998) conceptualised strategic thinking as comprising multiple attributes organised around a model melding the following elements:

- Systems perspective – strategic thinkers have a macro-level understanding of the organisation's system from an internal and external perspective;
- Intent-focused – strategic thinkers are focused on long-term competitive positioning;
- Intelligent opportunism – strategic thinkers are open to new concepts or ideas and opportunities as they emerge;
- Thinking in time – strategic thinkers connect the past, present and future and can recognise the predictive value of past experiences to help inform change in the future; and
- Hypothesis-driven – strategic thinker recognises that strategy is a hypothesis-driven process that is not intuitively familiar to organisational leaders and that the ability to develop testable hypotheses is critical in the context of the organisation's business environment.

The elements and outputs of strategic thinking suggest the importance of the construct as a leadership capability. The following section provides definitions of strategic thinking.

### 2.6.3.2. Defining Strategic Thinking

There is conjecture within the strategic thinking literature regarding how the concept is defined (Goldman 2007; Dhir et al. 2018). The strategic thinking construct has been defined as (a) a thought process, (b) as an essential of strategic development and (c)

requiring strategic thought across time using past and present information (Goldman 2007, 2012; Haycock et al. 2012).

Goldman et al. (2009, p. 406) explain that strategic thinking is: 'an individual thinking activity that benefits organizations. Its purpose is to discover competitive strategies to position the organization significantly differently from the present'. Alternatively, strategic thinking has been defined as, 'a particular way of thinking, with specific attributes' (Liedtka 1998, p. 122). In contrast, Mintzberg (1994a) considered the construct as a combination of an individual's instincts and creativity.

O'Shannassy (1999) defined strategic thinking as a way to resolve strategic issues and conceptualise the future of the organisation. Considering the futures approach of this research, strategic thinking, for this study, was defined as 'the synthesis of systematic analysis (rational) and creative (generative) thought processes that seek to determine the longer-term direction of the organization' (van der Laan & Yap 2016, p. 102).

### 2.6.3.3. Linkages between Foresight and Strategic Thinking

Foresight and strategic thinking are critical leader capabilities (Schoemaker 2018; Ameen & Sultan 2020; Shaik & Dhir 2020). Similarities and differences between foresight and strategic thinking are provided in Table 5. Van der Laan's analysis regarding the similarities and linkages is profound and points to the degree of connectedness between the constructs.

Table 5. Similarities and differences between Foresight and Strategic Thinking

| Similarities and Linkages |
| --- |
| <ul><li>Concerned with developing images of the future; and pro-active future-direction setting.</li><li>Connecting past, present and the future in terms of dynamic oscillation between them in order to create the future; and acknowledging predictive value of past, action value of present and future departures from the past.</li><li>Systems thinking orientation.</li><li>Creative and critical; and ability to develop hypotheses of the future and test them in terms of detecting and avoiding hazards.</li><li>Openness to new ideas to take advantage of emergent strategies, and cross-sectional involvement by all stakeholders.</li></ul> |
| **Differences** |
| <ul><li>Foresight competences focus on long term normative (ontological) alternative visions of the future and belief that this can be pro-actively created: creation of desired futures over the long-term acknowledging the lack of predictive value; and strategic Thinking focus is on shaping and reshaping intent in order to provide the focus for individuals to achieve a strategic direction and goal: organisationally focussed and shorter term.</li><li>Foresight competences emphasis on alternative futures that may be disconnected from the past – future focussed; and strategic Thinking emphasis on feeling of control in the midst of change – operationally focussed while avoiding breaking with the past.</li><li>Foresight competence's emphasis on expanding range of alternative futures, tolerating ambiguity and the complexity of systems; and strategic thinking's emphasis is on the mental model of understanding the complete system of value creation related to the interdependencies within the system: focus on value creation within the system.<br>Foresights emphasis on normative values and broader societal consequences of hazards and risks; and strategic thinking's emphasis on capacity to generate hypotheses of assumptions in achieving a future position for the organisation.</li><li>Foresight normatively determined desired futures may exclude emerging opportunities in the interests of broader humankind / society; and strategic thinking's preferred longer-term future seeks to embrace emerging opportunities in the interests of the organisations future position.</li></ul> |

Source: van der Laan and Yap (2016, p. 93).

The similarity and linkages between the concepts may lead to: (1) the creation of organisational strategy, (2) the realisation of alternate strategy options, (3) an understanding of internal and external organisational environments, (4) creative thinking, (5) critical thinking, and (6) openness to new ideas (van der Laan 2010).

### 2.6.3.4. Summary

Strategic thinking is a critical input into strategic decision-making and is needed to realise the organisational strategy. Foresight and strategic thinking are a vital part of the overall process of creating organisational strategy.

## 2.6.4. Differentiating Competencies and Capabilities

There has been considerable debate within the leadership and management research literature regarding the delineation between management and leadership within organisations (Simonet & Tett 2013; Răducan & Răducan 2014). Within the management literature, management's function is typically task-oriented and related to sets of skills required to achieve organisational goals such as control, planning and organising (Bargau 2015). The difference between leadership and management is the issue of skills. According to Ricketts (2009), management skills can be grouped into three key areas: technical, human and conceptual as outlined in Table 6.

Table 6. Technical, Human and Conceptual Managerial Skills

| Skills Areas | Description |
|---|---|
| Technical | • Knowledge regarding and proficiency in a specified activity.<br>• This could include ability to use tools or apply specific techniques or the application of analytical or specialist ability within a technical field. |
| Human | • Knowledge about people and capacity to work with others.<br>• The skills that allow managers to assist individual team members or help groups achieve objectives. |
| Conceptual | • The ability to work with concepts.<br>• This skill considers ideas or concepts rather than individuals. |

Source: Ricketts (2009, p. 3).

Boyatzis (2008) defined competency as a capability or ability, and behaviour that is organised around what the author argues is 'intent'. Boyatzis (2008) further defined competency as intent and action to achieve outcomes such as understanding others' views. Boyatzis (2008) argued that exceptional managers and leaders use behavioural habits grouped under three competency clusters: (1) cognitive competencies, (2) expert knowledge and individual experience and (3) knowledge.

David McLelland first described the concept of competence as a permanent set of individual characteristics relating to job performance with no regard to intelligence or level of education (McLelland 1973). Reviews of competence research suggest that individual characteristics' permanency is a one-dimensional approach to understanding competence and is no longer adequate (Le Deist & Winterton 2005).

Managerial competencies can be taught and developed through training programs, workshops, or formal education (Randlesome 2000). Despite the ability to acquire managerial competencies, there is a debate concerning how competencies are defined. The term has been defined as related to an organisation's operations, not the individual and the integration of technology (Prahalad & Hamel 1990), or ability or behaviour displayed by an individual that can be used to address situations as they arise within the organisation (Boyatzis 2008).

Abraham et al. (2001) state that managerial competencies reflect the organisation's values and core competencies. Abraham et al. (2001) argued that the competencies most reflective of successful managers include: (1) teamwork, (2) communication skills, (3) leadership skills, (4) problem solving, (5) results orientation and (6) customer focus. In this instance, leadership is seen as a skill set and not a separate grouping of individual leader capabilities. The development of managerial competencies, such as planning and organising, are adaptable to changing business environments, but their core purpose remains the same over time.

In terms of managerial competencies and leadership capabilities, Ancona suggests a clear difference between competence and capability (Ancona 2005, 2010). Ancona (2005) has argued that leadership: (1) is distributed within an organisation; (2) is developed over time, (3) is a process to enable change, and (4) is about individual development. The issue of leader capability falls under individual development, and leader capabilities must be enhanced and continually improved.

Differences between managerial competencies and leadership capabilities have been identified and grouped by Northouse (2010) in terms of order and consistency versus change and movement, as outlined in Table 7. The typology outlined by Northouse (2010) suggests that leaders possess two key functions: (1) a leadership function involving setting direction and vision and (2) a managerial function involving governance and operations. Northouse (2010) suggests one way to conceptualise the difference between competencies and capabilities as a task or result orientation as opposed to a people orientation.

Table 7. Management and Leadership Competencies.

| Management Competencies | Leadership Capabilities |
|---|---|
| • Planning and Budgeting<br>• Establishing agendas<br>• Setting timetables<br>• Allocating resources | • Establishing Direction<br>• Creating a vision<br>• Clarifying the big picture<br>• Setting strategies |
| • Organising and Staffing<br>• Provide structure<br>• Making job placements<br>• Establishing rules and procedures | • Aligning People<br>• Communicating goals<br>• Seeking commitment<br>• Building teams and coalitions |
| • Controlling and Problem Solving<br>• Developing incentives<br>• Generating creative solutions<br>• Taking corrective action | • Motivating and Inspiring<br>• Inspiring and energise<br>• Empowering subordinates<br>• Satisfying unmet needs |

Source: Adapted from Northouse (2010, p. 10).

Intent is one way to conceptualise leader abilities, but the distinction between intent and actions differs between leaders' managerial function and the leader function of leadership. Table 8 groups both managerial and leadership functions of individual leaders. The leader function of leadership proposes that leaders are required to be effective communicators and influence those they lead (McNamara 2009). It should be noted that the leader function of leaders encapsulates both foresight and strategic thinking capabilities versus managerial competencies that are underwritten by command and control competencies (McNamara 2009). Functions of a leader typology presented in Table 8 suggest that leader capabilities and managerial competencies are needed to realise the strategy that achieves organisational outcomes.

Table 8. Functions of Leaders Typology

| | Typology | Function | Capabilities and Competencies | | Outcomes |
|---|---|---|---|---|---|
| **L**<br>**E**<br>**A**<br>**D**<br>**E**<br>**R**<br>**S** | Leader Function | * Direction<br>* Vision | *Capabilities*<br>* Strategic Thinking<br>* Foresight<br>* Vision | * Values<br>* Networks<br>* Inventing<br>* Narrative | * Communication<br>* Influence |
| | Managerial Function | * Governance<br>* Operations | *Competencies*<br>* Efficiency<br>* Effectiveness<br>* Commanding<br>* Control | * Planning<br>* Organising<br>* Coordinating | * Process<br>* Execution |

Source: Adapted from Fayol (cited in McNamara 2009; Northouse 2010).

While it is noted that leader and managerial functions underpin the leadership process, this study will not focus on the managerial function, as the emphasis is on strategic thinking and foresight capabilities.

## 2.7. Rural RDC Expenditure and Leader Development

Leadership and the development of Australian agriculture leaders continue to be a priority for the government and non-government sectors. The Australian Rural Leadership Foundation (ARLF) published a report focussing on strategic directions across regional Australia (Australian Rural Leadership Foundation 2021a). The report provided a summary of responses from graduates of the Australian Rural Leadership Program (ARLP) who stated that regional communities are searching for: (1) trustworthy and prominent individuals, (2) greater input from younger leaders in terms of the direction of regional Australia and (3) shared leadership across Indigenous and non-Indigenous communities (Australian Rural Leadership Foundation 2021a).

The ARLF's leadership development functions are supported through the investments of sponsors or partners that include the State and Federal governments, rural RDCs, universities, the finance and banking sector, and superannuation funds (Australian Rural Leadership Foundation 2021b). According to the ARLF 2019-20 annual report, course revenues including donations and government subsidies were approximately $6.8 million (Australian Rural Leadership Foundation 2020).

The Council of Rural Research Development Corporations (CRRDC) represents 15 rural RDCs across the Australian agriculture, fisheries and forestry sectors with the overall purpose of the Council being the delivery of social, economic and environmental benefits for industry and the community (Council of Rural Research Development Corporations 2020a). The CRRDC describes the role of rural RDCs as prioritising research investment, operating as agents of industry development, and ensuring the transfer, extension of research, market development and promotion (Council of Rural Research Development Corporations 2020b).

The Productivity Commission has noted that the critical role of rural RDCs is to secure research funding on behalf of both industry and the Australian Government through industry levies and both State and Federal Government funding (Productivity

Commission 2011). Understanding the expenditure and range of leader development expenditure builds the context in which Australian agriculture leaders operate. Examples of leadership development expenditure across seven of the fifteen rural RDCs are outlined and discussed below.

It should be noted that rural RDCs differ in their ownership structures. The CRDC and FRDC are wholly owned by the Commonwealth Government. While the remaining rural RDCs cited in this study are wholly owned by industry.

### 2.7.1. Australian Meat Processing Corporation

The Australian Meat Processing Corporation (AMPC) is the rural RDC for the red meat processing industry (Australian Meat Processing Corporation 2021). The AMPC offers multiple leader development assistance programs, including a specific leadership development scholarship under the ARLP and general scholarships (Australian Meat Processing Corporation 2019). Over $600,000 was spent by the AMPC in the 2018/19 financial year on building industry capability (Australian Meat Processing Corporation 2019).

### 2.7.2. Australian Pork Limited

Australian Pork Limited (APL) differs slightly from the rural RDC model because APL is a producer-owned and registered Australian company (Australian Pork Limited 2021). The organisation has developed the Australian Pork Industry Leadership program that concentrates on leadership skills, industry issues and building industry networks (APL 2020). The APL also supports the Australian Pork Young Leaders, a forum allowing pork industry leaders to discuss key issues facing the sector (Australian Pork Limited 2020). The APL's 2018/19 annual report notes an expenditure of $1.78 million in non-research and development expenditure (Australian Pork Limited 2019).

### 2.7.3. Cotton Research and Development Corporation

The CRDC is a partnership between the Australian Government and the cotton industry to focus on research, development and extension (RD&E) work (Cotton Research Development Corporation 2021). The CRDC and CA created the cotton industry's first workforce development strategy in 2015-16 which focussed on

multiple workforce issues with leader development being one of five elements of concern for the sector (Cotton Research Development Corporation 2016). The CRDC has continued its support for 10 industry leadership and development programs (Cotton Research Development Corporation 2019). Between 2013-18, the CRDC had funded 589 industry participants to undertake one of ten leadership and development programs (Cotton Research Development Corporation 2019).

### 2.7.4. Dairy Australia

Dairy Australia has developed its research, development and extension priorities around people development, such as recruitment, retention and leadership development (Dairy Australia 2015). Dairy Australia's 2020-21 annual report outlines seven strategic priority areas including: (1) more resilient farm businesses, (2) attracting and developing great people for dairy, (3) strong community support for dairy, (4) thriving in a changing environment, (5) success in domestic and overseas markets, (6) technology and data-enabled dairy farms and (7) innovative and responsive organisation (Dairy Australia 2021). The annual report states that $6.8 million was spent under the second strategic priority (Dairy Australia 2021).

### 2.7.5. Fisheries Research and Development Corporation

The approach adopted by the FRDC has been to increase industry capability amongst seafood industry participants (Fisheries Research and Development Corporation 2010). The approach specifically identified building innovation and adaptation capability, understanding regional workforce needs, and leadership (Fisheries Research and Development Corporation 2010). In the 2017-18 financial year, the FRDC spent $2.3 million on people development initiatives (Fisheries Research and Development Corporation 2018).

The FRDC has invested funds across programs and bursaries, including investments in leadership training, such as the National Seafood Industry Leadership Program, ARLP, funding to undertake the Nuffield Australia Farming Scholarship, and bursaries to assist in professional development (Fisheries Research and Development Corporation 2018). The FRDC has also invested in leadership development amongst Indigenous industry participants using an Indigenous Reference Group (IRG). Currently, approximately $195,000 has been allocated to addressing the lack of a

program for Indigenous participants across Australian fisheries that build leadership skills (Fisheries Research and Development Corporation 2017).

### 2.7.6. Horticulture Innovation Australia

Horticulture Innovation Australia (HI) is a not-for-profit RD&E, grower-owned, industry corporation focusing on value creation across the industry supply chain (Horticulture Innovation Australia 2021). HI manage a leadership fund with approximately $820,000 spent on leadership development programs (Horticulture Innovation Australia 2018). The fund is part of HI's strategic priorities with funds used to either directly invest in leadership development or co-invest in development programs (Horticulture Innovation Australia 2018).

### 2.7.7. Forest and Wood Products Australia Limited

Forest and Wood Products Australia Limited (FWPA) is a not-for-profit organisation focused on the provision of RD&E for the wood products and forest industries (Forest and Wood Products Australia Limited 2021). The FWPA has initiated a leadership program titled 'For Our Future' leadership program delivered by the Australian Rural Leadership Foundation (Forest and Wood Products Australia Limited 2019). FWPA spent over $330,000 in 2019 on leader development activities (Forest and Wood Products Australia Limited 2019).

### 2.7.8. Summary

In the examples outlined in this section, rural RDCs are spending millions on leader and leadership development programs. This expenditure varies across rural RDCs reflecting their leadership development needs. Leadership development is a priority for rural RDCs but not the only priority among multiple, competing RD&E priorities. The following section focuses on the study's research questions.

### 2.8. Research Questions

The literature review aimed to demonstrate knowledge within the area of study, explain relevant theories, highlight critical issues, and provide a rationale that supports the creation of research questions through finding and organising relevant frameworks and concepts (Rowley & Slack 2004; Justus 2009). The literature review suggests that

the leadership capabilities of foresight and strategic thinking are critical antecedents of strategy formulation and strategic planning.

The research literature also suggests that Australian agricultural leaders need to understand foresight and strategic thinking capabilities in the context of changing domestic and international agriculture markets. There is a paucity of research literature regarding these leader capabilities in the context of the Australian agriculture sector. This study is the first to develop foresight and strategic thinking capability baseline profile amongst Australian agricultural leaders. The current literature regarding leadership development supports the following research questions:

**Research Question 1:** *What are the foresight and strategic thinking capability profiles of Australian agricultural leaders?*

**Research Question 2:** *What are the perceived associations between foresight, strategic thinking, and strategy formulation of Australian agricultural leaders?*

**Research Question 3:** *What are the perceived associations between industry leader training, foresight, and strategic thinking of Australian agricultural leaders?*

## 2.9. Conceptual Model

Based on a review of the literature, the key concepts of foresight and strategic thinking were described and defined. Strategic leadership theory was adopted as a theoretical basis for the assumption that the foresight and strategic thinking capabilities of leaders can serve as indicators that reflect the future of the Australian agriculture industry. As such, Figure 7 describes the conceptual model that framed the study.

Figure 7. Conceptual Model: Strategic Leadership Capabilities
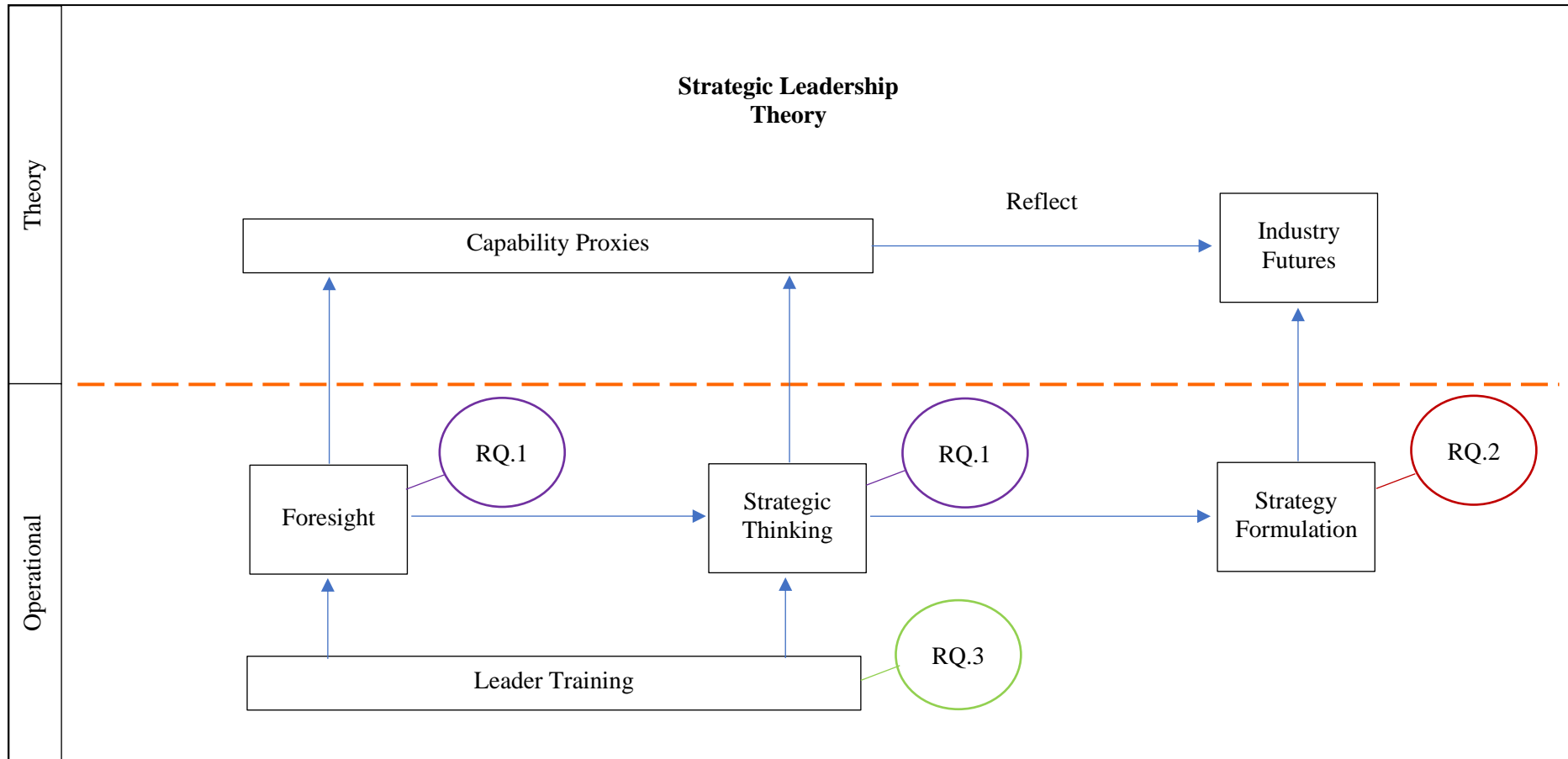
Source: Developed for this study.

## 2.10. Conclusions

This chapter described the context, the problem statement, the purpose of the study, theory, core concepts, research questions and conceptual model which are summarised below.

- Context – the Australian agriculture sector's gross value of production is $66.3 billion.  The sector makes a significant contribution to the national economy and is overseen by agricultural leaders.  These leaders are faced with constant change in the markets in which their businesses and industry bodies work;

- Problem Statement – There is no leader capability baseline to assist individual Australian agriculture businesses or industry bodies to engage with fluctuations in market or industry circumstances.  Moreover, there is a gap in the literature from a practice perspective and understanding of Australian agricultural leader capabilities;

- Purpose – The study makes an original knowledge contribution to professional practice and adopts an explanatory sequential study design.  The study seeks to develop a strategic thinking and foresight baseline and insights to inform the development of future, critical agricultural leader capabilities;

- Theory – This study proposes a theoretical foundation that SLT serves as an indicator of the future of industry by reflecting current leader abilities and characteristics;

- Core Concepts – The core concepts of foresight and strategic thinking were described and defined;

- Research Questions – The chapter presented RQs based on the theory as operationalised in the conceptual model and focussed on developing a foresight and strategic thinking baseline and the perceived associations between strategy formulation and leader training; and

- Conceptual Model – The model sets out a clear distinction between the focus of this study at the operational level concentrating on the foresight and strategic thinking constructs that link to SLT as capability proxies.

Chapter three outlines the research methodology adopted by the study to answer the research questions and achieve the study objectives.

# CHAPTER 3. METHODOLOGY

## 3.1. Introduction

The previous chapter provided the context in which Australian agricultural leaders operate. The previous chapter also examined research literature regarding leadership theory, foresight, strategic thinking, strategy formulation, strategic, leadership capabilities and differences between leader capabilities and managerial competencies. Based on the conceptual model and research questions, this chapter describes the research methodology and outlines the research design adopted for this study.

## 3.2. Research Design

The research process incorporates objectives, manages research data, and disseminates findings (Williams 2007). Multiple philosophies underpin research, and it is critical to understand the assumptions and worldviews underlying the research process (Scotland 2012). Research design can be considered the framework that combines methodology, the strategy of enquiry, and the use of specific research techniques (King, Keohan & Verba 1995).

An explanatory sequential design has been used in this study, as outlined in Figure 8. The explanatory sequential design occurs in two distinct phases; a quantitative phase followed by a qualitative phase to gain a deeper understanding of the quantitative results (Creswell & Clark 2011). Data is collected and analysed during the quantitative phase to address a research question while the qualitative phase is used to understand and explain the quantitative element of the research (Ivankova, Creswell & Stick 2006).

Figure 8. Explanatory Sequential Design
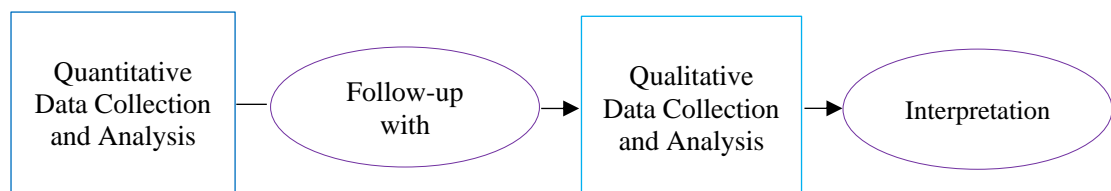


Source: Creswell and Clark (2011, p. 69).

This research design has several strengths. According to Creswell and Clark (2011) those strengths are: (1) the design allows for the use of distinct phases, (2) the design is simple to operationalise, (3) the design generates distinct quantitative and qualitative results and (4) the second phase in the design allows for the integration of themes within the data set.

The explanatory sequential design has limitations. According to Creswell and Clark (2011), they include: (1) a time-consuming qualitative phase, (2) potential difficulties in securing participants, (3) a decision must be made regarding which quantitative results are investigated in greater depth and (4) how participants are engaged including how they are selected. It is important to note that these limitations are a part of the research process and can be overcome if the research is meticulously planned before respondents are identified and data collected.

## 3.3. Research Paradigm: Pragmatism

The research paradigm is an integral component of the research process. Creswell and Clark (2011) and Creswell (2014) argued that researchers should make their worldview known. This means sharing the epistemological, ontological, and methodological approaches that guide the research process. Creswell (2014) states that researchers need to consider four world views: post-positivism, constructivism, transformative, and pragmatism. Ultimately, the worldview adopted may be influenced by the topic area, previous research experience, work history or the influence of supervisors (Shah & Al-Bargi 2013; Creswell 2014).

A pragmatic approach demands that a research problem is critical and that the data collection and analysis techniques are selected to develop insight regarding the research question (Creswell 2009; Kelly & Cordeiro 2020). The pragmatic paradigm was chosen for the study as this worldview is associated with mixed methods research (Creswell 2009; Feilzer 2010; Creswell & Clark 2011). The paradigm focuses on research outcomes and 'on the primary importance of the question asked rather than the methods, and on the use of multiple methods of data collection to inform the problems under the study' (Creswell & Clark 2011, p. 41).

Pragmatism focuses on research questions, the communication of issues relating to the research questions, and uncovering meaning (Creswell 2007; Shannon-Baker 2015). The rationale for choosing pragmatism relates to the ability to meld multiple research methods to understand a research phenomenon fully.

> In connecting theory to data, it uses abduction, which has been found to be particularly useful during the integration stage of mixed methods. Pragmatism recommends a balance between subjectivity and objectivity throughout the inquiry. Finally, its emphasis on transferability offers a paradigm that can revise previous or create new disciplinary theories based in particular context but still generalizable to others. (Shannon-Baker 2016, p. 331)

Despite the benefits outlined by Shannon-Baker (2016), there are differing views regarding quantitative and qualitative research methods. Dawadi, Shrestha and Giri (2021) argue that there is an inherent incompatibility between the use of quantitative and qualitative research methods, which in their view are (1) based on differing conceptualisations of truth and (2) the relationship between the subject of investigation and the researcher. Sanscartier (2020) states that researchers may face qualitative and quantitative data that are contradictory or divergent or have the potential to adapt to a change in the context in which research is undertaken.

Importantly, this paradigm allows for the inclusion of both quantitative and qualitative methods, which supports the use of the explanatory sequential design in this study. The explanatory sequential design incorporates a quantitative stage (Phase 1 of the study) and a qualitative stage (Phase 2 of the study). These are described for each research phase below.

## 3.4. Mixed Methods Research

The research approach is critical in determining the most relevant procedure for gathering, examining, and interpreting data (Scotland 2012; Wahyuni 2012). This study will apply a mixed-method approach; it is critical to understand the qualitative and quantitative research approaches.

Critical decisions in choosing a mixed-methods design require that both a qualitative and quantitative research strand permeates the research design. Therefore, there are multiple considerations when using a mixed methods research design including, '(1) the level of interaction between the strands, (2) the relative priority of the strands, (3) the timing of the strands, and (4) the procedures for mixing the strands' (Creswell & Clark 2011, p. 64).

The use of a mixed methods research design allows the researcher to address multiple aspects of a phenomenon under investigation. The benefits of using a mixed-methods approach include: (1) variation in data collection leading to greater validity (Howitt 2010; Creswell & Clark 2011), (2) answers research questions from several perspectives (Cameron 2011), (3) ensuring that pre-existing assumptions from the researcher are less likely to impact on the research (Caruth 2013) and (4) one methodology cannot provide all the information required to fully understand a phenomenon under examination (Johnson, Onwuegbuzie & Turner 2007).

### 3.4.1. Quantitative Research

Quantitative research methods use numbers and any concept that is systematically measured to understand the relationships between variables (Cavana, Delahay & Sekaran 2001). Experimental and survey methodologies are common quantitative research strategies relying on statistical analysis (Krauss 2005). A quantitative study usually ends with confirmation or disconfirmation of the tested hypothesis (Cavana, Delahay & Sekaran 2001).

### 3.4.2. Qualitative Research

Howitt (2010) argues that qualitative research focuses on understanding the impacts of everyday life or the context in which research is undertaken, understanding subject matter through spending time in the field or via in-depth interview approaches and collecting deeper and richer data from participants. The data collected and analysed is chiefly non-quantitative with data collection tools ranging from field notes, interview transcripts, video or audio recorded material to record participant experiences or social interactions (Saldana, Leavy & Beretvas 2011).

### 3.4.3. Assumptions of the Methodology

The following assumptions underpinning the methodological design of the study have been adopted:

- The TripleV survey instruments profiling leaders' foresight and strategic thinking capabilities are valid and reliable measures as reported in the literature and suited to the population of the study;

- The study is 'problem focused', and the findings are intended to pragmatically resolve a practice problem (Australian agricultural leaders' foresight and strategic thinking capabilities and sectoral training) with the knowledge claim that the study findings are only valid;

- The mixed methods approach provides depth and breadth of understanding, while the triangulation it affords increases the validity of the methodology and findings;

- Strategic Leadership Theory (SLT) can be extended to anticipating the future state of an organisation or industry beyond demographic proxies to capability proxies; and

- The use of exploratory factor analysis (EFA) not only indicates further internal validity of the TripleV instruments but clarifies the underlying structure of the foresight and strategic thinking constructs.

### 3.5. Sampling Strategy

The sampling strategy for this research is outlined in Table 9, including defining the target population, determining the sampling frame, selecting the sampling technique and sample size.

Table 9. Sampling Strategy

| Steps and Description | Application to this study |
|---|---|
| 1. Define the target population: Sampling units (elements, extent and time) used to define the population related to the research problem. | **Phase 1**<br>Measure: TripleV foresight and strategic thinking quantitative measurement tool<br>Elements: Male or female agricultural leaders.<br>Sampling unit: Private organisations<br>Extent: Australia<br><br>**Phase 2**<br>Measure: Delphi<br>Elements: Australian agricultural leaders or academics<br>Sampling unit: Experts<br>Extent: Australia |
| 2. Determine the sampling frame: Representation of the elements of the population. | Compilation of sampling frame list not feasible. Participants who were involved in leadership of agricultural organisations, industry, or research bodies. |
| 3. Select sampling technique: Method by which the sample is selected; either in terms of probability or non-probability techniques. | **Phases 1 and 2**<br>Purposive sampling |
| 4. Determine sample size: The selection of the number of elements from the population to be investigated. | **Phase 1**<br>100-200 respondents<br><br>**Phase 2**<br>Minimum of 6-10 panel members in each Delphi phase. |

Source: Developed for this study.

### 3.5.1. Defining the Target Population

The target populations in this study were split into two research phases. Phase 1 of the research process focused on leaders working in the Australian agriculture sector. While in Phase 2, experts were identified as either Australian agriculture leaders or researchers in the leadership field.

### 3.5.2. Determining the Sampling Frame

The sampling decisions in this study and the sample frame were guided by the study's purpose (Tuckett 2004). A particular sub-group of stakeholders identified was Australian agriculture leaders. This identification of a specific sub-group is commonly used in qualitative research and was adopted in this study (Coyne 1997).

### 3.5.3. Selecting the Sampling Technique

Sampling and sampling techniques are critical components of survey research (Bareiro & Albandoz 2001). Sampling techniques can be divided into two categories: (1)

probability, and (2) non-probability approaches (Bareiro & Albandoz 2001). Concerning probability sampling, each population member has a known, non-zero chance of participation in a study with randomization being a central component of this sampling technique (Bareiro & Albandoz 2001). Alternatively, Palys notes that non-probability sampling focuses on selecting participants non-randomly which leads to certain members of a population having the chance to participate in a research project (cited in Given 2008).

When probability sampling is not possible or appropriate, non-probability sampling is often used as an alternative sampling approach. Purposive sampling involves participants chosen based on specific characteristics (Coyne 1997). A key advantage of using this sampling approach is targeting a specific group or sub-set of a group while a key disadvantage is that the sample is not fully representative of the population (Acharya et al. 2013). The study adopted purposive sampling in both phases of the research.

### 3.5.4. Limitations of the Sampling Strategy

There are sampling limitations in the quantitative research phase (Phase 1) and the qualitative phase (Phase 2). The limitations of this study include:

- The generalisability of the study's results. Applying the results to the whole population is not possible under a purposive sampling approach but can be generalised to a subset of the population (Cavana et al. 2001);
- Delphi limitations could include researcher bias, sample size and panel member selection is a subjective process (Avella 2016); and
- Difficulty in accessing a normalised population to sample at the scale of population the study is assessing (Jenkins & Quintana-Ascencio 2020).

### 3.6. Phase 1 – Online Survey

This research phase applied a validated and reliable measure of foresight and strategic thinking capabilities. The survey instrument also included questions related to strategy formulation and leader training.

### 3.6.1. Survey Administration

The purposive recruitment approach involved email invitations to rural RDCs, which explained the research project and included participant information sheet and consent form. In addition, email requests and a link to the survey were sent for distribution amongst contacts across Australian agricultural leaders across rural RDCs. The email described the research being undertaken and invited potential participants to click on a web link to access the anonymous online questionnaire. The invitation, consent and participant information sheets are in Appendix A, B and C.

Respondents were advised of the voluntary nature of their participation and that their responses were anonymous. Each participant was provided with a response ID (the response code from the survey software). Participants were also advised they could request the results of the study.

### 3.6.2. Demographics

Demographic data were collected from respondents including (1) gender, (2) age, (3) sector affiliation, (4) level of education and (5) the position held within their organisation.

### 3.6.3. Choosing Agriculture Leaders

In the first phase of the research process, the participants selected for the survey possessed several attributes, including working or possessing a degree of influence in an Australian agricultural business. These characteristics ensured that the study participants had leadership experience across the Australian agriculture sector. However, collecting a random sampling list of Australian agriculture leaders was difficult to operationalise; hence directions for identifying the population were specified (Sharma 2017).

The sample population was selected based on the following characteristics:
- Working in private Australian agricultural businesses;
- Possessing influence in the operations of the business; and

- Holding a variety of titles including, 'owner', 'partner', 'people/industry development manager', 'senior manager', 'director', 'executive director', 'president', 'chair', 'executive officer' or 'chief executive officer'.

### 3.6.4. Justification for the use of the TripleV measure

The TripleV foresight and strategic thinking quantitative measurement tool was used as it has considerable literature support for foresight and strategic thinking as critical leadership capabilities. Both concepts have multiple dimensions in how they are defined, including highly desirable leader capabilities associated with formulating strategy (Goldman 2007; van der Laan 2010). However, a valid and reliable quantitative measure of these constructs did not exist until the development of the TripleV measure. Figure 9 below illustrates the operationalisation of the TripleV by van der Laan.

Figure 9. TripleV Strategy Model
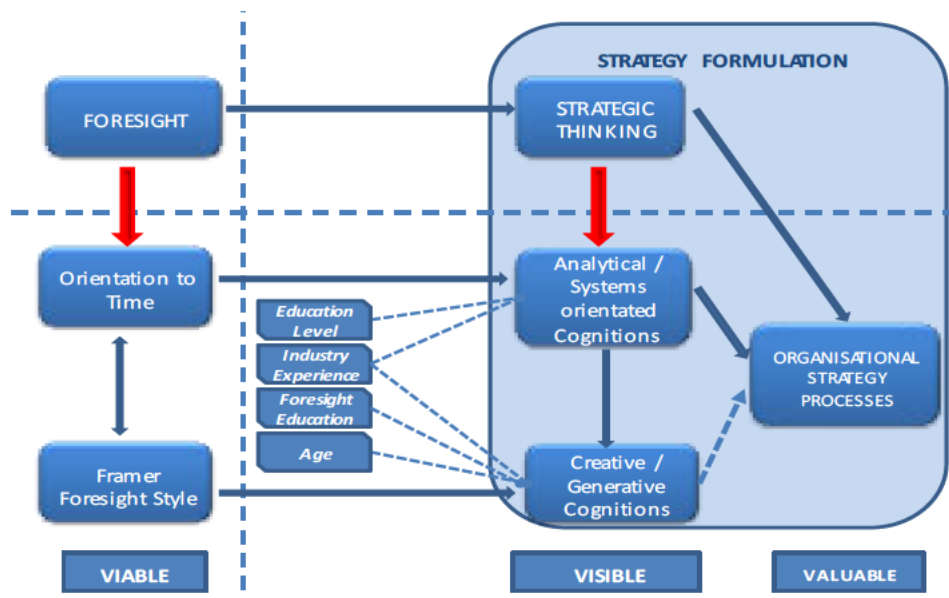


Source: van der Laan (2010, p. 218).

The following sections examine the constituent measures of foresight and strategic thinking capabilities as operationalised by van der Laan (2010).

### 3.6.4.1. Foresight Capability (TimeStyle Inventory)

The TSI scales were designed to measure the extent to which individuals utilise past, present, and future thinking (Fortunato & Furey 2009, 2010, 2011) as described in Table 10.

Table 10. Orientation to Time Scale

| Thinking Perspective | Abilities | Characteristics |
|---|---|---|
| Past thinking | • Retrieval of past experience and knowledge by reflection.<br>• To reconstruct, analyse and critically evaluate information in order to reduce risks associated with current events | • Dominantly risk reductive.<br>• Contemplative thinking.<br>• Accesses past experiences and knowledge. |
| Present thinking | • Organised thinking based on current observations that integrate.<br>• Past and future perspectives in order to develop actions, allocate resources and efficiently apply them. | • Dominantly orientated toward 'getting things done'.<br>• Organised thinking.<br>• Mentally 'stepping out of time'. |
| Future thinking | • Creative imagineering/infinite future possibilities.<br>• Foresees environmental changes.<br>• A generative process of creative problem solving and divergent thinking in order to detect gaps in knowledge, patterns and trends. | • 'Big picture thinking'.<br>• Imaginative thinking.<br>• Ability to see gaps in knowledge, patterns and trends that diverge. |

Source: Adapted from Fortunato and Furey (2009, 2010, 2011).

The TSI was based on Furey's Theory of MindTime (Furey & Stevens 2004; Fortunato & Furey 2011). The theory includes distinct patterns of thinking based on (1) future, past and present experiences, (2) individual differences concerning each pattern of thinking and (3) individuals use the patterns independently or in combination that may influence their perceptions and interactions with others.

A series of statements describing how individuals relate to time in an organisational context is provided to respondents using a 7-point Likert scale. Respondents were instructed to read each TSI statement and then decide how well the statements described them by indicating their agreement level from 'strongly disagree' to

'strongly agree'. An example of an orientation to time questionnaire item is noted in Table 11.

Table 11. Example Orientation to Time Questionnaire Item

| | Strongly disagree | Moderately Disagree | Slightly Disagree | Neither agree nor disagree | Slightly Agree | Moderately Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| I often think about past decisions | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Source: van der Laan (2010).

### 3.6.4.2. Foresight Capability (Foresight Styles Assessment)

Dian (2009) has stated that Foresight Styles reflect the approach adopted by an individual about how they think or reason, particularly how they respond to changes in prospects for the future. Foresight Styles help to clarify how foresight cognitions may differ amongst individuals in the context of how the future might be understood (van der Laan 2010). Moreover, it has been argued that cognitive dispositions are based on an individual's innate time orientation (Gary 2008). The TSI and FSA were operationalised together to represent the foresight capability construct. The four-factor styles and associated characteristics are outlined in Table 12.

Table 12. Four factor version of the Foresight Styles Assessment

| Foresight Style | Characteristics |
|---|---|
| Framer | • Interrogates the future<br>• Future time orientated<br>• Interested in the long-term issues that define the future<br>• Envisions "bigger picture" futures |
| Adapter | • Adjusts to new situations as future demands<br>• Balances multiples challenges and choices<br>• Helps others adapt / Is flexible / Activates action<br>• Flexible leadership / Change Orientated Influencer |
| Tester | • Adopts new trends / Confirms diffusion of innovation theory<br>• Experiments with new trends when they arise<br>• Opportunistic / Not cognitive trend analysis |
| Reactor | • Preserves own position<br>• Mitigates and resists change |

Source: Adapted from Gary (2008, 2009), Dian (2009) and van der Laan (2010).

Each of these styles has a temporal orientation, whether past, present, future or a combination of orientations (Dian 2009). The FSA instrument tests for validity and research (Gary 2008, 2009) demonstrated that a four-factor version had the greatest factor loadings and fit.

A series of statements describing how individuals relate to time in an organisational context was provided to respondents using a 7-point Likert scale. Respondents were instructed to read each TSI statement and then decide how well the statements described them by indicating their agreement level from 'strongly disagree to 'strongly agree'. An example of an orientation to time questionnaire item is noted in Table 13.

Table 13. Example Orientation to Time Questionnaire Item

|  | Strongly disagree | Moderately Disagree | Slightly Disagree | Neither agree nor disagree | Slightly Agree | Moderately Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| I often think about past decisions | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Source: Adopted from van der Laan (2010).

### 3.6.4.3. Strategic Thinking (Decision Style Inventory)

The decision-making style has been defined as how an individual thinks about and envisages different decision-making situations (Rowe & Mason 1987; Leonard, Scholl & Kowalski 1999). The authors suggest that individuals have either a high degree of tolerance for ambiguity or a low tolerance for ambiguity but a high need for structure (Rowe & Boulgarides 1992; Leonard, Scholl & Kowalski 1999).

The DSI categories are a function of an individual's preference to favour certain decision-making approaches. Therefore, the categories are not mutually exclusive with scores indicating dominant, back-up and least preferred styles that depend on the decision-makers situation (van der Laan 2010). According to Rowe and Mason (1987), the four decision-making styles can be treated as independent constructs.

In line with the definition of strategic thinking, one factor congeneric variables representing the analytical and conceptual dimensions of strategic thinking were operationalised, see Table 14.

Table 14. Decision Style Inventory

| Style | Definition |
|---|---|
| Analytic<br><br>High cognitive complexity<br><br>Task orientated | Reasoning (inference): (1) needs achievement through challenges, (2) tolerance for ambiguity, (3) problem solver / thinker, (4) uses considerable data, (5) enjoys variety / is innovative and (6) careful analysis / wants control (Rowe & Boulgarides 1992). Individuals applying this style are also focused on technical and task issues and have a high tolerance for vagueness. This style is highlighted by analysis and the use of large amounts of information. The style is also characterised by abstract thinking to help evaluate data and innovative problem solving (Leonard et al. 1999). |
| Conceptual<br><br>High cognitive complexity<br><br>People orientated | Judgement (values and beliefs): (1) needs recognition, praise and independence., (2) tolerance for ambiguity, (3) future / long-term orientated, (4) initiates new ideas, (5) humanistic / artistic and (6) creative / generates multiple alternatives / independent thinker (Rowe & Boulgarides 1992). Decision-makers that apply a conceptual style mirror the analytical style insofar as there is a high tolerance for ambiguity and focus on issues facing people and society. This style is highlighted by a focus on the individual, the multiple-facets and options to address an issue and the future. Individuals applying this style of decision-making are creative, are risk takers, form new strategies and explore alternatives. The final aspect of this style suggests that individuals collect information by speaking with others and evaluating the data (Leonard et al. 1999). |

Source: Adapted from Rowe and Boulgarides (1992) and Leonard et al. (1999).

Table 15 provides a scoring template used in this study to collate the responses developed by Rowe and Boulgarides (1992).

Table 15. Decision Styles Inventory Scoring

| Study | | | |
|---|---|---|---|
| Analytic | | Conceptual | |
| Score | | Score | |

| | Intensity | | | |
|---|---|---|---|---|
| Style | Least Preferred | Back-up | Dominant | Very Dominant |
| Directive | <68 | 68-82 | 83-90 | >90 |
| Analytic | <83 | 83-97 | 98-104 | >104 |

Source: Rowe and Boulgarides (1992).

The items that form the DSI relate to individuals' decision-making, and an example questionnaire item is outlined in Table 16. Respondents were instructed to rank their views to a series of statements regarding how well the statement described them.

The four options respondents could choose from include:

- A ranking of 1 = 'least describes you'.

- A ranking of 2 = 'describes you a little'.

- A ranking of 3 = 'describes you moderately'.

- A ranking of 4 = 'best describes you'.

Table 16. Example Decision Style Questionnaire Item

| | Ranking | | Ranking | |
|---|---|---|---|---|
| I enjoy jobs that: | Are technical and well defined | | Have considerable variety | |
| | Allow independent action | | Involve people | |

Source: Adopted from van der Laan (2010).

### 3.6.4.4. Assessing Validity and Reliability of the TripleV Measurement

A valid and reliable quantitative measure for these constructs did not exist until the TripleV foresight, and strategic thinking quantitative measurement tool was developed (van der Laan 2010; van der Laan & Erwee 2012, 2013). The scales integrated into the TripleV survey questionnaire have been assessed as a valid and reliable measure of the foresight and strategic thinking capability constructs as described in Table 17.

Table 17. TSI, FSA and DSI Questionnaire Scale Reliability

| Scales | Source | Reliability |
|---|---|---|
| TSI | Fortunato and Furey (2009, p. 243) | Cronbach Alpha for the Future, Present and Past Thinking scales were .84, .91, and .80. |
| | Fortunato and Furey (2011, p. 22) | Cronbach Alpha for the Future, Present and Past Thinking scales were .88, .91, and .84. |
| FSA | Gary (2009, pp. 14-5) | Cronbach Alpha for the Adapter, Tester, Framer and Reactor scales were .89, .77, .78, and .66. |
| DSI | Mech (1993, p. 379) | Test-retest = .70 and split-half coefficients = .50 to .70. |
| | Leonard et al. (1999, pp. 416-7) | The results of an unbalanced two-way analysis of variance (ANOVA): (1) Directive ($F = 4.66$, $p = 0.0039$, degree of freedom ($df$) = 3, 134), (2) Behaviour ($F = 8.18$, $p = 0.0001$, $df = 3$, 134), (3) Analytic ($F = 3.49$, $p = 0.176$, $df = 3$, 134), and (4) Conceptual ($F = 8.18$, $p = 0.0001$, $df = 3$, 134). |

Research undertaken by van der Laan and Erwee (2013) applying confirmatory factor analysis (CFA) and using a Structural Equation Model (SEM) provided support to the foresight and strategic thinking constructs. SEM model fit, and CFA instrument reliability statistics are provided in Table 18. They confirmed the validity of the foresight capability construct (FSA and TSI) and strategic thinking construct (DSI).

Table 18. SEM model fit statistics and CFA instrument reliability statistics

| SEM Model Fit Indices | |
|---|---|
| Chi-square ($x^2$) | 6.678 |
| $df$ | 3 |
| $p$ | .083 |
| Normed Chi-square ($x^2/df$) | 2.226 |
| Standardized Root Mean Square Residual (SRMR) | .0404 |
| Root Mean-Square of Error of Approximation (RMSEA) | .066 |
| Goodness-of-fit Index (GFI) | .991 |
| Adjusted Goodness-of-Fit Index (AGFI) | .953 |
| Tucker-Lewis Index (TLI) | .905 |
| Comparative Fit Index (CFI) | .971 |
| **Instruments** | **CFA Cronbach Alpha** |
| TimeStyle Inventory | 0.719 |
| Foresight Styles Assessment | 0.820 |

Source: van der Laan and Erwee (2013, pp. 491-2).

## 3.6.5. Strategy Formulation and Leadership Training

A series of questions were provided to Australian agriculture leaders in addition to the TripleV instrument which are outlined in Tables 19 and 20.

Table 19. Strategy Formulation Questions

| Questionnaire Item | Response Format |
|---|---|
| Rate your influence on the strategy formulation of your organisation? | • High, Medium, Minimal, None |
| In terms of strategy formulation in my organisation; (You may select more than one option). | • The main actors understand strategy in the same way<br>• There is conflict between the main actors<br>• It is very much 'top / down'<br>• It is a 'team effort' by all employees<br>• There is no clear strategy formulation |
| Have you participated in advisory groups at the State level? | • Yes, No |
| Have you served in an industry body? | • Yes, No |

Source: Developed for this study.

Table 20. Leadership Training Questions

| Questionnaire Item | Response Format |
|---|---|
| Thinking about your most recent leadership training experience (workshop / program / course). Are you applying the concepts you have learned from leadership training in your leadership position? | • Yes – always<br>• Sometimes<br>• Not sure<br>• Seldomly<br>• No - never |
| Has your organisation benefited from your leadership training experience? | |
| I am a better leader after undertaking leadership training. | |
| I learned skills from a leadership training that I am still applying in my position. | |
| Leadership training is suitable in developing leaders in my industry. | |

Source: Developed for this study.

## 3.7. Phase 2 – The Delphi Technique

The Delphi technique is an extensively used and accepted approach for gathering data from individuals within an area of expertise (Hsu & Sandford 2007; McGeary 2009). The RAND Corporation introduced the Delphi method in the 1950s as part of its research agenda (Von der Gracht 2012). The Delphi is a method for informed consensus-building to address a clearly stated problem using questionnaire responses from a group of experts, aiming for convergence of opinion (Yousuf 2007; Fink-Hafner et al. 2019). Figure 10 provides a summary of the method as conceptualised by Landeta (1999).

Figure 10. The Delphi Method
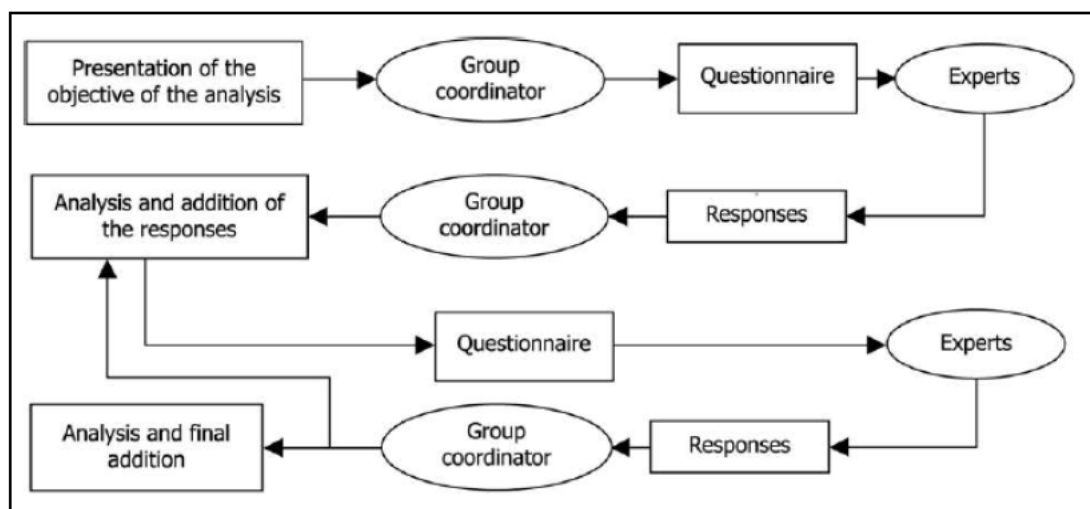


Source: Adapted from Landeta (1999).

According to Skulmoski and his colleagues, graduate students use the Delphi method as a flexible research technique to investigate issues with limited access to information (Skulmoski, Hartman & Krahn 2007). Furthermore, the Delphi method is consistent with the principles of positivism due to the use of statistical analysis and quantitative methodologies (Shariff 2015).

Regarding selecting subjects for a Delphi study, identifying appropriate participants is a critical step in the process and can impact the quality of the data collected (Hsu & Sandford 2007). Both academic and agricultural leaders were approached via email invitation to participate as expert panel members. The time frames for conducting a Delphi can vary but can take up to 45 days to complete (Hsu & Sandford 2007) or as long as needed with no strict deadlines (Avella 2016).

To avoid the adverse effects of face-to-face panel discussions, solve the problem of group dynamics, and protect panel members' identities, the researcher collated and distilled the responses and filtered out irrelevant content (Avella 2016). Regular feedback was provided to panel members. The panel members allowed to revise their earlier statements at any stage of Delphi rounds without their identity being disclosed. While in regular group meetings, participants tend to maintain previously stated opinions and often conform to the group leader's opinions, the Delphi method prevented this from taking place (Hallowell & Gambatese 2010).

All participants remain anonymous throughout the Delphi process. Their identity was not revealed, even after the completion of the final report. This prevented the authority, personality, or reputation of some participants from dominating others in the process. It minimized the "bandwagon effect" or "halo effect", allowed free expression of opinions, encouraged open critique, and facilitated the admission of errors when revising earlier judgments (Avella 2016).

Bias is a potential issue in selecting expert panel members (Avella 2016). There are many options available to the researcher to assist in selecting panel members, including professional qualifications or experience in the field of research inquiry and minimising bias by eliminating experts that have a relationship with the researcher (Avella 2016). The researcher did not engage in any discussions with panel members

regarding the process unless questions regarding the role of a panel members thus allowing each to provide their feedback without influence or interference from the researcher.

### 3.7.1. Choosing Panel Members

There has been considerable debate regarding how an expert panel member is defined (Baker, Lovell & Harris 2006; Yousuf 2007). It has been argued that there is a partial consensus on what constitutes an expert with, Baker, Lovell & Harris (2006, p. 62) stating it 'may not be about who they are but about what attributes they possess'. The Delphi method has been used to implement multi-stakeholder approaches for participative decision making and strategy development. As a result, the widely acknowledged value in the form of collective intelligence is recognised, especially in an environment of rapid change (Hsu & Sandford 2007). In Phase 2 of the research, using the multi-stakeholder approach, seven categories were used to identify and select expert panel members drawn from academic, business owner, and industry backgrounds. A combination of these backgrounds qualified an individual for panel membership.

To recruit panel members for the Delphi, the following criteria were applied:

- Academic with research experience in leadership or research experience with issues across the agriculture sector;
- A leadership role (CEO, Executive Officer or Executive Director) working in agriculture business;
- A leadership role (CEO, Executive Officer or Executive Director) working in an Australian rural RDC;
- An ownership role in an agriculture business;
- A Director or office-holder in a state or regional industry body;
- Director or office-holder in a peak body organisation; and
- Panel members could have a combination of the criteria.

Selecting panel members is a critical element of the Delphi process. The Delphi process required the researcher to use a non-random, purposive sampling approach (Avella 2016). In addition, the criteria applied to panel members reflected the topic of

investigation and ensured reliable expertise-based analysis and feedback (Day & Bobeva 2005; Avella 2016).

### 3.7.2. Panel Member Considerations

The following factors regarding the Delphi process need to be considered to ensure the process yields results, including: (1) the number of panel members and (2) the number of Delphi rounds.

Delphi panel sizes can vary and may be influenced by several factors, including resourcing available to the researcher, the complexity of the research question, including the homogeneity or heterogeneity of the sample (Skulmoski, Hartman & Krahn 2007; Yousuf 2007).  The research literature regarding the Delphi process has not reached a consensus with the possible range of panel members ranging from 3 to over 170 participants (Hasson, Keeney & McKenna 2000; Day & Bobeva 2005).

There is a debate regarding the optimum number of Delphi rounds required within a study.  Some guidance is provided by Skulmoski, Hartman and Krahn (2007) who state that the number of rounds can vary between 1 and 3 rounds.  A three round Delphi process was used.

### 3.7.3. Anonymity

Anonymity throughout the Delphi process facilitates opinions based on the experiences of the expert panel members and not influenced by group dynamics but may lack the scrutiny of other views as panel members are not accountable to one another (Goodman 1987; Avella 2016).  According to (Avella 2016, p. 309), the use of the internet and email 'is particularly effective (and is essentially required) to maintain this privacy and confidentiality'.  In the current study, the anonymity of panel members was assured as the panel members' identity was known only to the primary researcher, which helped to ensure responses were frank and open and reflected the experience of each panel member.

### 3.8. Validity and Triangulation

Data validity is a critical element of the research process, assisting with understanding the data, results, and interpretation (Howitt 2010; Creswell & Clark 2011). The following section focuses on the content validity of the Delphi process. Moreover, the concept of triangulation is also addressed.

### 3.8.1. Content Validity

Content validity has been defined as 'the degree to which a sample of items, taken together, constitute an adequate operational definition of a construct' (Polit & Beck 2006, p. 490). It has been argued that the Delphi process provides evidence of content validity because (1) the outcomes are based on the opinions of a panel and not an individual and (2) the panel's opinions are based on their expertise and judgements that confirm findings of the Delphi (Hasson, Keeney & McKenna 2000; Hasson & Keeney 2011; Shariff 2015).

### 3.8.2. Triangulation

The use of numerous research methodologies to pursue convergence and validate research results is known as triangulation (Greene, Caracelli & Graham 1989; Creswell & Clark 2011). The use of mixed methods approach addressed the biases and limits in this research that are inherent in a single method (Fielding 2012; Mertens & Hesse-Biber 2012). Therefore, the findings from Phase 1 of the study are triangulated with those from Phase 2.

### 3.9. Data Analysis Strategy

The data analysis strategy comprised two phases: the first phase was the qualitative data analysis, and the second phase was the quantitative data analysis.

### 3.9.1. Phase 1: Survey Data

The SPSS software package was used to analyse survey data and involved cleaning and screening the data, transforming the data, and analysing the data (Tabachnick & Fidell 2013). The data was first screened for normality and cleaned. This was followed by descriptive statistical analysis and EFA.

### 3.9.2. Phase 2: Delphi Thematic Analysis

During Phase 2 the data collection process was iterative, and the data analysis element was continuous and was undertaken throughout the process. As a result, every round of analysis helped in updating the Delphi process (Yousuf 2007; Brady 2015).

The following steps outline the Delphi process that was undertaken in this study (Hsu & Sandford 2007; Yousuf 2007):

- Identified a panel of experts and determined their ability to participate;
- Gathered expert inputs and compiled them into basic statements;
- Analysed data from the expert group inputs;
- Compiled information on a new questionnaire and redistributed it to the expert group;
- Examined expert inputs from the second round of Delphi;
- Experts were asked to analyse the data, evaluate their own responses and provide a rationale for their differing viewpoints;
- Examined the inputs and shared the supporting statements with the expert panel; and
- Requested the expert group to review their position and, if not within the norm, to justify the position with a brief statement.

Thematic analysis of the qualitative data was used to identify emerging themes from panel member responses to open-ended questions. This analysis involved creating and applying codes to data to help understand themes within a data set (Howitt 2010). The data was transcribed, and themes were identified (Braun & Clarke 2006; Howitt 2010).

The framework drafted by Braun and Clarke (2006) was used as a guideline for thematic analysis, including: (1) data familiarisation, (2) generating initial codes, (3) collating codes, (4) theme review, (5) naming and theme definition, and (6) drafting a final report. Each step in the thematic analysis was integrated with the three rounds of the Delphi process as advised by Braun and Clarke (2006).

## 3.10. Ethical Considerations

The final section of this chapter addresses the ethical considerations that the researcher considered critical before and during the study. Researchers should anticipate ethical issues that may arise during their study as a function of fully understanding the design of their research (Cavana, Delahay & Sekaran 2001; Orb, Eisenhauer & Wynaden 2001). In addition, full research transparency is critical, and the purpose of the research should not be misrepresented (Cavana, Delahay & Sekaran 2001). This study's ethical clearance is contained in Appendix D.

Ethical research standards are a paramount consideration and were maintained to ensure respondents rights were protected. The ethical guidelines as set out in the university regulations and policies as managed by the Human Research Ethics Committee (HREC) of the University of Southern Queensland (USQ) were used to guide the development of this study.

USQ is committed to promoting ethical conduct of research and requires all staff and students to ensure the following, (1) experiments involving human subjects are worthwhile and likely to contribute to new knowledge, (2) experiments are conducted and supervised appropriately and (3) the rights of experimental subjects are protected.

Ethical standards were maintained in this study as follows:

- In terms of conducting this study: (1) the researchers' contact details were identified in all forms of communication, and (2) the confidentiality of responses was explained in the invitation to participate and in the questionnaire and on the online instrument introduction. This is consistent with research and ethical best practice (Cavana, Delahay & Sekaran 2001);
- The purpose of the research was clearly explained;
- Respondents were informed that they had the opportunity to withdraw at any time; and
- The opportunity to express concerns was explained to all the participants.

## 3.11. Conclusions

This chapter provided an overview of the research design, paradigm, sampling strategy, validity, data analysis strategy and ethical considerations adopted for the study. The research method is provided in Figure 11.

Figure 11. Research Method
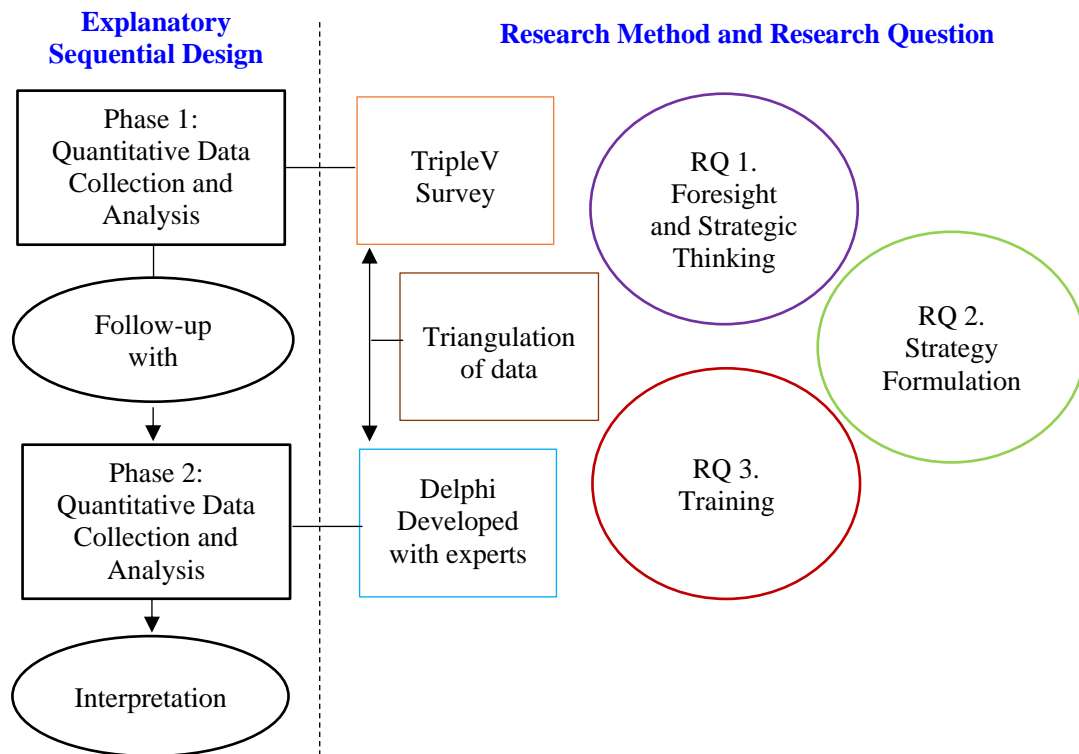


Source: Developed for this study.

In summary, the research process involved:

- Research Design – An explanatory sequential design was used in this study which formed the basis of two research phases, including: (1) a quantitative first phase involving the administration of the TripleV foresight and strategic thinking measure and (2) a qualitative second phase incorporated the use of a Delphi process.

- Research Paradigm – The pragmatic approach was adopted that involves using a research method that suits the phenomenon under investigation.

- Sampling Strategy – The sampling strategy provided guidance for the two research phases used in the studies and included: (1) defining the target population amongst

Australian agricultural leaders and academics, (2) determining the sampling frame included individuals with leadership roles in the agricultural organisations, industry, or research bodies, (3) a purposive sampling technique was adopted and (4) a sample size between 100-200 respondents was set as a goal for Phase 1 and between 6-10 panel members to participate in the Delphi process in Phase 2.

- Validity – The use of a valid measure was an important consideration, and a reliable and validated measure, 'TripleV foresight and strategic thinking' was adopted for Phase 1 of the research.  In Phase 2, the use of the Delphi process was used to triangulate the findings of the first research phase.

- Data Analysis Strategy – The data analysis strategy was consistent with the explanatory sequential design requiring two research phases.

- Ethical Considerations – The study maintained the highest ethical standards possible to ensure the anonymity of participants across multiple research phases.

Chapter 4 presents the results and interpretation of the first phase of the research design.

# CHAPTER 4. QUANTITATIVE RESULTS AND INTERPRETATION

## 4.1. Introduction

Chapter 3 described the methodology, research design and strategy adopted by this study. It also described the statistical data analysis techniques and justification for the research approach taken. Finally, Chapter 4 presents the quantitative data results and interpretation.

## 4.2. Response Rates

The questionnaire was administered according to the methods discussed in Chapter 3. Email invitations with a link to QuestionPro were sent to Australian rural RDCs and a hyperlink to the online questionnaire, which yielded 83 responses. Out of these 21 responses (25%) were either incomplete or contained inconsistent data and thus were deemed as unsuitable for inclusion in the primary data set. Therefore, only 62 responses were retained.

## 4.3. Data Preparation

The data collected for the first phase of this study required processing to convert into understandable formats appropriate for answering the study's research questions (Cavana, Delahay & Sekaran 2001). Data preparation was conducted to ensure the data was suitable for analysis, which involved encoding, cleaning and screening the data before it was stored in a database for interrogation (Cavana, Delahay & Sekaran 2001).

## 4.4. Data Cleaning and Screening

### 4.4.1. Missing Values

The data cleaning and screening process was applied to ensure that the dataset was transcribed correctly, focusing on identifying outliers, missing data and inconsistent responses (Cavana, Delahay & Sekaran 2001; Tabachnick & Fidell 2013). Twenty-one incomplete cases were deleted from the primary data set as they did not meet the criteria for inclusion suggested by Cavana, Delahay and Sekaran (2001) and

Tabachnick and Fidell (2013). Data analysis revealed that 9 of 129 variables contained 3 or less missing values. The series mean was used to replace 23 missing values across the data set. Descriptive statistics are contained in Appendix E.

### 4.4.2. Normal Distribution

The data were tested for normality and included consideration of graphical depictions (P-P plots), frequencies, and Shapiro-Wilks tests. The normal P-P plot is a graphical technique used for assessing if a data set is normally distributed (Chambers et al. 1983). Outliers are observations that differ greatly from the data set and can skew the data and subsequent interpretations of the data (Cavana, Delahay & Sekaran 2001). According to these standard statistical criteria, The data generated from the TripleV questionnaire was normally distributed.

### 4.5. Demographics

The sample consisted of 62 qualifying respondents, of which 59.7% were male and 40.3% female. Forty-two percent of respondents identified their sectoral affiliation to the Australian commercial fisheries sector. Fifty-eight percent of respondents were from the non-fisheries agriculture sector.

Table 21. Demographics

| Gender | Male | Female | | | | |
|---|---|---|---|---|---|---|
| | 59.7% | 40.3% | | | | |
| Age | 20-24 | 25-34 | 35-44 | 45-64 | 65+ | No Response |
| | 4.8% | 12.9% | 22.6% | 46.8% | 11.3% | 1.6% |
| Sector Affiliation | Commercial Fisheries | Livestock Agriculture | Plant Agriculture | Agriculture Other | | |
| | 42.0% | 8.0% | 40.0% | 10.0% | | |
| Level of Education | Primary School | High School | Certificate | Diploma | Bachelor Degree | Postgraduate |
| | 14.5% | 9.7% | 4.8% | 4.8% | 33.9% | 32.3% |

Source: Developed for the study, $N = 62$.

Most respondents at 46.8% were between the ages of 45-64 years old with those aged between 35-44 accounting for 22.6% of respondents. Overall, 75.8% of the sample consisted of respondents with post-high school qualifications. Respondents with a bachelor's qualification accounted for the majority of the sample at 33.9%, while 32.3% of respondents held a postgraduate degree qualification.

The dominant positions outlined in the questionnaire and selected by respondents included CEO/Executive, Senior Manager/Manager, and Business Owner.

Table 22. What position do you hold in your organisation/business?

| CEO / Executive | Business Owner | Board Member | Director | Committee Member | Senior Manager / Manager | Consultant |
|---|---|---|---|---|---|---|
| 32.3% | 48.3% | 16.1% | 21.0% | 6.5% | 32.3% | 1.6% |

Source: Developed for the study.

## 4.6. Foresight and Strategic Thinking Profiles

This section provides a detailed overview of data sourced from the TripleV foresight and strategic thinking quantitative measure (see Appendix F). The data was analysed to produce profile scoring and validity and reliability analysis using EFA.

### 4.6.1. Foresight Capabilities (Orientation to Time)

Orientation to time refers to an individual's understanding of future, past and present thinking and has been measured using the TSI based on Furey's Theory of MindTime (Fortunato & Furey 2011). Each pattern of thinking varies between individuals. Each pattern can be measured. Each pattern is utilised differently amongst individuals. The degree to which each pattern is used in isolation or combination may influence how the environment is perceived (Fortunato & Furey 2011).

### 4.6.1.1. Orientation to Time: Results

Figure 12 illustrates the Orientation to Time baseline amongst the 62 respondents who completed the TripleV foresight and strategic thinking quantitative measure.

Figure 12. Leaders' Orientation to Time
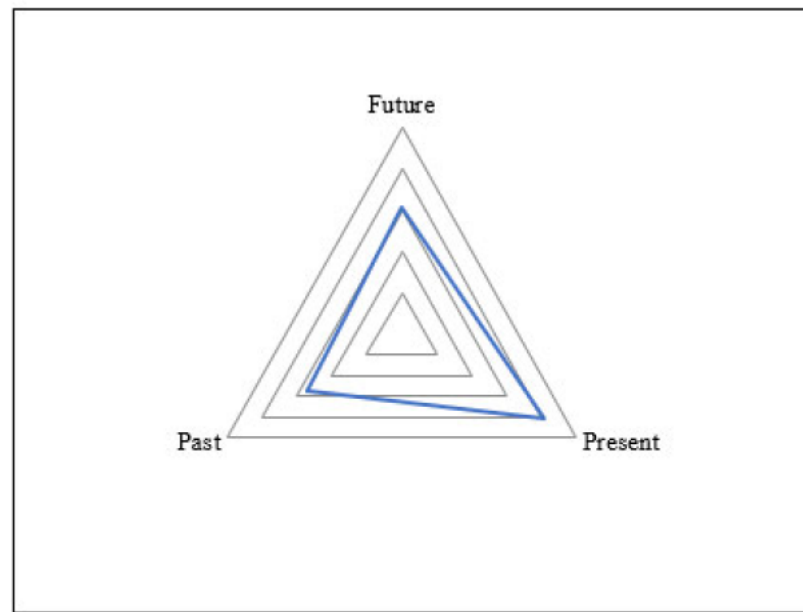


Source: Developed for this study.

## 4.6.1.2. Orientation to Time: Interpretation

The orientation to time scores for respondents in this study are outlined in Table 23. The sample average suggests a dominant orientation to the present. The respondent's present thinking pattern refers to an individual's conscious mind to organise actions. However, this does not mean that past and future thinking are not drawn upon to develop responses to issues a leader may face (van der Laan & Erwee 2013).

Table 23. Orientation to Time Scores

|  | Study | | |
| --- | --- | --- | --- |
|  | **Past** | **Present** | **Future** |
| Style Totals | 325.5 | 487.8 | 462.3 |
| No of Respondents | 3.8 | 5.7 | 5.4 |
| Score Average per Likert response | 54.7% | 82.0% | 62.0% |

Source: Developed for this study.

Most of the agricultural leaders (82%) in this study were more focussed on the present rather than the future. These results are consistent with previous research. For example, van der Laan and Yap (2016) noted that most of those leaders were orientated toward present thinking across 1,500 strategy-level leaders sampled concerning their

orientation to time. This orientation to the present reflects that these leaders focus more on current events and issues facing them (Fortunato & Furey 2011).

The potential issue foreseen was that a focus on present thinking could preclude these leaders from including a past and future thinking perspective (Fortunato & Furey 2009; van der Laan & Yap 2016). It can be argued that agricultural leaders were not drawing on integrated thinking, which stimulates both past and present thinking (Fortunato & Furey 2010), which may limit their capacity to envision possible, beneficial futures for their businesses or industry more broadly.

Research also shows that the most balanced profile for an individual's orientation to time that unlocks innovation and creative thought incorporates an equal orientation to the past and present with a slightly increased orientation to the future (Dian 2009; Fortunato & Furey 2011).

### 4.6.1.3. Validity and Reliability of the TSI

An EFA of the TSI data was conducted. The results showed TSI as a one factor congeneric model component of foresight capability. The Kaiser-Meyer-Olkin (KMO) is a measure of sampling adequacy and was calculated at 0.713. The KMO value falling between 0.7 and 0.8 and is considered a good sampling adequacy of the data (Nunes, Monteiro & Nunes 2020).

Table 24. KMO and Bartlett's Test of Sphericity

| KMO | | 0.713 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi Square | 350.181 |
| | df | 36 |
| | Sig | 0.000 |

As indicated in Table 25, the model converged into three factors and explained a total variance of 81.7% across three factors. The first Eigen value was 3.406 and explained 37.9% of the variance in the original data. The second factor Eigen value was 2.290 and explained 25.4% of the variance. The third and final component Eigen value was 1.655 and explained 18.4% of the variance.

Table 25. Total Variance Explained

| Factor | Initial Eigenvalues | | | Extraction sum of squared loadings | | | Rotation Sums of Squared loadings[a] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % |
| 1 | 3.881 | 43.124 | 43.124 | 3.881 | 43.124 | 43.124 | 3.406 | 37.849 | 37.849 |
| 2 | 1.956 | 21.730 | 64.854 | 1.956 | 21.730 | 64.854 | 2.290 | 25.444 | 63.293 |
| 3 | 1.515 | 16.834 | 81.687 | 1.515 | 16.834 | 81.687 | 1.655 | 18.394 | 81.687 |
| 4 | 0.482 | 5.358 | 87.046 | | | | | | |
| 5 | 0.363 | 4.028 | 91.074 | | | | | | |
| 6 | 0.346 | 3.848 | 94.922 | | | | | | |
| 7 | 0.215 | 2.385 | 97.307 | | | | | | |
| 8 | 0.129 | 1.433 | 98.740 | | | | | | |
| 9 | 0.113 | 1.260 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

[a] When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 26 provides the rotated component matrix for the TSI. The EFA in this study supports the past, present and future sub-scales of the TSI as a valid instrument measuring orientation to time.

Table 26. Rotated Component Matrix[a]

| Items | Component* | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| People think of me as organized. | 0.947 | | |
| People think of me as structured. | 0.913 | | |
| People think I am best at planning and organisation. | 0.874 | | |
| Being organized is important to me. | 0.861 | | |
| People think of me as a visionary | | 0.904 | |
| I am known for generating ideas. | | 0.858 | |
| I am known for invention/innovation. | | 0.810 | |
| I tend to dwell on "what was" | | | 0.924 |
| I often think about past decisions | | | 0.869 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalisation.[a]
[a] Rotation converged in 4 iterations.
* Only values >0.6 were included. The questions were retained as they are theoretically justified.

Cronbach's alpha (α) is a measure of reliability and the internal consistency of a specific measure (Taber 2018). An alpha value greater than 0.7 is considered good to avoid further scale development (van Griethuijsen et al. 2014; Taber 2018). The TSI was found to be highly reliable (9 items; α = 0.798).

### 4.6.2. Foresight Capability (Foresight Style Assessment)

The FSA measures the dominant styles leaders use in considering matters related to the future.

### 4.6.2.1. Foresight Styles Assessment: Results

The baseline Foresight styles profile in this study is presented in Figure 13.

Figure 13. Leaders' Dominant Foresight Styles
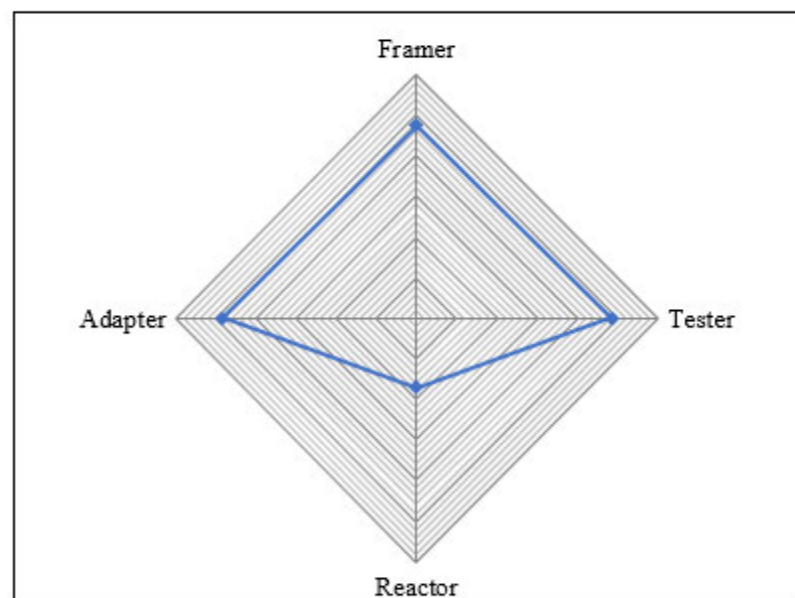


Source: Developed for this study.

### 4.6.2.2. Foresight Styles Assessment: Interpretation

The results outlined in Table 27 of the FSA measure suggest that the Adapter was the dominant foresight style amongst respondents, with the Framer as a backup style. The Adapter style is characterised by individuals that are (1) change-orientated influencers and leaders, (2) willing to assist others in adapting to change, flexible and action-

orientated, (3) prepared to manage challenges and choices and (4) prepared to deal with future demands (van der Laan & Yap 2016).

Table 27. Foresight Styles Scores

| | Study | | | |
|---|---|---|---|---|
| | **Framer** | **Tester** | **Reactor** | **Adapter** |
| Style Totals | 347.5 | 301.8 | 202.0 | 351.7 |
| Respondents Likert Scale | 480.0 | 480.0 | 480.0 | 480.0 |
| Score per Style | 72.4% | 62.9% | 42.1% | 73.3% |
| Average Likert Response per Style | 4.3 | 3.4 | 2.5 | 4.4 |

Source: Developed for this study.

The FSA scores suggest an almost equal propensity to the Adapter and Framer styles with secondary reliance on the Tester style. This is not consistent with the most effective leaders favouring a dominant Framer style as argued by van der Laan and Erwee (2012). The FSA scores reflect a capacity to move between the Adapter and the Framer styles as suggested by Gary (2008).

These results suggest that most agricultural leaders utilised multiple foresight styles for either Adapter or Framer style, simultaneously thinking about and interrogating possible futures while adapting to change, new markets, and organisational demands. The latter may be more dominant due to the rate of change and operational pressures facing leaders across the Australian agriculture sector (van der Laan & Yap 2016). The results in this study do not suggest a current orientation toward innovation, while organisations seeking to innovate will tend toward the Framer dimension with a Tester profile's back-up (Dian 2009; Gary 2009). The respondents' profile results in this study suggest a focus on the present and responding to existing industry pressures rather than a future focused on innovation.

### 4.6.2.3. Validity and Reliability of the FSA

An EFA of the FSA was conducted to establish the validity of this one factor congeneric model as a component of foresight capability. The KMO, a measure of sampling adequacy was 0.815.

Table 28. KMO and Bartlett's Test of Sphericity

| KMO | | 0.815 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi Square | 453.257 |
| | df | 105 |
| | Sig | 0.000 |

The total variance of 67.7% was found across four factors:

- The first Eigen value was 3.521 and explained 23.5% of the variance in the original data;

- The second factor Eigen value was 2.744 and explained 18.3% of the variance;

- The third component Eigen value was 2.435 and explained 16.2% of the variance; and

- The fourth and final Eigen value was 1.460 and explained 9.7% of the variance.

Table 29. Total Variance Explained

| Factor | Initial Eigenvalues | | | Extraction sum of squared loadings | | | Rotation Sums of Squared Loadings[a] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % |
| 1 | 5.782 | 38.544 | 38.544 | 5.782 | 38.544 | 38.544 | 3.521 | 23.472 | 23.472 |
| 2 | 2.397 | 15.982 | 54.526 | 2.397 | 15.982 | 54.526 | 2.744 | 18.292 | 41.764 |
| 3 | 1.084 | 7.229 | 61.755 | 1.084 | 7.229 | 61.755 | 2.435 | 16.232 | 57.996 |
| 4 | 0.897 | 5.977 | 67.732 | 0.897 | 5.977 | 67.732 | 1.460 | 9.735 | 67.731 |
| 5 | 0.799 | 5.324 | 73.056 | | | | | | |
| 6 | 0.743 | 4.953 | 78.008 | | | | | | |
| 7 | 0.648 | 4.320 | 82.328 | | | | | | |
| 8 | 0.540 | 3.599 | 85.927 | | | | | | |
| 9 | 0.475 | 3.167 | 89.094 | | | | | | |
| 10 | 0.459 | 3.063 | 92.157 | | | | | | |
| 11 | 0.367 | 2.449 | 94.606 | | | | | | |
| 12 | 0.303 | 2.018 | 96.624 | | | | | | |
| 13 | 0.233 | 1.556 | 98.180 | | | | | | |
| 14 | 0.176 | 1.174 | 99.354 | | | | | | |
| 15 | 0.097 | .646 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

[a] When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Outlined in Table 30 is a rotated component matrix for the FSA. The EFA in this study supports the structure of the FSA as outlined by van der Laan (2010). The FSA was found to be highly reliable (12 items; $\alpha = 0.854$).

Table 30. Rotated Component Matrix

| Items | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Conscious of big trends in society | 0.814 | | | |
| Interested in future questions | 0.769 | | | |
| Focus on greater future questions | 0.745 | | | |
| Focus on future questions | 0.731 | | | |
| Make things happen when future demands it | * | | | |
| Consider how trends interact | * | | | |
| Go along when new trends come | | 0.814 | | |
| Take advantage of trends that pop up | | 0.800 | | |
| Test new products/trends very early | | 0.622 | | |
| Don't like changes that disrupt opportunity | | | 0.804 | |
| Don't want too much change | | | 0.796 | |
| Against changes that threaten one's position | | | 0.785 | |
| Hold the line when new plans are imposed | | | 0.655 | |
| Flexible person | | | | 0.851 |
| Quickly adjust to new situations | | | | * |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalisation.[a]
[a] Rotation converged in 4 iterations.
* Only values >0.6 were included. The questions were retained as they are theoretically justified.

### 4.6.3. Strategic Thinking (Conceptual and Analytical)

Effective strategic thinking is typified by balancing conceptual and analytical cognitions when tasked with thinking about an organisation's future (Goldman 2007; van der Laan & Yap 2016). The DSI has multiple categories, and the individual's preferences favour certain decision-making approaches.

### 4.6.3.1. Strategic Thinking: Results

Figure 14 illustrates the baseline decision styles profile amongst respondents of the TripleV foresight and strategic thinking quantitative measure.

Figure 14. Strategic Thinking
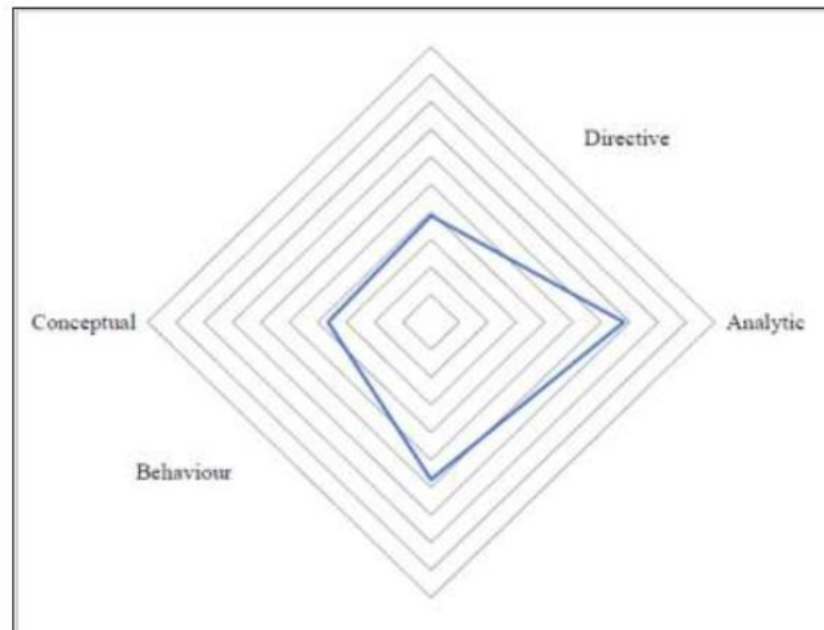


Source: Developed for this study.


## 4.6.3.2. Strategic Thinking: Interpretation

Applying the Rowe and Boulgarides (1992) scoring and level of intensity, as noted in Table 31, suggests that respondents had a very dominant preference for the Behavioural style.


Table 31. Decision Styles Inventory Scores

| Study | |
|---|---|
| Analytic | Conceptual |
| 83.9 | 68.2 |

Source: Developed for this study.


Agricultural leaders in this study relied on analytical inputs for their strategic thinking. This orientation was dominant, with the more generative and conceptual inputs to strategy significantly under-utilised. This suggests that the opportunity for innovation or conceptualising 'bigger picture' futures could be potentially inhibited. This suggests an emphasis on value co-creation rather than a managerial style in achieving strategic priorities.

The findings generated from the TripleV foresight and strategic thinking quantitative measure have helped generate an inaugural baseline foresight and strategic thinking leader capability profile.

### 4.6.4. Baseline Measurement

This study's baseline foresight and strategic thinking profile should not be considered an absolute measure. The findings presented in section 4.6 are based on a limited sample size, $N = 62$. Thus, the findings provide a tentative indication of a broader industry foresight and strategic thinking baseline. Despite the limitations of the findings, the findings derived from the Delphi process validate the findings in this phase of the research process.

### 4.7. Strategy Formulation

Strategy formulation is a complex process that may be linear or non-linear and is an ongoing organisational endeavour (van der Laan 2010; van der Laan & Yap 2016). The process is dynamic, incorporating more than a single leader developing a linear strategic pathway where strategy level leaders attempt to connect present circumstances with a future goal or outcome (van der Laan & Yap 2016).

### 4.7.1. Strategy Formulation: Results

Respondents in this study were asked to rate their influence over the strategy formulation within their organisations. Concerning influence over strategy, 64.5% of respondents indicated they possessed a high degree of influence over their organisation's strategy formulation.

Table 32. Strategy Influence

|  | High | Medium | Minimal | None |
| --- | --- | --- | --- | --- |
| Rate your influence on the strategy formulation of your organisation? | 64.5% | 22.6% | 6.5% | 6.5% |

Source: Developed for this study, $N = 62$.

Strategy formulation differs between organisations, as the structures and systems are used to develop strategy. To understand the process, respondents were asked to consider: (1) the main actors understand strategy in the same way, (2) conflict between

the main actors, (3) strategy-driven as a 'top/down' process, (4) a 'team effort' by all employees and (5) the clarity in strategy formulation.

Table 33. Strategy Formulation

| In terms of strategy formulation in my organisation: | |
| --- | --- |
| The main actors understand strategy in the same way | 46.8% |
| There is conflict between the main actors | 29.0% |
| There is conflict between the main actors | 19.4% |
| It is a 'team effort' by all employees | 43.5% |
| There is no clear strategy formulation | 14.5% |

Source: Developed for the study, $N = 62$.

Regarding strategy formulation, 46.8% of respondents indicated that the main actors understood strategy in the same way within their organisations. Further, 43.5% of participants agreed that strategy formulation was an organisation-wide or 'team effort'. Twenty-nine percent of respondents noted a degree of conflict between the main actors in the context of strategy formulation.

## 4.7.2. Strategy Formulation: Interpretation

The data provided in Tables 32 and 33 demonstrates that respondents in this study believed that they influenced their organisation's strategy formulation. This finding is consistent with the argument posed by van der Laan (2010), suggesting that strategy formulation is based on an individual's creative thought processes. Respondents also noted that strategy formulation was a product of employees' contributions.

Respondents indicated that their organisations' main actors understood the strategy formulation process from an organisational perspective. This is consistent with the fundamentals of the Dynamic model of strategy process as postulated by van der Laan and Yap (2016), that intended and realised strategy are a product of the cognitive processes amongst individual leaders. The model integrates both intended, realised and emergent strategy. What is unclear is the degree to which leaders in this study understood or integrated emergent or unrealised strategy.

This study's findings also noted a level of conflict between key organisational stakeholders suggesting an ongoing tension between leaders and the employees. This is not consistent with the Dynamic model of strategy that suggests an ongoing conversation but not conflicts within an organisation and amongst leaders (van der Laan & Yap 2016).

## 4.8. Industry Representation

It can be argued that involvement across multiple industry organisations could be construed as a demonstration of applied leadership for the benefit of an organisation or industry. The respondents were asked if they participated in State level advisory groups or as members of an industry body.

## 4.8.1. Industry Representation: Results

Respondents indicated participation in both advisory groups and industry bodies. A slightly larger percentage of respondents, 71% indicated participation within industry bodies.

Table 34. Industry Representation

|  | Yes | No | No Response |
| --- | --- | --- | --- |
| Have you participated in advisory groups at the State level? | 61.3% | 37.1% | 1.6% |
| Have you served in an industry body? | 71.0% | 27.4% | 1.6% |

Source: Developed for the study, $N = 62$.

## 4.8.2. Participation in Industry Organisations: Interpretation

The respondents in this study indicated that they participated in State advisory groups and industry bodies. Advisory groups typically comprise leaders with expertise that provide either technical or strategic advice to government agencies. It can be inferred from this result that leaders were advocating on behalf of industry participants and influencing policy development because they participated in these groups.

## 4.9. Leadership Training

Respondents were asked to provide feedback using a 6-point Likert-type scale regarding their most recent leadership training experiences.

### 4.9.1. Leadership Training: Results

Majority of the respondents 85.5% indicated that they applied concepts learned from leadership training in their leadership roles. Further, 75.8% of respondents indicated that they believed their organisations had benefited from leadership training. Most respondents at 80.7% also reported they became better leaders after undertaking leadership training. Additionally, 83.9% of respondents noted that they still applied the skills they had learnt in leadership training in their leadership positions. Finally, 77.4% of respondents indicated that leadership training was suitable for developing leaders.

Table 35. Leadership Training Experiences

| Thinking about your most recent leadership training experience (workshop / program / course) | Yes - always | Sometimes | Not sure | Seldomly | No - never | No Response |
|---|---|---|---|---|---|---|
| Are you applying the concepts you have learned from leadership training in your leadership position? | 45.2% | 40.3% | 9.7% | | | 4.8% |
| Has your organisation benefited from your leadership training experience? | 53.2% | 22.6% | 17.7% | | 1.6% | 4.8% |
| I am a better leader after undertaking leadership training. | 56.5% | 24.2% | 14.5% | | | 4.8% |
| I learned skills from a leadership training that I am still applying in my position. | 58.1% | 25.8% | 11.3% | | | 4.8% |
| Leadership training is suitable in developing leaders in my industry. | 53.2% | 24.2% | 14.5% | | | 8.1% |

Source: Developed for this study, $N = 62$.

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### 4.9.2. Leadership Training: Interpretation

Based on the data, it could be argued that majority of the respondents were (1) applying concepts they had acquired through training, (2) believed their organisations were benefiting from their training, (3) were better leaders because of leadership training, (4) were still applying concepts they learnt in their leadership roles and (5) that leadership training was suitable to develop leaders.

### 4.10. Correlations

Data were collected from the administration of an online, anonymous questionnaire and correlations examined.

### 4.10.1. Demographics

### Result 1 – Demographics, Advisory and Industry Group Participation

A Pearson product moment correlation coefficient was computed to assess the relationship between industry group participation, gender and age.

Table 36. Result 1 – Correlations

|  | Gender | Age |
| --- | --- | --- |
| Have you participated in advisory groups at the State level? | 0.450[*] | -0.412[*] |
| Have you served in an industry body? | 0.224 | -0.406[*] |

* - Correlation is significant at the 0.01 level (2-tailed), $N = 62$.

### Discussion 1

There were statistically significant positive correlations between gender and participation in State level advisory groups. This finding may relate to the issue of female under-representation amongst advisory and industry groups (Sheridan & McKenzie 2009; van der Geest & MacDonald 2009).

Statistically significant negative correlations were observed between age, gender, participation in State level advisory groups and service to an industry body. Participation in an advisory or industry groups attracts older industry operators that may have the time needed to engage with government or industry bodies (Plowman &

MacDonald 2013). However, the conditions of eligibility for advisory or industry groups (such as a need for extensive experience or the ability to make time to participate) may create barriers for younger leaders to engage with advisory or industry organisations (van der Geest & MacDonald 2009; Plowman & MacDonald 2013).

## Result 2 – Demographics and Leader Training

A Pearson product moment correlation coefficient was computed to assess the relationship between age, education and leader training.

Table 37. Result 2 – Correlations

|  | Age | Education |
| --- | --- | --- |
| Are you applying the concepts you have learned from leadership training in your leadership position? | -0.052 | -0.486[**] |
| Has your organisation benefited from your leadership training experience? | -0.269[*] | -0.343[**] |
| I am a better leader after undertaking leadership training. | -0.067 | -0.506[**] |
| I learned skills from a leadership training that I am still applying in my position. | -0.082 | -0.480[**] |
| Leadership training is suitable in developing leaders in my industry. | -0.001 | -0.372[**] |

\* - Correlation is significant at the 0.05 level (2-tailed), $N = 62$.
\*\* - Correlation is significant at the 0.01 level (2-tailed), $N = 62$.

## Discussion 2

There were statistically significant negative correlations between age, education, and leader training. Younger leaders may not apply leader training based on a lack of workplace experience (Michael 2019) or a lack of connection between organisational goals and training (Beer, Finnstrom & Schrader 2016).

The education of leaders may limit the transfer of leadership training learnings amongst leaders with higher levels of education. This is consistent with research suggesting that leader training does not mean training themes or content will be applied in the work context (Blume et al. 2010). The correlations suggest that leaders in this study:

- May not be actively applying concepts acquired through training;

- May feel there is a limited organisational benefit of leader training; and

- May feel that their training has not improved them as leaders.

### 4.10.2. Industry Sector Affiliation

### Result 3 – Industry Sector Affiliation, Advisory and Industry Group Participation

A Pearson product moment correlation coefficient was computed to assess the relationship between industry sector affiliation, advisory and industry group participation.

Table 38. Result 3 – Correlations

|  | What is your Industry Sector affiliation? |
| --- | --- |
| Have you participated in advisory groups at the State level? | 0.263* |
| Have you served in an industry body? | 0.264* |

\* Correlation is significant at the 0.05 level (2-tailed), $N = 62$.

### Discussion 3

Statistically significant positive correlations were identified between leader participation in State level advisory and industry bodies.

The correlations indicate that a third of leaders in this study are participating in government and industry groups across the commercial fisheries, livestock, plant, and other agriculture sub-sectors. In addition, there are multiple State advisory groups such State-based fisheries working groups, State and national level agriculture groups such as the Queensland Farmers Federation (QFF) and the NFF.

### Result 4 – Industry Sector Affiliation and Leader Training

A Pearson product moment correlation coefficient was computed to assess the relationship between industry sector affiliation and leader training.

Table 39. Result 4 – Correlations

|  | What is your Industry Sector affiliation? |
| --- | --- |
| Are you applying the concepts you have learned from leadership training in your leadership position? | -0.294* |
| I am a better leader after undertaking leadership training. | -0.295* |

* Correlation is significant at the 0.05 level (2-tailed), $N = 62$.

## Discussion 4

Statistically significant negative correlations were observed between leader training and sector affiliation. These correlations suggest that leaders across Australian agriculture sub-sectors may not be applying learning from leadership training. These correlations support the correlations outlined in Table 37.

### 4.10.3. Strategy Influence

## Result 5 – Strategy Influence, Organisational Benefits and Leader Training

A Pearson product moment correlation coefficient was computed to assess the relationship between strategy influence and leader training.

Table 40. Result 5 – Correlation

|  | Rate your influence on the strategy formulation of your organisation? |
| --- | --- |
| Has your organisation benefited from your leadership training experience? | 0.395* |

* Correlation is significant at the 0.01 level (2-tailed), $N = 62$.

## Discussion 5

A statistically significant positive correlation was observed between strategy influence and leader training. Leaders perceived an organisational benefit in terms of strategy influence from their training. This is consistent with strategy influence on organisational change processes and achieving strategic goals (Aguinis & Kraiger 2009; Farahnak et al. 2020).

## Result 6 – Strategy Influence and Leader Training

A Pearson product moment correlation coefficient was computed to assess the relationship between leader training and strategy influence.

Table 41. Result 6 – Correlation

|  | Rate your influence on the strategy formulation of your organisation? |
|---|---|
| Are you applying the concepts you have learned from leadership training in your leadership position? | 0.295* |

* Correlation is significant at the 0.05 level (2-tailed), $N = 62$.

## Discussion 6

A statistically significant positive correlation was observed between leader training and strategy influence. One third of leaders in this study are applying the concepts in the leadership positions they hold while perceiving they influence strategy formulation.

The acquisition of leadership training concepts may be assisting the influence of some leaders over strategy development within their organisations. This is consistent with the research literature, with Osorio-Londono, Naranjo-Valencia and Calderón-Hernández (2020) and Hakonsson et al. (2012) arguing that training design and training content that is tailored to the industry or business context are more likely to help achieve strategic goals.

## Result 7 – Strategy Influence and Age

A statistically significant negative association has been identified between strategy formulation and respondent age.

Table 42. Result 7 – Correlations

|  | What is your age? |
|---|---|
| Rate your influence on the strategy formulation of your organisation. | -0.423* |

* Correlation is significant at the 0.01 level (2-tailed), $N = 62$.

**Discussion 7**

A statistically significant negative correlation was observed between strategy formulation and respondent age. This correlation suggests that younger leaders may have less influence over strategy formulation than older leaders.

### 4.10.4. Benefits of Leader Training

### Result 8 – Benefits of Leader Training and the Application of Training

A Pearson product moment correlation coefficient was computed to assess the relationship between the benefits of leader training and the application of training amongst leaders.

Table 43. Result 8 – Correlations

|  | Are you applying the concepts you have learned from leadership training in your leadership position? |
| --- | --- |
| Has your organisation benefited from your leadership training experience? | 0.659* |
| I am a better leader after undertaking leadership training. | 0.701* |
| I learned skills from a leadership training that I am still applying in my position. | 0.815* |
| Leadership training is suitable in developing leaders in my industry. | 0.633* |

\* Correlation is significant at the 0.01 level (2-tailed), $N = 62$.

**Discussion 8**

Statistically significant positive correlations were observed with respect to the benefits of leader training and the application of training concepts. Leaders in this study believe their training was beneficial for them and their organisations. Moreover, leaders indicated that they are still applying their training and the content of that training was relevant to their sub-sector of the Australian agriculture industry. This is consistent with research stating that participation in leadership training has ongoing individual and organisational benefits for leaders (Berberick, Lindsay & Fritchen 2017).

## 4.11. Conclusions

This chapter examined (1) the results of the TripleV foresight and strategic thinking measure, (2) study demographics, (3) strategy formulation, (4) industry representation, (5) leadership training and (6) correlations.

## 1. Foresight and Strategic Thinking Profile

The foresight and strategic thinking baseline profile can be described as:

- Leaders are focussed on the present rather than the future;
- Leaders in this study used multiple foresight styles that involve concurrently thinking and questioning possible futures. These leaders are adjusting to their industry's rate of change and operational concerns. Moreover, these leaders indicated a strong recognition that a futures orientation was a priority;
- Leaders were dependent on analytical inputs to their strategic thinking. This orientation was dominant, with the more generative and conceptual inputs to strategy significantly underutilised. This suggests that the opportunity for innovation and the conceptualisation of futures are generally constrained with strategy remaining process-driven by senior leaders; and
- Leaders were more likely to favour a collaborative approach in their leadership over a directive one, suggesting an emphasis on the co-creation of value rather than a managerial style in achieving strategic priorities.

## 2. Study Demographics

Sixty-two Australian agricultural leaders responded to the online survey. The demographic profile is presented as follows:

- Approximately 60% of respondents were male;
- Approximately 60% were aged over 45 with almost 18% of respondents were aged between 20-34 years;
- Over 40% of respondents identified were leaders in commercial fisheries while half of the respondents were leaders in the livestock and plant agriculture sectors;
- Approximately 74% of respondents indicated they held post-high school qualifications, the majority holding Bachelor's degrees or postgraduate qualifications; and

- Agricultural leaders in this study held multiple roles, primarily as CEOs, executives or business owners.

## 3. Strategy Formulation

In terms of strategy formulation, the following outcomes were observed:

- Leaders in this study believed that they influence their organisation's strategy formulation;
- Some leaders noted that employees might influence strategy formulation; and
- Leaders indicated that their organisations' employees understood the strategy formulation process.

## 4. Industry Representation

Agricultural leaders were asked if they served in State advisory or industry bodies. Over 60% indicated they served with State advisory bodies while over 70% indicated they worked with an industry body.

## 5. Leadership Training

Concerning leadership training, leaders in this study are: (1) applying concepts they have acquired through their training, (2) they believe their organisations are benefiting from that training, (3) they are better leaders because of leadership training, (4) they are still applying concepts they learnt in their leadership roles and (5) that leadership training is suitable to develop these leaders.

## 6. Correlations

Twenty statistically significant correlations were identified in Phase 1 of the research process and were grouped as: (1) demographics, (2) industry sector affiliation, (3) strategy influence and (4) benefits of leader training. These correlations are summarised below.

## Demographics

A range of findings related to the demographic data were observed:

- Female under-representation amongst advisory and industry groups;

- Participation in an advisory or industry groups attracts older industry operators; and

- The education of leaders may limit the transfer of leadership training learnings amongst those leaders with higher education levels. The correlations suggest that leaders in this study:
  - Are not actively applying training concepts;
  - Observe limited organisational benefits of leader training; and
  - Feel that their training has not improved them as leaders.

## Industry Sector Affiliation

A third of the leaders in this study are participating in government and industry groups.

## Strategy Influence

Strategy influence findings in this study related to leader influence over strategy development and application of training concepts as detailed below:

- Leaders perceived an organisational benefit in terms of their influence on strategy influence from their training experiences;

- Leaders in this study are applying the concepts in the leadership positions, and they have an influence over strategy formulation;

- The acquisition of leadership training concepts may be assisting the influence of some leaders over strategy development within their organisations; and

- Younger leaders may have less influence over strategy formulation than older leaders within their organisations.

## Benefits of Leader Training

A range of correlations were observed:

- Agricultural leaders may not be applying learning from leadership training;

- Leaders in this study believe their training was beneficial for them and their organisations; and

- Leaders indicated that they are still applying their training and the content of that training was relevant to their sub-sector of the Australian agriculture industry.

# CHAPTER 5. QUALITATIVE RESULTS AND INTERPRETATION

## 5.1. Introduction

The second phase of the research process focussed on the administration of a Delphi research method. This method seeks to synthesise contributions from a panel of experts to address a clearly stated problem. To avoid the potential adverse effects of face-to-face panel discussions and to reduce group dynamics issues (Yousuf 2007), panel members were asked to respond to a set of semi-structured questions by email.

Throughout the Delphi process, panel members were anonymous and completed a final report (Avella 2016). This prevented some participants' authority, personality, or reputation from dominating others in the process. It also freed panel members from their personal biases, minimising and allowing free expression of opinions, open critique, and facilitating the admission of errors when revising earlier judgments (Hsu & Sandford 2007). In addition, the primary researcher collated and distilled the responses by processing the information and filtering out irrelevant content.

## 5.2. Delphi Panel Member Participation

An email invitation, consent forms and participant information sheets, see Appendix G, H and I were emailed to 16 individuals using criteria outlined in section 3.5.2. The invitations were designed to explain the study's aim, describe the Delphi process and present the elements of participation, including anonymity, commitment, expected risks and benefits.

Sixteen email requests were sent to experts seeking their participation in the first round of the Delphi. Of the 16 experts who were approached to participate, five declined, and two did not respond to the initial email invitation. To encourage participation, follow-up emails were sent to the experts that did not respond to the initial participation request. As a result, nine experts took part in the first round of the Delphi with an attrition rate of 33 per cent between the first and second rounds and no attrition between rounds two and three. Six panel members participated in Rounds 2 and 3 respectively.

## 5.3. Delphi Process

The Delphi was developed based on the results of the first research phase. Twenty-four statements were analysed in the first round and expanded over two subsequent rounds of feedback from the Delphi panel members. The third round of the Delphi included a final verification process amongst panel members allowing them to review their responses and data summaries. Panel member's views have been captured in parentheses. For all Delphi rounds, the level of agreement for each round was set at 70 percent. The Delphi process used in this study is outlined in Figure 15.

Figure 15. Summary of the Delphi Process
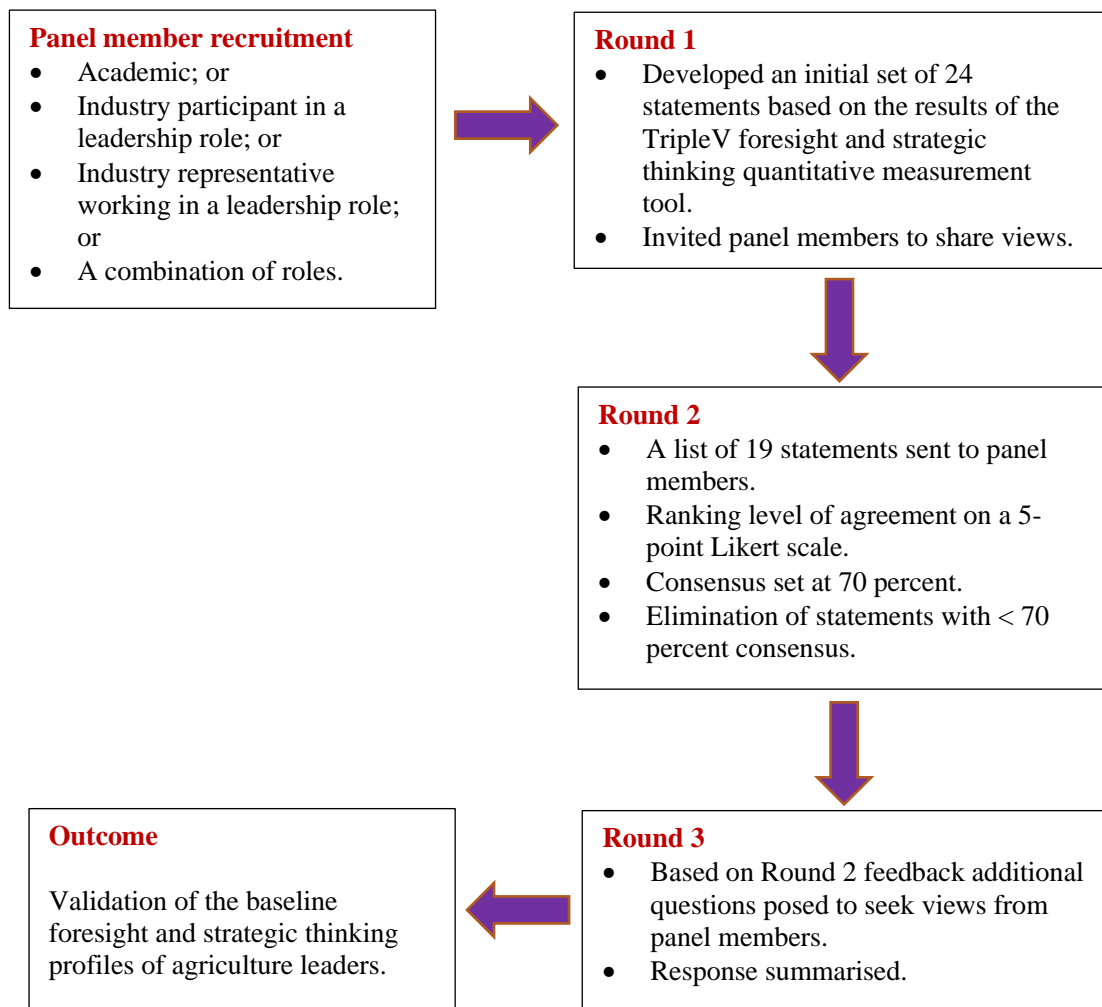


Source: Adapted from Meshkat et al. (2014, p. 4).

### 5.3.1. Delphi Round 1

Responses to the TripleV foresight and strategic thinking quantitative measurement tool were used to form the basis of the first round of the Delphi. A Likert scale was used for the Delphi, which reflects the typical approach adopted for Delphi questionnaires to analyse the level of agreement and consensus amongst panel members (Croasmun & Ostrom 2011; Habibi, Sarafrazi & Izadyar 2014). Delphi research typically incorporates Likert scale categories with Clayton (1997) arguing that a 5 or 7 point scale should be used. Therefore, a five-point Likert scale was chosen for the Delphi process in this study. In addition to using Likert scales, panel members were also offered the opportunity to expand on their responses or raise ideas. Following the submission from the expert panel members in Round 1, their responses were collected and analysed.

### 5.3.2. Delphi Round 2

The Round 2 questionnaire was developed based on the results of the first round. The second round of enquiry included targeted questions developed from the panel members' opinions. The Delphi is an iterative process that allows panel members to validate or refute the findings regarding the baseline foresight and strategic thinking profiles of agricultural leaders in this study.

### 5.3.3. Delphi Round 3

This round provided an opportunity to engage with panel members to provide their overall perspective of the findings from Rounds 1 and 2. Panel members were asked to provide their level of agreement on the outcomes of the two primary inquiry areas, namely baseline foresight and strategic thinking agricultural leader profiles, and additional topics related to the baseline profiles, particularly strategy formulation and leadership training.

According to Hasson and Keeney (2011), consistent with the approach adopted in this study, the Classical Delphi design is typically used to seek opinions and generate consensus amongst panel members. Therefore, three rounds are considered optimal to ensure meaningful results whilst remaining mindful of potential participant fatigue and attrition (Trevelyan & Robinson 2015).

## 5.3.4. Delphi Final Report

At the Delphi process's completion, panel members were provided with an overview of the Delphi findings. This process was used to authenticate the findings of the process. The process was also an opportunity to thank panel members for their assistance. The final report was emailed to panel members and are contained in Appendix J.

## 5.4. Delphi Findings: Demographics

Table 44 provides panel members' level of agreement to statements relating to demographic data in Round 1.

Table 44. Demographic Statements

| Statement No | Description | Level of Agreement |
|---|---|---|
| 1 | The gender profile in the study reflects the gender profile across RDCs | 88.9% |
| 2 | The age profile for the study reflects the age profile across RDCs. | 88.9% |
| 3 | The education profile for the study reflects the education mix across RDCs. | 55.6% |
| 4 | The organisational positions noted in the study reflect roles across RDCs. | 66.6% |
| 10 | Participation in representative groups in the study is reflective of RDC leaders. | 77.7% |

Source: Developed for the study.

Statements 3 and 4 did not meet the 70% level of agreement threshold. Overall, there was consensus for the demographic representation of this research reflecting the demographic profile for gender and age.

## 5.4.1. Gender

There was a near unanimous agreement that the gender data reflects the current Australian agricultural leader gender composition in Round 1. In the second round, panel member feedback suggested that they generally agreed that there is a gender skew towards males. However, the panel also noted that adequately skilled and motivated individuals from diverse backgrounds should be encouraged to move into leadership roles.

Round 3 of the Delphi incorporated a series of 16 statements. In terms of gender data, panel members were asked the following: *Increasing women's participation in the agriculture sector will increase diversity. Do you agree or disagree?* Panel members noted that diversity of gender and skill is essential.

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Panel member quote

- "I agree that it will increase diversity, especially gender diversity but it depends on the diversity of the women. So, if all the women are exactly the same, all you've done is get a gender difference versus an idea or capacity difference"

---

The panel's views included a reference to diversity leading to better decision-making.

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Panel member quotes

- "In my experience, I found that in most cases, diversity provides better quality thinking, a more rounded and balanced approach to better decision-making"
- "That includes female presidents. In organisations, we struggle with female presence on our board, because we are a male-dominated industry, our membership, our constitution dictates that you have to be a full member to be a Director"

---

The panel's feedback suggests that greater gender diversity would benefit the Australian agriculture sector. The following section provides an overview of findings relating to age.

## 5.4.2. Age

The panel members agreed in Round 1 that the age demographic data reflected the Australian agriculture sector's age profile. However, in Round 2, panel members suggested that an aging agricultural industry may lead to opportunities for input from younger leaders. Panel members further suggested that input could include but were not limited to: (1) new ideas, (2) alternative responses to industry problems, (3) eagerness to use new technology, (4) consideration and drive based on current societal norms and (5) driving industry change. They also noted that established leaders tend to fulfil voluntary roles because younger leaders may have limited time due to business or family commitments.

Regarding age data, panel members were asked the following in Round 3: *Would the agricultural sector benefit from migrant knowledge which may partly address the challenges associated with an ageing leadership?* There was a consensus that migrant knowledge that may partly address the issue of aging leadership. Panel members also indicated that the agriculture sector had been built on migrant knowledge, innovative thinking, market, technology knowledge and addressing current gaps regarding industry knowledge.

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Panel member quotes

- "I think that youthfulness and technology are key aspects in helping us address future problems and I certainly believe that technology is going to advance our systems"
- "There's only two ways in which we could maximise that and that is to make sure we identify what knowledge is already here in the country, and then also identify where the knowledge gaps exist and invite the relevant people from overseas to have input"

---

In addition to migrant leader knowledge, a panel member suggested adopting Traditional knowledge across the agriculture sector.

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Panel member quotes

- "There's quite a lot of conversation around incorporating Traditional fishing knowledge or Traditional knowledge"
- "I think that is something that we've been pretty poor at in Australia in taking on broad knowledge and it'd be certainly something we should be investigating"

---

The age profile in this study reflects the demographic on an industry level. Panel members identified an opportunity to draw on the skills from younger industry leaders. The following section examines the study's demographics by developing codes and themes from panel member feedback.

### 5.4.3. Demographic Codes and Themes

The demographic codes, sub-themes and themes were captured in Tables 45 and 46.

Table 45. Gender Themes

| Response extract from the Delphi process | Codes | Categories | Final Themes (T) & Sub-Themes (S-T) |
|---|---|---|---|
| Round 1<br>• "It is stated that this was a random outcome and consistent with my general observations" | Gender | Gender | Gender (T) |
| Round 2<br>• "Yes, the male skew is obvious. Overall, leads to lower quality of decision making" | Gender | Role Diversity | Role Diversity (S-T) |
| Round 3<br>• "In my experience, I found that in most cases, diversity provides better quality thinking, a more rounded and balanced approach to better decision-making"<br>• "That includes female presidents. In organisations, we struggle with female presence on our board, because we are a male-dominated industry, our membership, our constitution dictates that you have to be a full member to be a Director" | Gender | Gender Diversity | Gender Diversity (S-T) |

Source: Developed for this study.

Table 46. Age Themes

| Response extract from the Delphi process | Codes | Categories | Final Themes (T) & Sub-Themes (S-T) |
|---|---|---|---|
| Round 1<br>• "Knowledge of my own organisation demographics would suggest that the vast majority of staff are >45 in age" | Age | Older Age Profile | Age (T) |
| Round 2<br>• "Age brings with it a skill set that youth can't, but it also may limit new ideas and use of technology that younger people can bring" | Age | Different Thinking | Changing Age Profile (S-T) |
| Round 3<br>• "I think that youthfulness and technology are key aspects in helping us address future problems and I certainly believe that technology is going to advance our systems"<br>• "There's only two ways in which we could maximize that and that is to make sure we identify what knowledge is already here in the country, and then also identify where the knowledge gaps exist and invite the relevant people from overseas to have input"<br>• "I think that is something that we've been pretty poor at in Australia in taking on broad knowledge and it'd be certainly something we should be investigating" | New Thinking | New Thinking<br><br>New Technology | New Thinking (S-T)<br><br>Use of Traditional Knowledge (S-T)<br><br>New Technology (S-T) |

Source: Developed for this study.

### 5.4.4. Demographics: Thematic Analysis

Tables 45 and 46 provided a detailed breakdown of demographic codes, categories, and final themes and sub-themes. A unifying theme labelled 'Agriculture Sector Demographics' was used to establish a link between the 'Gender' and 'Age' themes. The results reflected that gender and role diversity continue to be an issue across the Australian agriculture sector.

Figure 16. Demographic Themes
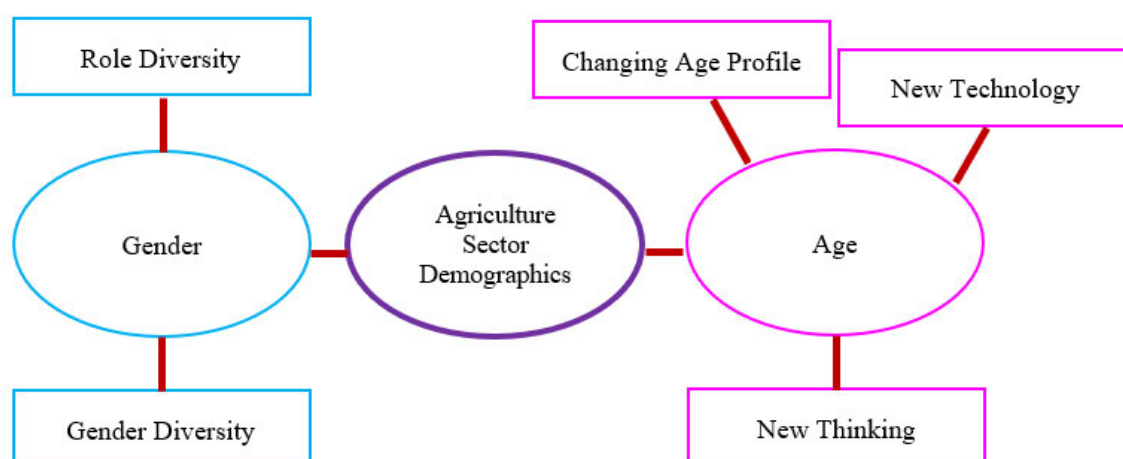


Source: Developed for the study.

The age demographic and themes derived from panel member feedback suggest that the Australian agriculture sector faces an aging workforce while addressing this concern by recruiting younger workers. It was noted that younger leaders bring new thinking and ideas concerning the use of technology.

## 5.5. Delphi Findings: Orientation to Time, Foresight and Strategic Thinking

### 5.5.1. Foresight Capability (Orientation to Time)

Orientation to time refers to an individual's understanding of future, past and present thinking. This pattern of thinking: (1) varies between individuals, (2) can be measured, (3) each pattern is used differently and (4) the degree to which each pattern is used in isolation or combined may influence the perception of an individual's environment (Fortunato & Furey 2011).

Table 47. Orientation to Time

| Statement No | Description | Level of Agreement |
|---|---|---|
| 5 | The orientation to time reflects the predominant orientation to time of RDC leaders [present]. | 88.9% |

Source: Developed for the study.

In Round 1, the panel members confirmed that a dominant orientation to time profile derived from the 62 leaders in the first phase of the study generally reflects Australian agricultural leaders. In Round 2, panel members supported the view that leaders in the agriculture sector focus on the present rather than the future. In Rounds 1 and 2 the panel members agreed that Australian agricultural leader orientation to time was present. Panel members provided the following observations to support this view, including: (1) daily business operations override a focus on the future, (2) current financial returns are more critical than contemplating future possibilities, (3) the pace of change leads to reactionary leadership, and (4) the range of issues preoccupying leaders leaves no time for thinking about possible futures.

The orientation to time of leaders in this study was focussed on the present, which is characterised by individual's disposition to accomplish an activity, organise their thinking and mentally 'stepping out of time' which Fortunato and Furey (2009) defined as an ability to hypothesise about and observe sensory inputs, thinking about and act on sensory input.

In Round 3, panel members were asked to provide additional commentary: *Do you have anything else to add?*). It was found that operational concerns superseded a futures orientation, which was a challenge for leadership in the agriculture industry.

Panel member quotes
- "I think that operational issues tend to have a greater urgency; but generally, we retreat to the now"
- "But your focus is taken by those operational concerns. And being able to think beyond that is the challenge of leadership"

Panel members agreed that the industry should recognise this and prioritise developing a future focus in addition to responding to change.

---

Panel member quotes
- "My view is that if we are not strongly future-oriented, and we are not thinking about the future, then we will actually cease to have a future"
- "I would agree that a focus on future thinking isn't keeping pace, and I think that's something that really needs critical change"

---

However, there was also an understanding that the industry wants to be futures orientated.

---

Panel member quotes
- "It's maybe by virtue of the pressures that exists in the industry, rather than a lack of willingness to think about future strategic issues"
- "I think the culture in agriculture is about looking forward because of the nature of their markets"

---

While panel members supported the orientation to time profiles in this study, they indicated that developing a future focus is recognised as a leadership limitation. It may also be argued that panel members recognise that agricultural leaders may not have the capabilities needed to move beyond a present-focused orientation to time.

This is supported by the following panel member statements from Round 3.

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Panel member quotes
- "I would agree that a focus on future thinking isn't keeping pace, and I think that's something that really needs critical change"
- "And being able to think beyond that is the challenge of leadership"

---

A dominant, present-focused orientation to time restricts leaders from developing future thinking regarding changing market environments or identifying changing patterns or trends. Conversely, a future orientation to time that draws on past experiences can help address potential risks and is a critical element of foresight competence (van der Laan & Erwee 2013). In the context of this study, the

implications of a dominant, present focussed orientation to time amongst agriculture leaders could lead to an inability to recognise threats or risks, both internal and external, to the organisation. The following section addresses panel members views regarding foresight.

## 5.5.2. Foresight Capability (Foresight Styles Assessment)

A key focus of the Delphi was to assist in supporting or potentially refuting the baseline foresight profile of Australian agriculture and leaders. During Round 1, panel members supported the finding that the dominant foresight style was that of Adapter. Agricultural leaders in this study utilised multiple foresight styles that simultaneously considered and interrogated possible futures while adapting to change, new markets and organisational demands. Statements 6 and 7 did not meet the 70% level of agreement threshold.

Table 48. Foresight Styles

| Statement No | Description | Level of Agreement |
|---|---|---|
| 6 | The Adapter foresight style is the dominant foresight style of RDC leaders suggesting a focus on reacting to industry and environmental change. | 66.6% |
| 7 | The Framer foresight style is the back-up style of RDC leaders suggesting a "bigger picture" futures approach. | 55.5% |

Source: Developed for the study.

In Round 1, panel members did not agree that the Framer style was a back-up style as the panel members could not reach a consensus on Statement 7. In Round 2, however, panel members indicated a balance between the Adapter and Framer styles amongst Australian agricultural leaders. The context in which this balance was sought may be influenced by regulation, operational traditions, and conservative industry culture.

Panel members in Round 3 indicated that it was difficult to move beyond the Adapter style in dealing with regulatory change, generating income, and dealing with regulations. They were asked if they had any additional feedback: *Do you have anything else to add?* There was support for moving beyond the Adapter style.

| Panel member quote |
| --- |
| • "We wish to operate at a big picture level and then all of a sudden, all these issues come in and stop you doing it, so I agree very strongly with what you were said there" |

The panel members also noted a desire to seek a balance between an Adapter and Framer style.

| Panel member quotes |
| --- |
| • "I think that people are moving more toward that future orientation and I think they are having to achieve economic success and doing things in different ways"<br>• "I think one of the keys to success will be moving from an adapter to more of a framing type of approach, moving forward" |

It was also argued that shifting outside leader comfort zones is harder than focussing on current issues.

| Panel member quote |
| --- |
| • "I agree with that to an extent but we are all just human beings, the nature of humans is that it's easier to operate in the now and in your comfort zone" |

Round 2 yielded general agreement from panel members that a shift toward a Framer style was important. The third round provided an opportunity to seek additional feedback from panel members with the following question posed to the expert panel: *Do you agree that an approximate equal orientation toward the Framer and Adaptor style would reflect the needs of the agriculture sector?*

There was consensus regarding an approximate equal orientation toward the Framer and Adaptor styles reflected the Australian agriculture sector needs. Being prepared to address change was also considered essential.

> Panel member quotes
> - "I actually believe that being a strong framer and strong adapter is an enviable position"
> - "There are so many curveballs that are thrown at the food production sectors so they do need to be adaptive in a lots of ways"
> - "I think that a 50/50 between adapter and framer, roughly speaking, is probably a well-balanced approach. But in order to get there, we have to focus more on being framers because at the moment, it's probably been neglected"

Panel members also noted that currently, an adaptor foresight style is still the predominant style amongst leaders in this study.

> Panel member quote
> - "I think that there's an imbalance and adapter style seem to be the predominant approach. I also think it's by virtue of the pressures that are on the people that work in the sector"

Based on Round 2 feedback panel, members were asked to consider Australian agricultural leaders' foresight styles. In Round 3, a profile foresight style was proposed based on panel members' feedback. The following question was asked of the panel: *Do you agree with the profile?* An average profile style was proposed based on round two feedback, including Framer (30%), Adapter (40%), Tester (21%) and Reactor (9%).

> Panel member quote
> - "You'll see that there will be more of a balance between the Adapter and Framer will start to take place as we move forward. I would say that that rough breakdown is a good representation of the current status quo"

Panel members agreed that the average foresight style profile reflected current leader foresight styles in the agriculture sector. The following section explores panel member feedback regarding strategic thinking.

### 5.5.3. Strategic Thinking (Conceptual and Analytical)

Agricultural leaders in this study primarily relied on analytical inputs to their strategic thinking. However, the Analytical orientation was dominant with the more generative and conceptual inputs to strategy significantly under-utilised, see Table 49. This

suggests that the opportunity for innovation or conceptualising 'bigger picture' futures was generally constrained with panellists agreeing that strategy was largely 'top-down'.

Table 49. Decision Styles

| Statement No | Description | Level of Agreement |
|---|---|---|
| 8 | The Analytic strategic thinking style is the dominant strategic thinking style in the study and is reflective of RDC leaders. | 77.8% |

Source: Developed for the study.

During Rounds 1 and 2, panel members indicated support for the proposition that the Analytical dimension of strategic thinking was dominant, based on their inclination to have an Adapter and a lesser extent a Reactor foresight style but not in all circumstances. These results indicate that in the Australian agriculture sector, leadership defaults to a Reactor style of foresight which is a purely analytical approach to strategic decision making. Round 3 provided an opportunity to explore panel members views concerning the following question: *In terms strategic decision making, do you agree that a stronger emphasis on leaders' conceptual capability (the ability to conceive new ideas / approaches and generate new visions of the future) in strategic thinking is a priority across the agriculture sector?*

The panel members agreed that a stronger emphasis on leaders' conceptual capability in strategic thinking was a priority across the agriculture sector.

Panel member quotes
- "I think that the analytical piece is driving the decision-making art, I do believe that for innovation and for change, we need to accept a radical thinking approach and we need to be open to new ideas"
- "You need to have a broad spectrum of ideas for the future that you can draw on given that there are a lot of unknowns"

A contrary view was offered, suggesting strategic thinking was generated across an organisation.

> Panel member quote
> - "I don't think leaders, any leader, has that responsibility of conceptualizing and conceiving all of the new ideas. Certainly, helpful if you can, but it's also a process of assimilating ideas and theories from those around you"

Panel members provided multiple views regarding strategic thinking with an underlying theme that Australian agricultural leaders need to improve their strategic thinking.

### 5.5.4. Delphi Findings: TripleV Thematic Analysis

Panel member's feedback supported the baseline foresight and strategic thinking capability profile.

### Foresight Capability (Orientation to Time)

The finding in the first research phase related to agriculture leader orientation to time indicated that leaders in this study were focused on the present rather than the future. Therefore, the key theme was 'Orientation to Time' and the sub-theme 'Present Focus'.

Figure 17. Orientation to Time
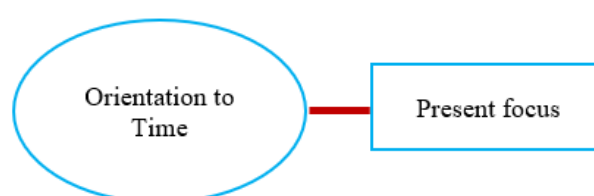


Source: Developed for this study.

### Foresight Capability (Foresight Styles)

Leaders in this study used multiple foresight styles that involved concurrently thinking and questioning possible futures. The key theme was 'Foresight Style Assessment' and the sub-themes of 'Adapter' and 'Framer'.

Figure 18. Foresight Style Assessment
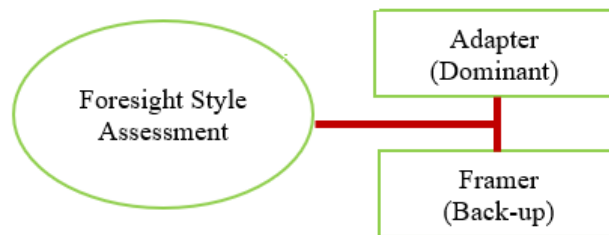


Source: Developed for this study.

## Strategic Thinking (Conceptual and Analytical)

Agricultural leaders were dependent on analytical inputs to inform their strategic thinking. Further, leaders in this study were likelier to favour a collaborative approach in their leadership than a directive one. The key theme was 'Decision Styles Inventory' and the sub-themes of 'Analytical Inputs' and 'Collaborative Leadership'.

Figure 19. Decision Styles Inventory
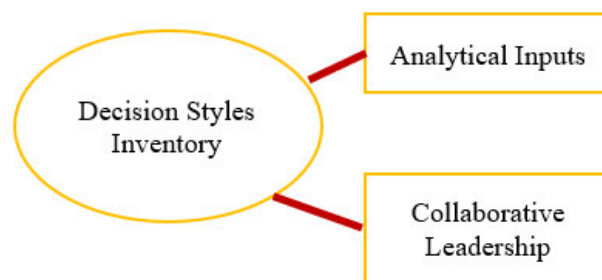


Source: Developed for this study.

The findings are complex but interconnected with panel member feedback indicating the data collected in Phase 1 of the research process was supported by panel members. The Australian agricultural baseline leader foresight and strategic thinking profile is illustrated in Figure 20.

Figure 20. Baseline Foresight and Strategic Thinking Profile
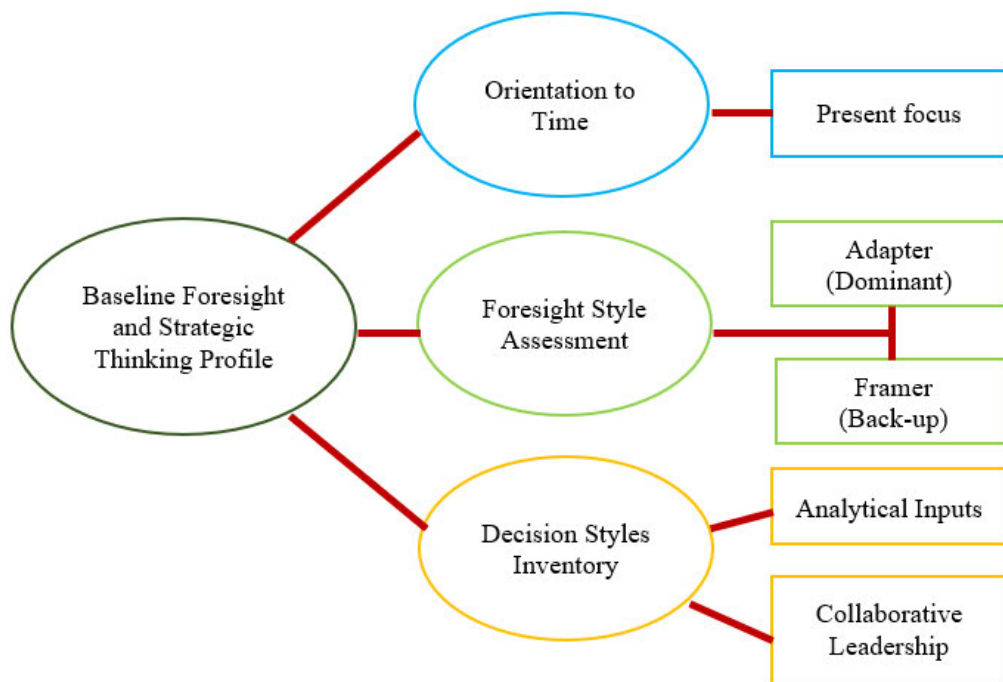


Source: Developed for this study.

In summary, the leader's profile can be described in the context of this study as:

- Present thinking – Agricultural leaders in this study are task focused, organised thinkers and have the capacity to examine past and future perspectives (Fortunato & Furey 2009, 2010, 2011).

- Adapter – Agricultural leaders have a dominant Adapter foresight style. They adjust to new situations, balance options and challenges, are action-oriented and demonstrate a capacity to influence change. The agriculture leader's backup foresight style is that of a Framer. This foresight style suggests that individuals are future-oriented and focus on long-term issues that may define the future (Gary 2008; Dian 2009; Gary 2009).

- Decision styles – Agricultural leaders in this study are strongly oriented toward the Analytic style indicating a strong focus on tasks, problem-solving and data analysis (Rowe & Boulgarides 1992; Leonard, Scholl & Kowalski 1999).

## 5.6. Delphi Findings: Strategy Formulation

Overall, agricultural leaders' feedback suggests that leadership training and the influenced strategy formulation. Table 50 provides panel members' level of agreement

relating to the leader and organisation's influence or leadership training on strategy formulation in Round 1. Statement 9 did not meet the 70% level of agreement threshold.

Table 50. Strategy Formulation

| Statement No | Description | Level of Agreement |
|---|---|---|
| 9 | Strategy formulation was influenced by the entire organisation rather than an individual leader. | 66.6% |
| 18 | Leadership training amongst respondents is having an impact on strategy formulation. | 88.8% |
| 19 | Leadership training concepts are impacting strategy formulation. | 75.0% |
| 21 | Respondent age was not necessarily a barrier to influencing strategy. | 71.5% |

Source: Developed for the study.

## 5.6.1. Leader and Organisational influence on Strategy Formulation

Panel members in Round 1 were not in agreement regarding employee influence on strategy. By Round 2, the panel member's responses suggested that strategy formulation was still driven by dominant leaders and the degree to which employees may influence strategy was unclear. In Round 3, panel members were asked the following: *Do you agree that employee influence over strategy formulation in the agriculture sector is limited?*

Agreement was reached amongst panel members, and by Round 3, they confirmed that employee influence over strategy formulation in the agriculture sector was limited.

Panel member quotes
- "My feeling is that many employees live in the operational world because they're trying to do the day to day things. To think strategically it's actually a skill set that needs some nurturing and training"
- "I think that in the agricultural sector there's a real thought process around earning your stripes and until you've been able to do that your opinion is not as relevant for those that have been around longer"

A dissenting view was that leaders employ individuals that would have some influence over strategy formulation.

> Panel member quote
> - "I think that a good leader employs the smartest people who can work for him or her. You would expect for there to be some influence over the strategy of that operation business organisation going forward"

The formulation of strategy in this study was not an organisation-wide endeavour. The dimensions of strategic thinking as an organisational task and at its core, identify the need to draw on analytical and creative thinking, leading to problem-solving and disruption of existing strategic thinking. The limited influence of employees in formulating strategy may impact the development of options to address issues. Leaders seemed to disregard the experiences and knowledge held within the organisation. Rather, they believed that strategy could only be developed amongst leaders alone.

An additional question was posed to panel members in Round 3: *Do you agree that employee influence over strategy formulation is a sign of weak leadership?*

> Panel member quotes
> - "I actually want strong leaders in the future that actually understand strategy, then the best way to mentor them is to actually have them involved and engaged in strategy"
> - "A leader that thinks that they have all the answers and doesn't need a reference is not a leader"
> - "I think strong leadership is the person who might not have all the answers themselves but turns to the people underneath and looks for their opinion, insight and their ownership in the planning and the direction"

The panel members reached a consensus indicating their disagreement with the statement that employee influence over strategy formulation was a sign of weak leadership.

## 5.6.2. Leadership Training Influence on Strategy Formulation

In Round 3, panel members were asked: *Do you agree that leadership programs need a greater focus on strategy formulation?* Consensus was not reached amongst panel members regarding leadership programs needing a greater focus on strategic thinking.

Those panel members that agreed with the premise suggested that evolving agriculture and fishery sector needs a greater focus on strategic thinking.

<div style="border:1px solid">

Panel member quotes

- "I think the strategic plan should not be sitting on a shelf, they should be your everyday discussion really, around, where is your organisation heading. What are the factors that are impacting your organisation? Is the strategy that we developed 12 months ago still valid based on the current circumstances"

- "I think we've identified through, it's particularly relevant to the agricultural sector given the constant evolution of challenges that are happening in that space, you need to have strategic thinking"

- "I guess it's in that we've traditionally had a history of being reactionary and blaming versus proactively working through how we come up with solutions and employee-led solutions"

</div>

The following section explores the strategy formulation themes discussed amongst panel members.

### 5.6.3. Strategy Formulation Thematic Analysis

Table 51. Strategy Formulation Themes

| Response extract from the Delphi process | Codes | Categories | Final Themes (T) & Sub-Themes (S-T) |
|---|---|---|---|
| Round 1<br>• "Leadership training delivers people/personal management skills. Strategy formulation isn't the end point" | Concerns over strategy | Strategy Development | Strategy Development Issues (T) |
| Round 2<br>• "Strategy formulation tends to be strongly influenced by the individual leader or at least an organisation's Board rather than the entire organisation" | Dominance | Dominant Leaders | Dominant Leaders (S-T) |
| Round 3<br>• "My feeling is that many employees live in the operational world because they're trying to do the day to day things. To think strategically it's actually a skill set that needs some nurturing and training"<br>• "I think that in the agricultural sector there's a real thought process around earning your stripes and until you've been able to do that your opinion is not as relevant for those that have been around longer"<br>• "I think that a good leader employs the smartest people who can work for him or her. You would expect for there to be some influence over the strategy of that operation business organisation going forward"<br>• "I actually want strong leaders in the future that actually understand strategy, then the best way to mentor them is to actually have them involved and engaged in strategy'<br>• "I think strong leadership is the person who might not have all the answers themselves but turns to the people underneath and looks for their opinion, insight and their ownership in the planning and the direction"<br>• "I think we've identified through, it's particularly relevant to the agricultural sector given the constant evolution of challenges that are happening in that space, you need to have strategic thinking" | Strategy Formulation<br><br>Operations impacting strategy formulation<br><br>Experience a prerequisite of strategy formulation<br><br>Shared organisational responsibility | Strategy Formulation<br><br>Operations Focussed<br><br>Experience<br><br>Strategy development / input across the business<br><br>Proactive Strategy Making<br><br>Reactive Strategy Making | Strategy Formulation (T)<br><br>Operations Focussed (S-T)<br><br>Experience (S-T)<br><br>Leader Strategy Input (S-T)<br><br>Organisation-wide Strategy Input (S-T)<br><br>Source of Strategy (T) |

| Response extract from the Delphi process | Codes | Categories | Final Themes (T) & Sub-Themes (S-T) |
|---|---|---|---|
| • "I guess it's in that we've traditionally had a history of being reactionary and blaming versus proactively working through how we come up with solutions and employee-led solutions" | Need to move away from being reactive | | |

Source: Developed for this study.

Three themes derived from panel member feedback regarding strategy formulation are detailed in Figure 21. The overarching theme was 'Strategy Formulation' with three supporting themes, including 'Source of Strategy' and 'Strategy Development Issues'. Sub-themes were organised as follows:

- 'Dominant Leaders', 'Operations Focus' and 'Experience'.
- 'Organisation-wide strategy input' and 'Leader strategy input'.

Figure 21. Strategy Formulation Finding
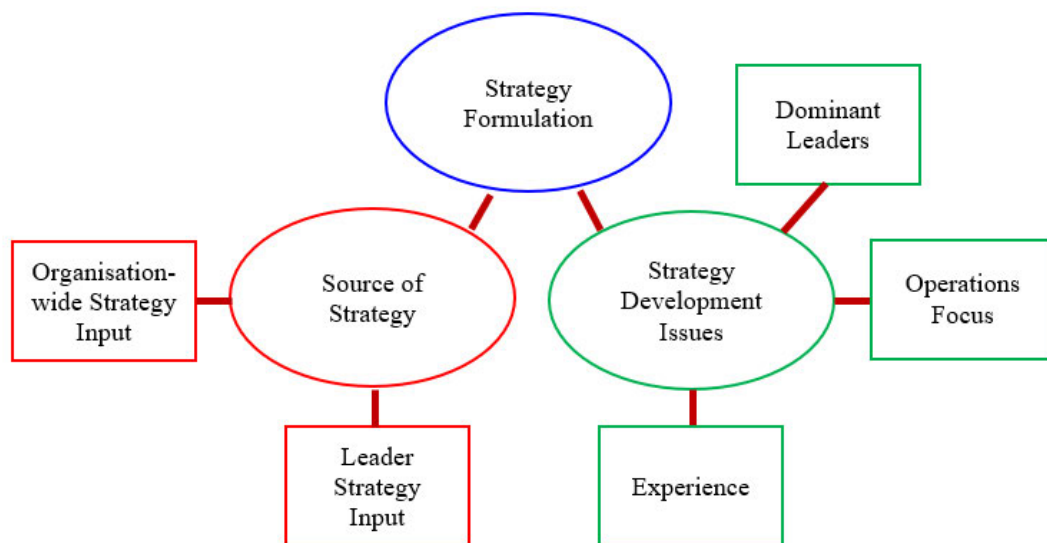


Source: Developed for the study.

The sub-theme titled 'Dominant Leaders' related to the views expressed amongst panel members that strategy formulation was the domain of leaders. Regarding the 'Operations Focus' sub-theme, panel members noted the pressure to focus on operational matters, limiting the strategy development efforts at both the business and sector-wide levels. Finally, the 'Experience' sub-theme related to a view that strategy, primarily developed from on-the-job experience, precludes the possibility that younger, potentially less experienced employees or leaders could contribute to the strategy development process.

Panel members suggested two sources of strategy development, from employees across the organisation or by individual leaders. The sub-themes 'Organisation-wide Strategy Input' and 'Leader Strategy Input' were used to capture this observation. The following observations can be drawn from the data:

- There is limited influence from employees;

- A greater focus on employing individuals with strategy formulation capabilities; and

- Agriculture leaders may need to focus on strategy and its development at multiple levels within the organisation and consider the influence employees have on the strategy formulation process.

## 5.7. Delphi Findings: Leadership Training

Panel members considered statements relating to the impacts of leadership training in Rounds 1 and 2, which are outlined in Table 52. Consensus was obtained for items 12, 13, 14, 20, and 23, with the variability in the remaining questions to form agreement. Statements 11, 15, 16, 17, 22 and 24 did not meet the threshold 70% level of agreement.

Table 52. Leadership Training

| Statement No | Description | Level of Agreement |
|---|---|---|
| 11 | Respondents in this study are partially applying leadership concepts learned through training. | 66.6% |
| 12 | Half the respondents in this study indicated that their organisations derived benefit from leadership training. | 99.9% |
| 13 | Half the respondents indicated they were better leaders due to leadership training. | 88.8% |
| 14 | Almost 60 percent of respondents are applying training in the workplace. | 88.8% |
| 15 | Almost 50 percent of respondents were unsure leader training is suitable for the industry sector in which they work. | 22.2% |
| 16 | Current leadership training may not be suited to the organisational needs of businesses across RDCs. | 22.2% |
| 17 | Current leadership training may not provide industry with the knowledge to apply learning in the workplace. | 44.4% |
| 20 | Leaders across RDCs believe they derive positive benefits from leadership training. | 99.9% |
| 22 | Australian RDCs do not spend enough funds developing leader capability. | 33.3% |
| 23 | Leadership training helps to develop strategic thinking capability amongst industry leaders. | 88.9% |
| 24 | Leadership training helps to develop foresight capability amongst industry leaders. | 62.5% |

Source: Developed for the study.

### 5.7.1. Assessing the Value of Leadership Training

The value of leadership training was considered by panel members, aligning with multiple outcomes, including: (1) improving business culture, (2) providing an opportunity to engage in critical thinking, (3) leading behaviour change, (4) developing new leaders and (5) envisioning strategic opportunities by offering opportunities to train and mentor leaders.

Panel members disagreed on the extent to which agricultural leaders had applied leadership concepts. The premise of the statement was changed to understand the measures used to assess the value of leadership training courses. In Round 2, in terms of leadership training value, panel members indicated that value could be measured as: (1) learning new processes such as strategic planning, (2) behavioural change in the leaders such as increased involvement, openness, engagement and (3) increased team productivity and (4) team-building. A panel member noted the need for a benefit from an investment in training.

---

Panel member quote
- "Change in behaviour and knowledge, need outcomes or training is of little value"

---

Panel members were asked: *Do you have anything else to add?* Responding to this question, panel members in Round 3 provided additional considerations in assessing the value of leadership training in terms of culture, critical thinking and behaviour change.

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Panel member quotes
- "I think it's highly dependent on the culture of the place that you work. Measures to assess training is a different story when you're talking about a mum and dad operating a small business operation versus a corporate business"
- "I'd probably sum that up by of critical thinking, how often that's applied, and what can be observed from that application in terms of not just behavioural change but organisational outputs"

---

> - "The ability to take your own self out of your own mindset and your pre-determined position and listen and assimilate all the different perspectives that are happening around your business, your organisation, your sector, your industry, your environment and feed that into your thinking process. I think that's the element that changes the behaviour, the observable, critical thinking is the ability to just elevate yourself to a different type of mind"

Training and mentoring were also identified as a component of ongoing leader development.

> Panel member quotes
> - "Training will feed into strong leadership going forward rather than having a defined return for that investment"
> - "I think we need to have more mentoring type programs in place for young perspective leaders. They need a mentor to tell them that it's okay"

A follow-up question for Round 2 of the Delphi process regarding the predictive value of leadership development training received mixed support. The panel noted a range of responses to this question ranging from 'no predictive value' to 'able to predict to a large degree'. The Delphi process provided an opportunity to explore the predictive value of leadership training with the following question posed in Round 3: *If current leadership development training has 'no predictive value', what can be done to improve this?*

> Panel member quotes
> - "The predictive value of that to me is that the more that we're engaged, the better the value you're going to be able to derive"
> - "If you believe in the programs and you believe in selecting your most promising people and delivering those programs and bringing them back to your organisation, you need a measurement to improve the value and the outcomes that your organisation can produce"

Panel members indicated that more engagement with leaders, and identifying the value of leadership training was considered critical to improving leader development.

## 5.7.2. Leadership Training

Training has allowed leaders to develop skills and abilities to enhance management, and technical competency, to apply objective judgement, decision-making, participatory leadership, openness, engagement and building employee capacity. In addition, panel members indicated that training was recognised as helping to build communication skills outside the square thinking, focusing on future possibilities and strategic decision-making. Encouraging leader development was considered both an individual and organisational priority and responsibility.

It can be argued that the key beneficiary of leadership training is the leader and the capabilities they develop are an important outcome of training. In Round 1, panel members agreed that the organisation benefits from leadership training. In Round 2, panel members identified a range of leadership capabilities, including: (1) foresight and ability to envision the future, (2) managerial and technical competency, (2) applying unbiased decision-making, (3) participatory leadership, (4) openness and engagement and (5) building employee capacity. In Round 3, panel members were asked the following question: *Do you agree that these capabilities are critical amongst leaders in the Australian agriculture sector?*

Panel members achieved consensus and agreed that the five leader capabilities are critical amongst leaders in the Australian agriculture sector. A caveat suggested that the list is not definitive and could be amended.

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Panel member quotes

- "We need to make sure we communicate with members; we need to make sure that we've got two-way communication and everything else in between"
- "If we were able to have the capacity and capability to allocate more time before thinking or outside the square thinking, future thinking and instead of the consistent reactionary crap that we've all got to deal with issues as they all come through"

---

An additional question was posed in Round 3: *Are there any other capabilities you consider a critical component of agriculture leaders?* Capabilities identified by panel members, included: (1) communication skills, (2) upskilling employees and (3) strategic decision-making.

## Communication skills

> Panel member quote
> - "Being a good listener. That's something I see lacking. That should be on the list. And is absolutely imperative. If you can't listen, it's hard to lead you end up telling"

## Upskilling employees

> Panel member quote
> - "I think in terms of good leadership in the ag sector, it's about making sure that after an employee is invested in the company, and they're also invested in the industry, and I think that gets back to the upskilling and training will make staff feel as though they've got relevant training. I think that it's going to be essential for leadership moving forward"

## Strategic decision-making

> Panel member quote
> - "And you've got so many other things to focus on, how do I make the best strategic decision?"

The underlying approach to increasing the value of leadership training is to encourage employees to participate in programs that might be available. Panel members in Round 3 were asked about where the responsibility lies concerning leader development: *Do you agree that leadership development is the responsibility of the individual to pursue?*

Panel members in Round 3 did not achieve consensus regarding leadership development as the individual's responsibility to pursue. However, some panel members supported the idea that it was the individual's responsibility to pursue leadership development.

> Panel member quotes
> - "I agree but I think a good leader should be asking the question of employees, what's motivating them; where do they see themselves in the future"
> - "I think it's yes, it's up to the individual because he or she can't be spoon-fed it is up to them to try and reflect on where they're at and what skills they need to take on"

Some panel members agreed that leadership development is a shared responsibility.

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Panel member quotes

- "I think it's a shared responsibility. It's shared across the sector, industry itself and being able to provide quality training programs, the employer and naturally, the employee have a part in that decision as well"

- "I guess you could say the sponsoring organisation should provide opportunities and push them and assist them through the learning curve"

---

The panel also noted that some individuals would find it challenging to seek leadership roles or opportunities to undertake leadership training.

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Panel member quote

- "Deep thinkers aren't strong at coming forward and promoting themselves, the chances of them self-nominating onto a leadership program are slim to none. Somebody needs to put their arm around them and encourage them, talk to them about leadership development"

---

The panel suggested that leadership training could be improved, in terms of industry specificity to translate better into meaningful outcomes. This is the focus of the following section.

## 5.7.3. Leadership Training Specificity

While generic capabilities were valued, panel members suggested that more sector-specific training was needed. Round 1 provided a mix of responses regarding the specificity of leadership training programs. In Round 2, a panel member summarised the responses.

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Panel member quote

- "The generic element is valid and important to help leaders be versatile and not become set on any one particular approach. It should be combined with a tailored element that targets specific issues relevant to that industry"

---

The statement was explored further: *Do you agree with the panel members' statement?* Panel members agreed by supporting the view that generic and industry-specific elements in leadership training programs were important.

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Panel member quotes

- "I think if you have the ability for the staged programs that can cover different people for different needs at different points in their career, you're going to get a better outcome"
- "If we want to develop a new cohort of exceptional leaders, we have to start taking the brightest sparks under our wings as peak bodies or sector associations and tailoring and providing them with mentorship opportunity. The opportunity for a diverse range of training opportunities to fill in the gaps and plug their knowledge and skill gaps to create the best leaders we can is critical"

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In terms of benefits, panel members suggested that leaders would benefit from generic programs and the organisation from tailored programs.

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Panel member quotes

- "There's a practical element that feeds into it that it needs to be somewhat generic due to the fact that we've got the agriculture is made up of lots of small industries, and they all have similar principles"
- "I think for employers, they're going to see the most value if their staff are going through a tailored program, because they're going to come back with skill sets that are going to be really relevant, that they can apply straight away and hopefully have a positive effect"

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## 5.7.4. Leadership Training Themes

Table 53. Leadership Training Themes

| Response extract from the Delphi process | Codes | Categories | Final Themes (T) & Sub-Themes (S-T) |
|---|---|---|---|
| **Round 1**<br>• "Leadership training is critically important for an organisation. We operate in a very dynamic environment, and expectations and our understanding of what good leadership is continues to evolve"<br>• "Businesses of today are not the businesses of tomorrow and failure to address change will result in demise, loss of market and market share" | Leadership Training | Leadership Training<br><br>Addressing Change | Leadership Training (T)<br><br>Addressing Change (S-T) |
| **Round 2**<br>• "Encourage and empower younger or less experienced workers to undertake training in the interest of personal development. In that situation everyone benefits – the individual and the wider group"<br>• "Also, how to respond in times of ambiguity and change as agriculture and the nature of it means that our leaders are often faced with crises, unexpected events and challenges and need to respond quickly based on the best available information" | Young leader training<br><br>Dealing with change | Focus on emerging leaders<br><br>Addressing Change | Emerging Leaders (S-T) |
| **Round 3**<br>• "I think it's highly dependent on the culture of the place that you work. Measures to assess training is a different story when you're talking about a mum and dad operating a small business operation versus a corporate business"<br>• "I'd probably sum that up by of critical thinking, how often that's applied, and what can be observed from that application in terms of not just behavioural change but organisational outputs"<br>• "The ability to take your own self out of your own mindset and your pre-determined position and listen and assimilate all the different perspectives that are happening around your business, your organisation, your sector, your industry, your environment and feed that into your thinking process. I think that's the element that changes the behaviour, the observable, critical thinking is the ability to just elevate yourself to a different type of mind"<br>• "Training will feed into strong leadership going forward rather than having a defined return for that investment" | Specific business leader training<br><br>Critical thinking<br><br>Business development and investment<br><br>Pursuit of mentoring | Specific leader training<br><br>Business development<br><br>Business investment<br><br>Mentoring<br><br>Communications | Specific leader training (S-T)<br><br>Business development (S-T)<br><br>Business investment (S-T)<br><br>Mentoring (S-T) |

| Response extract from the Delphi process | Codes | Categories | Final Themes (T) & Sub-Themes (S-T) |
|---|---|---|---|
| • "I think we need to have more mentoring type programs in place for young perspective leaders. They need a mentor to tell them that it's okay"<br><br>• "The predictive value of that to me is that the more that we're engaged, the better the value you're going to be able to derive; If you believe in the programs and you believe in selecting your most promising people and delivering those programs and bringing them back to your organisation, you need a measurement to improve the value and the outcomes that your organisation can produce"<br><br>• "We need to make sure we communicate with members; we need to make sure that we've got two-way communication and everything in between, If we were able to have the capacity and capability to allocate more time before thinking or outside the square thinking, future thinking and instead of the consistent reactionary crap that we've all got to deal with issues as they all come through"<br><br>• "I think in terms of good leadership in the ag sector, it's about making sure that after an employee is invested in the company, and they're also invested in the industry, and I think that gets back to the upskilling and training will make staff feel as though they've got relevant training. I think that it's going to be essential for leadership moving forward"<br><br>• "I agree but I think a good leader should be asking the question of employees, what's motivating them; where do they see themselves in the future; I think it's yes, it's up to the individual because he or she can't be spoon-fed it is up to them to try and reflect on where they're at and what skills they need to take on"<br><br>• "I think it's a shared responsibility. It's shared across the sector, industry itself and being able to provide quality training programs, the employer and naturally, the employee have a part in that decision as well"<br><br>• "Deep thinkers aren't strong at coming forward and promoting themselves, the chances of them self-nominating onto a leadership program are slim to none. Somebody needs to put their arm around them and encourage them, talk to them about leadership development" | Developing communication skills | | Communications (S-T)<br><br>Organisational Benefits (T)<br><br>Leader Benefits (T)<br><br>Leader and Organisation Benefits (T) |

Source: Developed for this study.

The following section explores leadership training themes discussed amongst panel members.

### 5.7.5. Leadership Training Thematic Analysis

Three themes were derived from the panel member feedback, including 'Organisational Benefits', and 'Leader Benefits'. The interconnectedness of the themes was grouped under a macro-theme titled 'Leader and Leadership Training'.

Figure 22. Leadership Training Theme
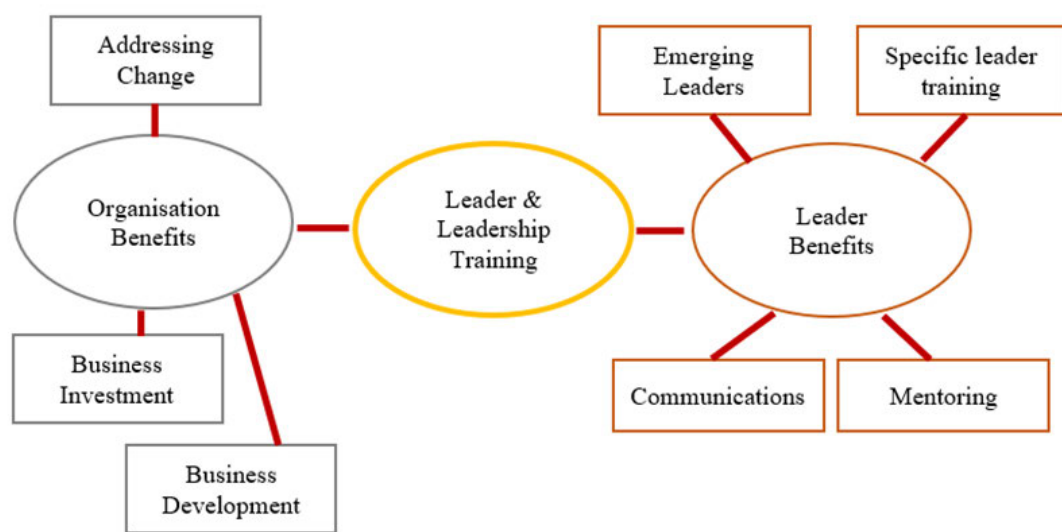


Source: Developed for the study.

Regarding the theme, 'Organisation Benefits', leadership training was identified to help address the changing industry environment. Leadership training was also conceptualised to develop the organisation and as an investment by the business in developing their leaders. Under the 'Leader Benefits' theme, panel members identified opportunities to provide training for emerging leaders. Panel members also identified a need for more specific leader training, mentoring and communication.

With respect to leadership training, the following outcomes were identified:

- Value – Providing opportunities to engage in critical thinking, leading behaviour change, developing new leaders and envisioning strategic opportunities by creating opportunities to train and mentor leaders;

- Benefits – training led to enhanced management, technical competency, applying objective judgement, decision-making, participatory leadership openness, engagement and building employee capacity. Training was recognised as building communication skills, outside the square thinking, focusing on future possibilities and strategic decision-making. Encouraging leader development was an individual and organisational priority and responsibility;

- Training Specificity – involved a degree of industry specificity as well as containing generic elements; and

- The panel suggested that leadership training could be improved. Generic capabilities were valued as were sector-specific abilities.

## 5.8. Conclusions

The second phase of the research process focused on the administration of a Delphi study. The process integrated contributions from a panel of experts. Panel members were asked to respond to a set of semi-structured questions over three rounds. In addition, the primary researcher collated and analysed the feedback from Australian agricultural leaders participating in Phase 1.

## Agriculture Sector Demographics

Panel members identified issues concerning gender and age:

- Gender – Role and gender diversity were identified as issues amongst panel members in response to the demographic data generated from Phase 1 of the research process.

- Age – Potential impacts of an increasing age profile, engagement with new technology and younger leaders bringing new thinking into the organisation were identified as issues amongst panel members.

## Foresight and Strategic Thinking Profile

Panel members shared their views regarding foresight capability (orientation to time and foresight styles) and strategic thinking (conceptual and analytical). They supported the foresight and strategic thinking profile derived in Phase 1 of the research process. To reiterate, the panel members provided support to the following elements of the profile:

- Agricultural leaders are predominantly focused on the present;

- Agricultural leaders are focused on operational concerns while maintaining their thinking regarding possible futures; and

- Agricultural leaders predominantly adopt an analytical approach with a narrow focus on conceptual inputs in strategy development. As a result, strategy development is a 'top-down' process, with agricultural leaders favouring a collaborative approach to leadership.

## Strategy Formulation

Based on feedback from panel members, strategy formulation was examined as constructed from the source of strategy and strategy development issues. In summary, panel members provided feedback as follows:

- Source of Strategy – The source of strategy may originate from the organisation and not from a leader exclusively; and

- Strategy Development Issues – Strategy is typically the product of experienced leaders who face pressures that force an operational focus which may distract from strategy concerns.

## Leader and Leadership Training

Panel members indicated that leader training issues might be conceptualised as leader and leadership training:

- Leader Benefits – In terms of leader benefits, four issues were identified, including: (1) emerging leaders, (2) the need for leader and communications training and (3) providing mentoring opportunities.

- Organisational benefits – Training was viewed as assisting businesses to address change, an investment in the business and a form of business development.

# CHAPTER 6. WORKPLACE PROJECT

## 6.1. Aim

A critical element of this research was creating a project artifact (work-based project). Australian agricultural leaders in this study are: (1) present focussed individuals, (2) focused on operational rather than strategic concerns, and (3) reliant on analytical inputs concerning strategy development. Australian agricultural leaders are operating in a domestic and international market environment under constant change. To effectively engage in these environments, leaders need to bring a range of leader capabilities, especially foresight and strategic thinking as key leadership capabilities. Based on these findings, the researcher compiled a set of leadership development guidelines applicable to the Australian agriculture sector.

## 6.2. Project Scope

### 6.2.1. Leader Capability Identifiers

The baseline foresight and strategic thinking profile identified by the researcher was derived using the TripleV foresight and strategic thinking quantitative measurement tool. Using this tool, Australian agriculture leaders' approach to foresight and strategic thinking can be viewed on multiple levels using the Leadership Capability Identifiers developed in this study.

### Orientation to Time – Agricultural leaders are focussed on the present

The first element relates to identifying the orientation of leader thinking toward past practice and considering future scenarios.

Example: Time Focus – Past

| Leader Training: Past Focus | Not Needed | Might be needed | Needed |
|---|---|---|---|
| Use of past experiences and knowledge | ☐ | ☐ | ☐ |
| Reconstructing and analysing past decisions | ☐ | ☐ | ☐ |
| Critically evaluating information to reduce risk | ☐ | ☐ | ☐ |

Example: Time Focus – Future

| Leader Training: Future Focus | Not Needed | Might be needed | Needed |
|---|---|---|---|
| Developing future scenarios | ☐ | ☐ | ☐ |
| Developing creative problem solving | ☐ | ☐ | ☐ |
| Case study material focussed on foresight capability development | ☐ | ☐ | ☐ |

## Foresight – Agricultural leaders are focused on operational concerns while considering possible futures

There are multiple foresight styles, and building this capability will need to draw on the characteristics of each style, understanding that leaders may use more than one way to think about and conceive possible future states.

Example: Building Foresight Capability

| Leader Training: Building foresight capability | Not Needed | Might be needed | Needed |
|---|---|---|---|
| • Interrogates the future<br>• Future time orientated<br>• Focus on long-term issues that define the future<br>• Envisioning "bigger picture" futures | ☐ | ☐ | ☐ |
| • Adjusting to new situations<br>• Balancing multiples challenges and choices<br>• Helping others adapt<br>• Flexible leadership<br>• Addressing change | ☐ | ☐ | ☐ |
| • Adopting to new trends<br>• Experimenting with new trends<br>• Cognitive trend analysis | ☐ | ☐ | ☐ |

## Strategic Thinking – Agricultural leaders rely on analytical inputs to their strategic thinking with a limited focus on conceptual inputs into strategy development

A reliance on analytical inputs according to the findings in this study is a result of a focus on operational versus strategic concerns. It should be noted that a reliance on analytical inputs does not suggest that Australian agricultural leaders do not value or engage with strategic thinking. On the contrary, it could be argued that the agriculture businesses are operating in environments that have driven leaders to prioritise business

continuity over strategic thinking, fearing the potential loss of income if their focus is shifted toward strategic considerations.

Example: Building Strategic Thinking Capability

| Leader Training:<br>Building strategic thinking capability | Not Needed | Might be needed | Needed |
|---|---|---|---|
| • Moving from operational to strategic business considerations | ☐ | ☐ | ☐ |
| • The strategy development process | ☐ | ☐ | ☐ |
| • Strategy development – theory and practice | ☐ | ☐ | ☐ |

### 6.2.1. Strategy Formulation

The development of strategy amongst Australian agricultural leaders yielded several issues regarding the influence of employees in the strategy process, the 'top-down' approach of strategy formulation and that overall, a great emphasis on process is needed amongst agriculture leaders.

**Strategy Formulation – (1) employees in the agriculture sector have limited influence on strategy, (2) strategy development seems to be focused on the leader level alone, and (3) a greater emphasis on strategy formulation is needed.**

Example: Building Strategy Formulation Capacity

| Leader Training:<br>Building strategic thinking capacity | Not Needed | Might be needed | Needed |
|---|---|---|---|
| • Organisation-wide strategy development | ☐ | ☐ | ☐ |
| • Strategy development process | ☐ | ☐ | ☐ |
| • Options to shift focus from an operational to a strategic thinking | ☐ | ☐ | ☐ |

### 6.2.2. Leadership Training

Regarding leadership training findings, three terms help define leader training in this study, including training value, benefits, and specificity.

### Training Value

Leadership training value as related to aligning with improving business culture, providing an opportunity to engage in critical thinking, leading behaviour change,

developing new leaders and envisioning strategic opportunities by offering opportunities to train and mentor leaders.

## Training Benefits

Training has allowed leaders to develop skills and abilities to enhance management, technical competency, applying objective judgement, decision-making, participatory leadership openness, engagement and building employee capacity. Training was also recognised as helping to build communication skills outside the square thinking, focusing on thinking about future possibilities and strategic decision-making. Encouraging leader development was considered both an individual and organisational priority and responsibility.

## Training Specificity

Training should involve a degree of industry specificity and contain generic elements. While generic capabilities were valued, industry-specific leader development is needed.

Example: Leadership Training

| Leader Training<br>Training Elements | Not Needed | Might be needed | Needed |
|---|---|---|---|
| • Organisational culture and leadership | ☐ | ☐ | ☐ |
| • Critical thinking | ☐ | ☐ | ☐ |
| • Organisational behaviour change | ☐ | ☐ | ☐ |
| • Employee behaviour change | ☐ | ☐ | ☐ |
| • Mentoring | ☐ | ☐ | ☐ |
| • Leadership capabilities versus Managerial competencies | ☐ | ☐ | ☐ |
| • Leader decision-making | ☐ | ☐ | ☐ |
| • Participatory Leadership | ☐ | ☐ | ☐ |
| • Leader Communication Skills | ☐ | ☐ | ☐ |

Leader development guidelines are given in Appendix K.

# CHAPTER 7. CONCLUSIONS

## 7.1. Introduction

This study made an original contribution to professional practice by developing a greater understanding of foresight and strategic thinking as critical leader capabilities in the context of the Australian agricultural sector. Chapter 4 presented the results and discussed the findings generated from the administration of the TripleV foresight and strategic thinking capability measure. Chapter 5 presented the results and findings of a three-round Delphi process.

This study has made contributions from a theoretical, practice and personal (researcher) perspective. Chapter 7 outlines a workplace project based on the findings in this study and is presented as an artefact of the research process. Finally, the limitations of the study and recommendations for future research are explored.

## 7.2. Research Objectives

This study proposed and met multiple objectives. The research process yielded the following outcomes:

- An inaugural baseline for foresight and strategic thinking amongst a group of Australian agricultural leaders using the TripleV measure;
- The results of a Delphi process which validated the findings of the TripleV measure; and
- The creation of leader development guidelines is informed by the findings in this study.

This study makes an original contribution to practice but is limited due to its sample size. It should be noted that the baseline foresight and strategic thinking profiles is not an absolute measure. The findings should be viewed as a tentative indication of a broader agricultural industry baseline.

## 7.3. Research Questions

Three research questions were asked related to Australian agriculture leaders' foresight and strategic thinking capabilities.

Figure 23. Research Questions
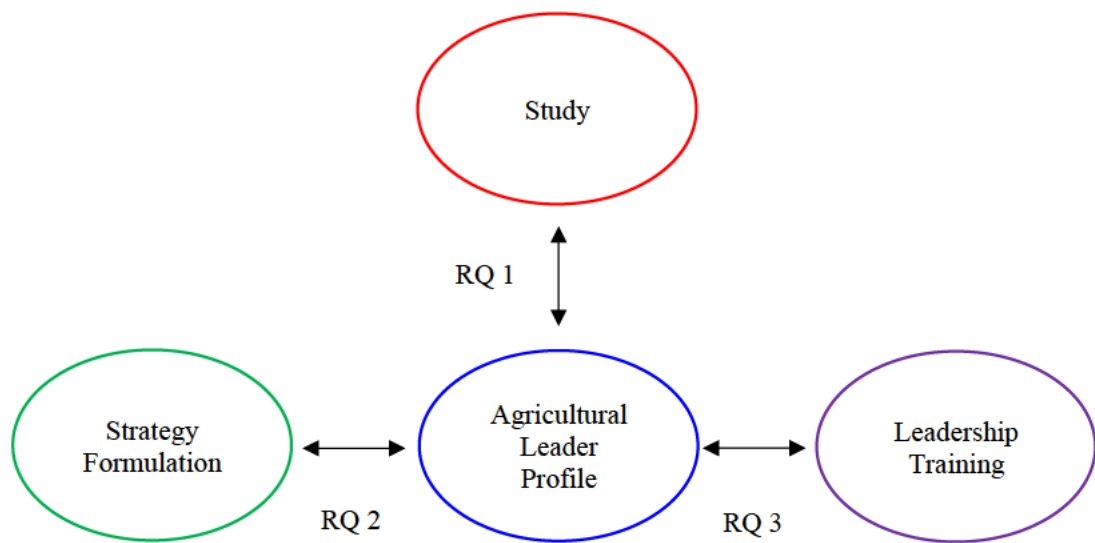


Source: Developed for this study.

The following sections draw conclusions from the multi-phased research process adopted in this study.

### 7.3.1. Research Question 1

**What are the foresight and strategic thinking capability profiles of Australian agricultural leaders?**

It was proposed that the sampling method (cross sectional sampling across industries) would indicate the capabilities across the agricultural sector rather than be concentrated in any of its many sub-sectors. Further, the baseline measurement would only be indicative and seek to stimulate a) further consideration and input by industry experts and b) provide insights that would inform future research. Finally, through triangulating the quantitative and qualitative data, the study sought to gain deeper evidence-based insights than are currently available.

**Foresight Capability (Orientation to Time)**

In terms of their orientation to time, leaders in this study were largely focussed on the present rather than the future. These results suggest that Australian agricultural leaders are not melding previous experiences and circumstances to envisage possible futures. An individual leader that is strongly oriented to the present potentially forgoes the

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benefits of previous experiences or contemplates future possibilities if their environment demands a focus on current issues (van der Laan 2010).

> Panel member quote
> - "I think that operational issues tend to have a greater urgency; but generally, we retreat to the now"

Despite an orientation to the present, panel members suggested that agriculture leaders recognise a need to focus on the future for the industry's long-term viability.

> Panel member quote
> - "My view is that if we are not strongly future-oriented, and we are not thinking about the future, then we will actually cease to have a future"

This view is supported by van der Laan and Yap, who argued that the 'ability, individual and corporate, to effectively engage the future by employing divergent and generative thinking is critical' (van der Laan & Yap 2016, p. 19).

## Foresight Capability (Foresight Styles Assessment)

Agricultural leaders were utilising both the Adapter and the Framer foresight styles, which involve concurrently thinking and questioning future possibilities while adjusting to their industry sectors' change and operational concerns.

These leaders indicated a strong recognition that a future orientation was a priority.

> Panel member quote
> - "We wish to operate at a big picture level and then all of a sudden, all these issues come in and stop you doing it"

Agricultural leaders were potentially seeking to utilise a Framer Style but being in the present is still the predominant style in the agriculture sector.

Panel member quotes
- "I also think it's by virtue of the pressures that are on the people that work in the sector"
- "We need to start getting better at predicting what those changes might be and start transitioning as they're being developed, not after they have been developed"

The FSA scores in this study suggested that leaders had an orientation toward the Adapter and Framer foresight styles. The Tester style was rated as the third most utilised style while the Reactor style was the least favoured. Despite recognising the need to develop a future focus, pressure to focus on the present is a crucial issue facing agricultural leaders.

The average foresight profile that reflected Australian agricultural leaders' thinking was – Framer (30%), Adapter (40%), Tester (21%) and Reactor (9%). Moving toward an Adapter and Framer was considered a potentially positive, longer-term industry goal. Panel members' responses suggested an approximate equal orientation between the Adapter and Framer styles would be advantageous. This would involve leaders simultaneously thinking about and interrogating future possibilities while dealing with change, new market, or organisational demands.

## Strategic Thinking (Conceptual and Analytical)

Agricultural leaders in this study depended on analytical inputs for their strategic thinking. Findings indicated a stronger orientation toward analytical cognitions. Effective strategic thinking is marked by a balance between conceptual and analytical thinking when considering an organisation's future (Leonard Scholl & Kowalski 1999; van der Laan 2010). This polarisation towards Analytic strategic thinking style whilst not optimal for an organisation's future, may reflect the organisational and industry contexts in which agriculture leaders operate. These finding have consequences at multiple organisation levels. In this study, strategy development was a 'top-down' process that limited the options available from a strategy development perspective.

The more generative and conceptual inputs to strategy were significantly underutilised due to an imbalance between Analytic and Conceptual strategic thinking. There was an agreement that a balance between the analytic and conceptual elements of strategic thinking was necessary for innovation and change. Leaders were more likely to favour

a collaborative leadership approach suggesting an emphasis on the co-creation of value rather than a managerial style in achieving strategic priorities.

Panel members noted that strategic thinking is important amongst agriculture leaders.

> Panel member quote
> "I think that the analytical piece is driving the decision-making art, I do believe that for innovation and for change, we need to accept a radical thinking approach and we need to be open to new ideas"

### 7.3.2. Research Question 2

**What are the perceived associations between foresight, strategic thinking, and strategy formulation of Australian agricultural leaders?**

**Strategy Formulation**

A series of findings regarding strategy formulation were identified and supported the argument that the strategy process is complex. Furthermore, the findings supported the dynamic model of strategy process, which is: (1) an interactive and continuous process, (2) a process that attempts to connect leader and organisational thinking with possible futures and (3) that strategy formulation is a non-linear, multi-dimensional process (van der Laan & Yap 2016).

Agricultural leaders influenced the strategy development process. However, agriculture employees influence over the process was considered limited. This finding is consistent with a traditional view of strategy formulation as a linear process directed by leaders with limited influence from employees over the future of the organisation in which they work. For a futures approach to strategic thinking, strategy development must shift from a linear, leader centric process to an emergent, organisation-wide endeavour in the Australian agriculture sector (Hamel 2009).

The finding in the study indicated that Australian agricultural leaders need to build their strategy formulation skill base and their ability to identify or employ individuals with strategy development skills. Further, these findings suggest that agriculture

businesses and potentially industry more broadly are not evolving their strategic thinking and strategy formulation skill base. A failure to consider these may lead to an inability to address continually changing domestic and international markets.

The feedback provided by panel members yielded three interconnected themes. The primary theme was 'Strategy Formulation' was linked to the source of strategy thinking, the second themes labelled 'Source of Strategy' and strategy development concerns, and the third theme labelled 'Strategy Development Issues'. The findings indicated two different perceptions on strategy development. At one end, there was a recognition of the potential for strategy input from employees, while panel members also indicated that strategy was the domain of leaders and not an organisation-wide endeavour.

### 7.3.3. Research Question 3

**What are the perceived associations between industry leader training, foresight, and strategic thinking of Australian agricultural leaders?**

**Leadership Training**

The value proposition of leader training was identified in the study as having the potential to: (1) provide an opportunity to engage in critical and creative thinking, (2) help achieve organisational behaviour change and (3) develop new or emerging leaders. As a result, agriculture businesses were prepared to invest in leader development and were aware of the value and benefits of investing in leader development. This readiness level is considered a critical factor in delivering medium and long-term benefits to organisations (Avolio & Hannah 2008).

A range of leader training benefits were identified in the study which, included:
- The development of skills and abilities to enhance management;
- Improved technical competency;
- Improved leader judgement;
- Improved decision-making;
- Developing participatory leadership; and

- Enhanced leader communication skills.

The study's findings indicated that leaders were applying the concepts and skills gained from their training experiences in the workplace.  There was a perception that their organisations were receiving a benefit from training.

## 7.4. Correlations

Statistically significant correlations were identified and grouped as (1) demographics, (2) industry sector affiliation, (3) strategy influence and (4) benefits of leader training.

The correlations identified in this study provided the following insights:
- There is limited female participation in State advisory groups or industry bodies;
- Leaders are participating in sectoral industry organisations;
- The more educated a leader, there seems to be less of an appreciation for leadership training;
- Training may build leader influence over strategy development;
- Agricultural leaders may not be applying learning from their leadership training experiences;
- Influence on strategy is a benefit of leader training;
- Some leaders indicated that they are still applying their learning; and
- The content of training was relevant to the agriculture sector.

## 7.5. Agricultural Leader Profile

The 'Agriculture Leader Profile' outlined in Figure 24 amalgamates the findings in this study.  In addition, possible future research options are addressed in Section 7.8 relating to: (a) agriculture demographics, (b) strategy formulation and (c) leader training.

Figure 24. Agricultural Leader Profile
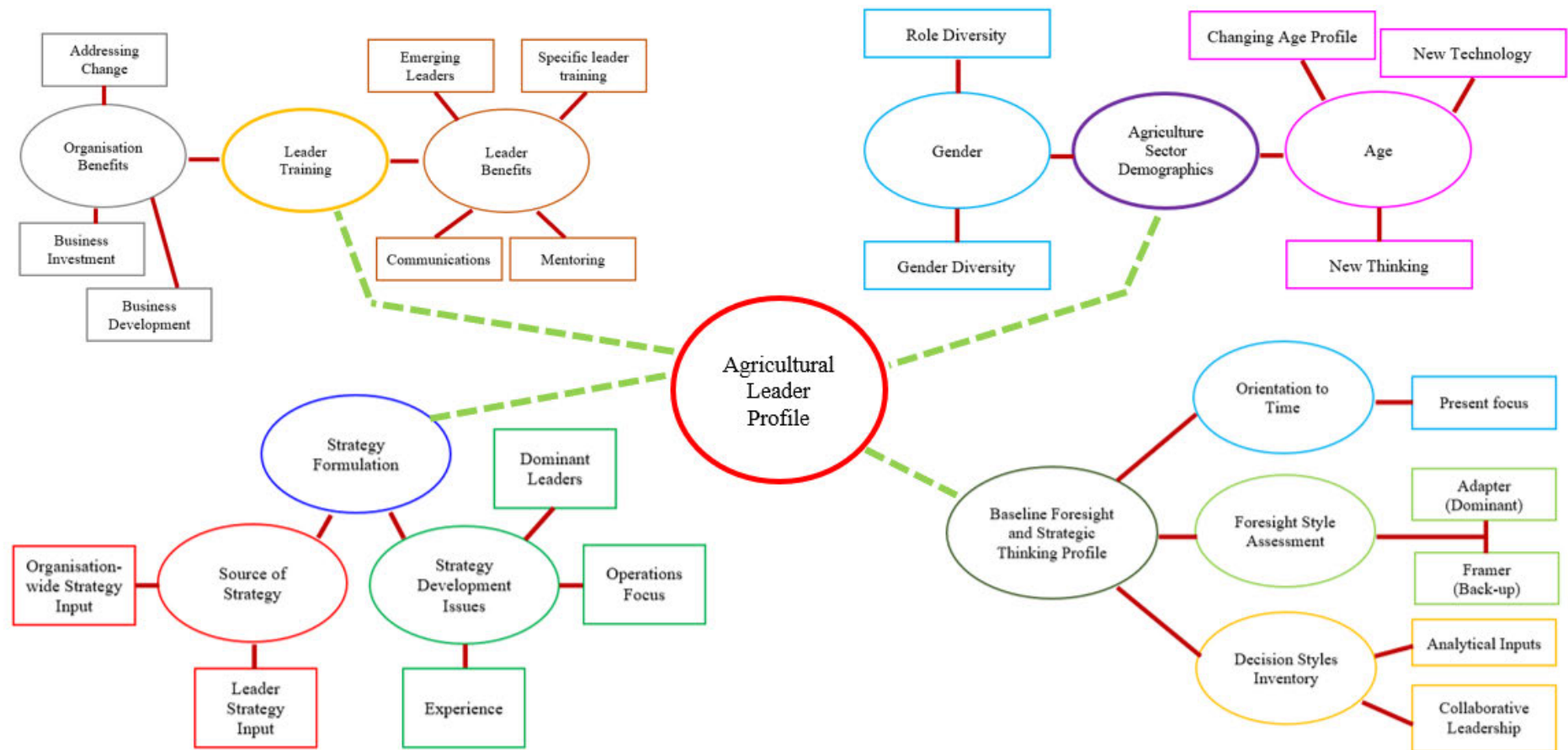


Source: Developed for the study.

## 7.6. Limitations

This study delimited its scope by focusing on identifying and publishing a baseline foresight and strategic thinking profile of Australian agricultural leaders. Consequently, there were limitations in the quantitative and qualitative research phases.

### 7.6.1. Limitations: Phase 1

The sample was small and served as an indication of the population characteristics only. Targeted rural RDC networks were used to distribute the TripleV survey instrument, which included certain sectors of agriculture, as noted in previous sections, while other sectors would not be represented.

The study intended to conduct CFA to test the relationships between observed variables and underlying constructs (Hurley et al. 1997). The minimum sample size for CFA ranges from 100 to 200 cases (Epskamp 2018). Despite an extended data collection period, 83 questionnaire responses were collected, of which 62 were retained for analysis after data cleaning and screening. With a total of 62 responses, CFA and SEM were not appropriate. This sample size limitation could result from survey fatigue amongst Australian agricultural leaders.

As discussed in Chapter 4, the baseline foresight and strategic thinking profile discussed in this study should not be considered an absolute measure and limits the generalisability of this study's findings. The findings are a tentative indication of a broader industry foresight and strategic thinking capabilities baseline. Further research with broader representative sampling is necessary to confirm or otherwise the profile benchmarks presented by the study. The study attracted a particular type of cohort of respondents and not others. As such, the sampling was directed at the problem amongst rural RDCs that participated.

### 7.6.2. Limitations: Phase 2

The Delphi study allows a panel member to analyse and make observations on a data set by applying their expert knowledge. This research study applied the Delphi steps outlined by Yousuf (2007) and Hsu and Sandford (2007). However, the Delphi process could vary to the degree that there is no methodological consistency, the

selection of experts can be loosely defined, and anonymous feedback does not require any panel member to justify their views although they are encouraged to do so (Goldman 1987).

The researcher provided a detailed rationale for using the Delphi process, and criteria for panel member selection were used. However, panel member accountability cannot be tested without breaking a central pillar of the technique which is maintaining their anonymity. While the value of adopting the Delphi method has been justified in the methodology chapter. The benefits associated with this form of enquiry being a predominantly qualitative approach include gaining a depth of understanding, identifying outlying opinions and confirming other findings. However, the limitations listed above are a caveat to establishing the reliability of the study's findings.

## 7.7. Study Contributions

The researcher achieved three outcomes under the 'triple dividend' goals of professional studies research, which were contributions to: (1) professional practice, (2) theory and (3) self. The researcher's triple dividend contributions are outcomes of the research process which were conceived and implemented to address the need for more advanced practice professionals in the Australian workplace (Fergusson, Allred & Dux 2018).

### 7.7.1. Contribution to Professional Practice

The research yielded an indicative baseline leader foresight and strategic thinking profile. The baseline suggests that agriculture leaders are (1) focussed on the present, (2) focused on operational concerns while considering possible futures, and (3) strategic thinking is adopted from an analytical approach with a narrow focus on conceptual inputs. These findings suggest a need for leader training that moves agricultural leaders to consider possible business and industry futures.

Strategy development was identified as a 'top-down' process, while leaders favoured a collaborative approach to leadership. This suggests that leaders, while exercising control over strategy formulation are prepared to support collaborative leadership. This disconnect suggests a willingness to practice collaborative leadership but limits control of strategy development.

A top-down approach to strategy development with limited employees input may be a sub-optimal way to develop strategy. This is inconsistent with Boal and Hooijberg, who argued that 'the essence of strategic leadership involves the capacity to learn, the capacity to change, and managerial wisdom' (Boal & Hooijberg 2000, p. 515).

The outcomes observed from leadership training were that training provided an opportunity to engage in critical thinking and behaviour change. Training had multiple benefits and allowed leaders to develop skills and abilities such as applying objective judgement, decision-making, developing participatory leadership openness, communication skills, and innovative thinking. Training was also cited as beneficial in building future possibilities and strategic decision-making. Encouraging leader development was considered both an individual and organisational priority and responsibility. While generic leader capability building was valued, industry-specific leader development was considered an essential element of training.

### 7.7.2. Contribution to Theory

The primary driver of this study was not to test or develop a new theory. Certainly, the results of this study provide insights into strategic leadership theory. It is difficult to assess how a dominant coalition or each leader individually has affected their organisation regarding strategy development. It has been argued by van der Laan (2010) that strategy-level leaders and their role in strategy formulation are critically important. This study made two contributions to theory and are outlined below.

### 7.7.2.1. Strategic Leadership Theory

Strategic leadership theory (SLT) posits that the demographics such as age, education, industry experience etc. may serve as proxies that reflect the future state of an organisation, industry or group. This study extended the application of the theory to suggest that measured leader characteristics such as their capabilities may also be used as proxies to reflect the future of an organisation, industry or group. This has been conceptualised in the study's conceptual model and operationalised first in measuring foresight and strategic thinking capabilities and then through the triangulation of the measures using the Delphi method. The Delphi results confirmed the profiles and, based thereon, the possible future outcomes these would indicate for the agricultural sector.

This study was not designed to create or extend theory. However, the theoretical context in which this study is based was important to understand the critical nature of foresight and strategic thinking capabilities. This study extended SLT from a dominant focus on demographic proxies. This is a unique contribution to strategic management.

### 7.7.2.2. Exploratory Factor Analysis

The exploratory factor analysis (EFA) results confirmed the TripleV instrument and associated foresight and strategic thinking leader capability constructs. The findings in this study are consistent with previous research (Gary 2009; van der Laan 2010; van der Laan & Erwee 2012, 2013; van der Laan & Yap 2016; Chen, Hsu & Hoffman 2021).

### 7.7.3. Contribution to the Self

The researcher achieved a range of learning objectives (LOs) that were established by at the beginning of the research process and are detailed in Appendix L.

### 7.7.3.1. Understanding the Australian Agriculture Industry

The research process has fundamentally changed how the researcher views leadership based on the following learnings:

- The research process has increased the researcher's knowledge of the broader context in which the Australian agricultural sector operates and the complexity of leadership;

- The research process has deepened the appreciation of the complexities associated with leadership;

- The researcher's desire to continue to investigate the leadership phenomenon has been reinforced by the research process; and

- The way the program of study is structured allows for a 'deep dive' into complex topic areas that are connected to the experience of the researcher.

The researcher primarily works as an advocate in the Queensland commercial fisheries and has built networks amongst the broader agriculture sector. The researcher intends

to continue working to deepen his understanding of leader capabilities in the Australian agriculture sector.

### 7.7.3.2. Relationship Insights

Building a positive working relationship was a personal goal of the researcher. As a part-time external student, the researcher understood the need for self-directed learning as the foundation for completing this study. Some insights here include:

- The Doctor of professional studies can only work if the relationship between the student and his or her supervisors are built over time. Open and transparent communication was the only way to build the confidence of the researcher and allow him to test his insights;

- The research process has helped reinforce the need for continual learning;

- It is important to maintain continual contact and dialogue with supervisors;

- The researcher regrets a missed opportunity to build a network amongst other, part-time students undertaking post-graduate studies; and

- Balancing the time spent on the research process, reading and thinking about the problem in the study with other commitments, particularly spending time with family.

### 7.7.3.3. Skills Acquisition

The researcher has gained tremendously from the research process:

- Planning is critical, and thus, the design of the research and subsequent data collection process is critical to completing a thesis;

- The researcher's knowledge base regarding foresight and strategic thinking as leader capabilities has been expanded and enriched through the research process;

- Understanding the potential impact of the researcher's own biases and assumptions has been a positive element of the research process; and

- The research process has helped develop a knowledge base that has increased the researcher's desire to continue his studies in the leader capability and development fields.

The researcher has been patient and persistent in his learning journey. It helps to be curious about the topic under investigation, and extremely helpful that it has relevance

in a business and industry context. Finalising this thesis was, at first, the only goal worth achieving. However, the research process, continual learning and discussions with supervisors has only increased the researcher's curiosity regarding the leader topic. The completion of a thesis is worth celebrating, but it is not an end state but more a platform to continue to contribute to our collective knowledge base and hopefully, leaders working across the Australian agriculture sector.

## 7.8. Suggestions for Future Research

The following section provides suggestions for future research including: (1) more representative and sectoral-specific sampling, (2) SLT, (3) factor analysis, (4) additional qualitative studies, and (5) leader training.

### 7.8.1. Sectoral-specific sampling

Future research endeavours could address the sample size limitations in this study by seeking the participation of additional Australian agricultural leaders, including: (1) emerging leaders, (2) existing leaders and (3) leaders nearing the end of their careers. This study's findings provided a tentative indication of a broader industry foresight and strategic thinking capabilities baseline. A larger sample size encompassing emerging, existing and end of career leaders may confirm the findings in this study and identify difference amongst the profiles.

### 7.8.2. Strategic Leadership Theory

It has been noted that SLT explains how individual leaders and dominant coalitions impact on organisational outcomes and that these outcomes can be anticipated based on the characteristics of the leaders. This study has extended SLT from a predominant focus on demographic proxies to utilise leader capabilities as proxies as reflective the organisations or sector's future. Future studies could investigate the degree to which foresight and strategic thinking capabilities are related to organisational outcomes. These may include leader decision-making, strategic planning, emerging, realised and unrealised strategies.

### 7.8.3. Factor Analysis

Findings in this study using EFA confirmed the TripleV instrument's internal validity and reliability. While the sample size was a limitation of the study, the sample size

was adequate to generate a statistically significant model. As such, the study's findings provide a valid indication of the agricultural industry's foresight and strategic thinking capability baseline. A larger sample size would allow for the use of confirmatory factor analysis and provide further statistical validity and reliability results to support or refute the findings of this study.

### 7.8.4. Age and Gender

Feedback in the study regarding age and gender provide potential opportunities to contextualise the baseline foresight and strategic thinking profile in this study. Some key questions could include:

- To what extent does the Australian agriculture age demographic relate to industry futures and strategic thinking?
- To what extent is the Australian agriculture sector draw on new ways of thinking across age cohorts?
- To what extent is the Australian agriculture sector draw on new technologies and/or thinking from younger agricultural leaders?
- To what extent does role diversity impact Australian agriculture leadership?
- What is the gender composition across leadership roles in the Australian agriculture sector?

### 7.8.5. Strategy Formulation

Qualitative research approaches provide the ability to identify opinions, explore quantitative research results, or understand individual experiences and opinions (Rahman 2017; Ahmad et al. 2019). This study found that agriculture employee influence over the process was considered limited in relation to strategy formulation process. Future research could use semi-structured interviews amongst agriculture employees and leaders to explore the following questions:

- What factors limit agriculture employee influence of the strategy formulation process?
- To what extent do Australian agriculture leaders engage with employees to develop strategy?
- To what extent to Australian agriculture leaders consider strategy formulation a leader only domain?

- To what extent does training build a leader's ability to influence strategy formulation?

### 7.8.6. Leader Training

Concerning training, the findings of the study suggested that agricultural leaders were applying the concepts and skills as an outcome of their training experiences. In addition, it was found that agricultural leaders were receiving a benefit from their training experiences. However, statistically significant correlations suggest further research may be needed to explore the impacts of an individual's level of education and factors impacting the application of training.

Correlations regarding education and training in this study suggested that the more educated a leader, there seems to be less appreciation for leadership training. Additionally, agricultural leaders may not be applying learning from their training experiences. Therefore, further research efforts could be directed toward addressing the following research questions:

- To what extent does an individual's education level impact that individual's ability to benefit from leader training?
- What factors limit the ability of leaders to apply their leadership training?

### 7.9. Conclusion

This chapter summarised the findings detailed in Chapters 4 and 5 of the research, the implications of these findings, limitations of the study, and suggestions for future research. This work-based research has the potential to assist the Australian agricultural sector in identifying the foresight and strategic thinking capabilities of its leadership base.

The Doctor of Professional Studies allowed the researcher to study in greater detail the impacts of foresight and strategic thinking as critical leadership capabilities that could be achieved in a work setting. Moreover, this study also provided an opportunity to critically examine the context in which Australian agricultural leaders work, their views on strategy development and potential training needs.

Seeking to understand the importance of leadership capabilities is an ongoing concern for leaders in any industry. Both foresight and strategic thinking are innate, cognitive abilities accessible to individuals. The baseline foresight and strategic thinking profile in this study is the first attempt to understand these leader capabilities amongst Australian agricultural leaders. At no stage has a claim been made that they are the only leader capabilities. Foresight and strategic thinking are critical leader capabilities needed to engage with an agriculture context considering changing population demographics, economic growth, IT and impacts of climate change.

In conclusion, the future of the Australian agriculture sector will be underpinned by leaders that understand the influence of both foresight and strategic thinking capabilities. Strategic leadership theory suggests that these capabilities will reflect the status of organisations or industry. In broad terms, the foresight and strategic thinking profiles in this study does not suggest a stagnating leadership cadre but leaders predominantly focussed on the present while cognisant of possible industry futures. These leaders adopt an analytical approach to strategic thinking with potential restrictions on where top-level leaders draw their inputs to develop strategy. The findings in this study are an opportunity to discuss and better understand what constitutes an optimal foresight and strategic thinking profile, how these capabilities can be developed and how do they contribute to fit for future leadership.

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# Appendix A. Invitation to Participate

## Strategic Leadership in Australian Rural Industries

Leader foresight and strategic thinking capabilities in Australian rural industries.

[University of Southern Queensland ethics approval: 18REA014]

Leadership development within Australian rural industries continues to be the focus of considerable investment. This makes sense especially in a world that is typified by constant change, threats and opportunities in domestic market conditions and amongst its regional neighbors. It is critical that each agricultural sector have leaders who are confident in dealing with change and the potential of the future. Key identified leadership capabilities amongst future leaders that enable this include foresight and strategic thinking. Do current leadership development programs develop these capabilities and to what extent?

Rural research and development corporations (RDCs) as part of their work with the agriculture sectors they represent, provide opportunities to develop leaders. This study seeks to benchmark and investigate the foresight and strategic thinking profiles of leaders working across the Australian agriculture sectors represented by the seafood, diary, cotton and horticulture RDCs while assessing the impact of current leadership development initiatives.

The aims of this study include:

1) Identifying a rural RDC foresight and strategic thinking baseline profiles.
2) Identifying the relationship between the demographics of age, industry experience and education and foresight and strategic thinking capabilities.
3) A clear analysis of program, practice and outcomes of leadership development performance across rural RDCs.
4) Identify the gaps between Aims 1 and 3 and the implications for rural RDCs.
5) To contribute to the development of existing and future agriculture primary industry leaders.

Participation in the survey is voluntary and anonymity is guaranteed. It will take you approximately 25 minutes to complete and you are able to withdraw at any time by exiting the survey.

If you have any concerns or questions please contact the chief researcher, Eric Perez

Please start the survey now and indicate your consent to participate by clicking on the "I Agree" button below.

☐ I Agree

[ Continue ]

Please contact Eric Perez (Chief Investigator) at eo@qsia.com.au if you have any questions regarding this survey.

## Appendix B. Consent Form

**University of Southern Queensland**

### Consent Form for Questionnaire

| Project Details | |
|---|---|
| Title of Project: | Investigating the foresight and strategic thinking capabilities of Australian agricultural leaders in rural research and development corporations: A leadership development perspective |
| Human Research Ethics Approval Number: | H18REA014 |

**Research Team Contact Details**

**Principal Investigator Details**

Mr Eric Perez
Email: U1067181@umail.usq.edu.au
Telephone: -
Mobile: 0417 631 353

**Supervisor Details**

Dr. Luke van der Laan
Email: luke.vanderlaan@usq.edu.au
Telephone: (07) 4631 5508
Mobile: -

**Statement of Consent**

**By signing below, you are indicating that you:**

- Have read and understood the information document regarding this project.

- Have had any questions answered to your satisfaction.

- Understand that if you have any additional questions you can contact the research team.

- Understand that you are free to withdraw at any time, without comment or penalty.

- Understand that you can contact the University of Southern Queensland Ethics Coordinator on (07) 4631 2690 or email ethics@usq.edu.au if you do have any concern or complaint about the ethical conduct of this project.

- Are over 18 years of age.

- Agree to participate in the project.

**Please return this sheet to a Research Team member prior to undertaking the questionnaire.**

## Appendix C. Participant Information Sheet



# University of Southern Queensland

## Questionnaire Participant Information Sheet

### Project Details

| | |
|---|---|
| Title of Project: | Investigating the foresight and strategic thinking capabilities of Australian agricultural leaders in rural research and development corporations: A leadership development perspective |
| Human Research Ethics Approval Number: | H18REA014 |

### Research Team Contact Details

**Principal Investigator Details**

Mr Eric Perez
Email: U1067181@umail.usq.edu.au
Telephone: -
Mobile: 0417 631 353

**Supervisor Details**

Dr. Luke van der Laan
Email: luke.vanderlaan@usq.edu.au
Telephone: (07) 4631 5508
Mobile: -

### Description

Leadership development within Australian rural industries continues to be the focus of considerable investment. For example, the Fisheries Research and Development Corporation (FRDC) spent approximately $1.5 million in developing industry leaders in the Australian seafood industry in 2017 alone. The Australian agriculture sector is facing changing domestic market conditions amongst its regional neighbors.

There is a critical need for a better understanding of foresight and strategic thinking as key leadership capabilities required in agricultural Research and Development Corporations (RDCs) within the context of rapid change and volatile contexts. This study seeks to benchmark and investigate the foresight and strategic thinking profiles of RDC leaders while assessing the impact of current leadership development initiatives.

The aims of this study include:
1. Identifying a rural RDC foresight and strategic thinking baseline profiles.
2. Identifying the relationship between the demographics of age, industry experience and education and foresight and strategic thinking capabilities.
3. A clear analysis of program, practice and outcomes of leadership development performance across rural RDCs;
4. Identify the gaps between Aims 1 and 3 and the implications for rural RDCs.
5. To contribute to the development of existing and future agriculture primary industry leaders.

### Participation

Your participation will involve participation in an interview that will take approximately 20 minutes of your time. A link to the survey will be sent to your nominate email address with survey instructions and a consent form.

A key premise of the study is that foresight and strategic thinking capabilities are necessary outcomes of successful leadership development and the study will be investigating the extent to which this applies.

Your decision whether you take part, do not take part, or to take part and then withdraw, will in no way impact your current or future relationship with the University of Southern Queensland.

## Expected Benefits

It is expected that this project will directly benefit you by understanding the strategic thinking and foresight profiles of industry leaders across the seafood, diary, cotton and horticulture sectors.

## Risks

There are no anticipated risks beyond normal day-to-day living associated with your participation in this project.

## Privacy and Confidentiality

All comments and responses will be treated confidentially unless required by law.

This project is funded by grants from the Fisheries Research and Development Corporation, Dairy Australia, Cotton Research and Development Corporation and Hort Innovation.

Any data collected as a part of this project will be stored securely as per University of Southern Queensland's Research Data Management policy.

## Consent to Participate

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate in this project. Please return your signed consent form to a member of the Research Team prior to participating in your interview.

## Questions or Further Information about the Project

Please refer to the Research Team Contact Details at the top of the form to have any questions answered or to request further information about this project.

## Concerns or Complaints Regarding the Conduct of the Project

If you have any concerns or complaints about the ethical conduct of the project you may contact the University of Southern Queensland Ethics Coordinator on (07) 4631 2690 or email ethics@usq.edu.au. The Ethics Coordinator is not connected with the research project and can facilitate a resolution to your concern in an unbiased manner.

**Thank you for taking the time to help with this research project. Please keep this sheet for your information.**

# Appendix D. Ethical Clearance

**OFFICE OF RESEARCH**
Human Research Ethics Committee
PHONE +61 7 4631 2690| FAX +61 7 4631 5555
EMAIL human.ethics@usq.edu.au

**UNIVERSITY**
OF **SOUTHERN**
**QUEENSLAND**

7 February 2018

Mr Eric Perez

Dear Eric

The USQ Human Research Ethics Committee has recently reviewed your responses to the conditions placed upon the ethical approval for the project outlined below. Your proposal is now deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research (2007)* and full ethical approval has been granted.

| Approval No. | H18REA014 |
|---|---|
| Project Title | Investigating the foresight and strategic thinking capabilities of Australian agricultural leaders in rural research and development corporations: A leadership development perspective |
| Approval date | 07 February 2018 |
| Expiry date | 07 February 2021 |
| HREC Decision | **Approved** |

The standard conditions of this approval are:
(a) Conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the HREC
(b) Advise (email: human.ethics@usq.edu.au) immediately of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project
(c) Make submission for approval of amendments to the approved project before implementing such changes
(d) Provide a 'progress report' for every year of approval
(e) Provide a 'final report' when the project is complete
(f) Advise in writing if the project has been discontinued, using a 'final report'

For (c) to (f) forms are available on the USQ ethics website:
http://www.usq.edu.au/research/support-development/research-services/research-integrity-ethics/human/forms

Please note that failure to comply with the conditions of approval and the *National Statement (2007)*, may result in withdrawal of approval for the project.

Yours sincerely,

**Dr Mark Emmerson**
Ethics Officer

## Appendix E. Descriptive Statistics

| | N | Mean | Std. Deviation | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| I am known for generating ideas. | 62 | 6.0000 | 0.90536 | -0.685 | 0.304 | -0.192 | 0.599 |
| Being organized is important to me. | 62 | 6.3226 | 1.14196 | -2.242 | 0.304 | 5.419 | 0.599 |
| People think of me as a visionary | 62 | 4.9839 | 1.27385 | -0.510 | 0.304 | 0.383 | 0.599 |
| People think of me as organized. | 62 | 5.7419 | 1.45912 | -1.464 | 0.304 | 1.670 | 0.599 |
| I tend to dwell on "what was" | 62 | 3.1935 | 1.57687 | 0.654 | 0.304 | -0.127 | 0.599 |
| People think of me as structured. | 62 | 5.3065 | 1.59496 | -1.150 | 0.304 | 0.845 | 0.599 |
| I am known for invention/innovation. | 62 | 5.2258 | 1.34797 | -1.299 | 0.304 | 2.224 | 0.599 |
| People think I am best at planning and organisation. | 62 | 5.4677 | 1.30218 | -0.986 | 0.304 | 1.468 | 0.599 |
| I often think about past decisions | 62 | 4.2419 | 1.71479 | -0.067 | 0.304 | -0.904 | 0.599 |
| Test new products/trends very early | 62 | 3.3387 | 1.26677 | 0.176 | 0.304 | -0.820 | 0.599 |
| Don't like changes that disrupt opportunity | 62 | 2.8226 | 1.48792 | 0.654 | 0.304 | -0.505 | 0.599 |
| Quickly adjust to new situations | 62 | 4.1774 | 1.07923 | -0.285 | 0.304 | -0.079 | 0.599 |
| Hold the line when new plans are imposed | 62 | 2.8065 | 1.41234 | 0.572 | 0.304 | -0.525 | 0.599 |
| Don't want too much change | 62 | 2.0645 | 1.23966 | 1.528 | 0.304 | 2.264 | 0.599 |
| Consider how trends interact | 62 | 4.0806 | 1.01300 | 0.127 | 0.304 | -1.126 | 0.599 |
| Against changes that threaten one's position | 62 | 2.0806 | 1.42919 | 1.456 | 0.304 | 1.283 | 0.599 |
| Focus on future questions | 62 | 4.4194 | 1.23539 | -0.860 | 0.304 | 0.546 | 0.599 |
| Conscious of big trends in society | 62 | 4.2581 | 1.26667 | -0.657 | 0.304 | 0.304 | 0.599 |
| Go along when new trends come | 62 | 3.4355 | 1.18212 | -0.056 | 0.304 | -0.418 | 0.599 |
| Interested in future questions | 62 | 4.5806 | 1.24858 | -1.077 | 0.304 | 0.956 | 0.599 |
| Focus on greater future questions | 62 | 4.3548 | 1.41533 | -0.913 | 0.304 | 0.208 | 0.599 |
| Make things happen when future demands it | 62 | 4.4516 | 1.27623 | -0.622 | 0.304 | -0.005 | 0.599 |
| Take advantage of trends that pop up | 62 | 3.9677 | 1.10093 | -0.315 | 0.304 | -0.071 | 0.599 |

|  | N | Mean | Std. Deviation | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|
|  | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Flexible person | 62 | 4.5645 | 1.06542 | -0.636 | 0.304 | -0.390 | 0.599 |
| Have a position with status | 62 | 2.3710 | 2.27772 | 1.708 | 0.304 | 1.700 | 0.599 |
| Be the best in my field | 62 | 5.0645 | 2.93018 | -0.163 | 0.304 | -1.735 | 0.599 |
| Achieve recognition for my work | 62 | 3.9677 | 2.11914 | 0.919 | 0.304 | -0.137 | 0.599 |
| Feel secure in my job | 62 | 3.5968 | 2.68242 | 0.843 | 0.304 | -0.925 | 0.599 |
| Are technical and well defined | 62 | 2.3871 | 2.13752 | 1.764 | 0.304 | 2.168 | 0.599 |
| Have considerable variety | 62 | 4.1935 | 2.50140 | 0.513 | 0.304 | -1.067 | 0.599 |
| Allow independent action | 62 | 5.1129 | 2.86931 | -0.143 | 0.304 | -1.750 | 0.599 |
| Involve people | 62 | 3.3065 | 2.44674 | 1.054 | 0.304 | -0.212 | 0.599 |
| Productive and fast | 62 | 2.5968 | 2.24309 | 1.525 | 0.304 | 1.279 | 0.599 |
| Highly capable | 62 | 4.0484 | 2.72467 | 0.566 | 0.304 | -1.336 | 0.599 |
| Committed and responsive | 62 | 5.3065 | 2.69540 | -0.203 | 0.304 | -1.613 | 0.599 |
| Receptive to suggestions | 62 | 3.0484 | 2.25743 | 1.184 | 0.304 | 0.454 | 0.599 |
| Practical results | 62 | 3.9194 | 2.58811 | 0.590 | 0.304 | -1.025 | 0.599 |
| The best solutions | 62 | 4.3387 | 2.86267 | 0.379 | 0.304 | -1.669 | 0.599 |
| New approaches or ideas | 62 | 3.1935 | 2.40790 | 1.090 | 0.304 | -0.034 | 0.599 |
| Good working environment | 62 | 3.5484 | 2.79154 | 0.699 | 0.304 | -1.083 | 0.599 |
| In a direct one-to-one basis | 62 | 5.4194 | 2.83739 | -0.371 | 0.304 | -1.585 | 0.599 |
| In writing | 62 | 3.4194 | 2.79665 | 0.844 | 0.304 | -0.959 | 0.599 |
| By having group discussions | 62 | 3.5000 | 2.13288 | 1.147 | 0.304 | 0.359 | 0.599 |
| In a formal meeting | 62 | 2.6613 | 2.14203 | 1.420 | 0.304 | 1.257 | 0.599 |
| Current problems | 62 | 3.8871 | 2.69246 | 0.577 | 0.304 | -1.162 | 0.599 |
| Meeting objectives | 62 | 4.0806 | 2.46482 | 0.617 | 0.304 | -0.954 | 0.599 |
| Future goals | 62 | 4.6774 | 2.80967 | 0.177 | 0.304 | -1.717 | 0.599 |
| Developing people's careers | 62 | 2.3548 | 2.24044 | 1.816 | 0.304 | 2.069 | 0.599 |
| Rely on proven approaches | 62 | 3.4677 | 2.65329 | 0.916 | 0.304 | -0.757 | 0.599 |
| Apply careful analysis | 62 | 5.0484 | 2.61413 | 0.002 | 0.304 | -1.553 | 0.599 |
| Look for creative approaches | 62 | 4.6290 | 2.63167 | 0.229 | 0.304 | -1.455 | 0.599 |
| Rely on my feelings | 62 | 1.8548 | 1.48044 | 2.670 | 0.304 | 8.215 | 0.599 |
| Specific facts | 62 | 4.1452 | 2.49489 | 0.615 | 0.304 | -1.078 | 0.599 |
| Accurate and complete data | 62 | 4.7903 | 2.69266 | 0.074 | 0.304 | -1.504 | 0.599 |
| Broad coverage of many options | 62 | 3.8387 | 2.66239 | 0.707 | 0.304 | -1.102 | 0.599 |
| Limited data which is easily understood | 62 | 2.2258 | 2.24280 | 1.960 | 0.304 | 2.506 | 0.599 |
| Rely on intuition | 62 | 2.4839 | 2.20834 | 1.745 | 0.304 | 1.912 | 0.599 |
| Search for facts | 62 | 5.2258 | 2.91080 | -0.215 | 0.304 | -1.794 | 0.599 |
| Look for a possible compromise | 62 | 3.6613 | 2.11120 | 0.939 | 0.304 | 0.195 | 0.599 |

| | N | Mean | Std. Deviation | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Wait before making a decision | 62 | 3.6290 | 2.74748 | 0.677 | 0.304 | -1.074 | 0.599 |
| Long debates | 62 | 3.7742 | 2.47227 | 0.719 | 0.304 | -0.730 | 0.599 |
| Incomplete work | 62 | 4.3226 | 2.82712 | 0.348 | 0.304 | -1.581 | 0.599 |
| Using numbers or formulas | 62 | 2.8871 | 2.67413 | 1.246 | 0.304 | -0.116 | 0.599 |
| Conflict with others | 62 | 4.0161 | 2.60826 | 0.560 | 0.304 | -1.126 | 0.599 |
| Remembering dates & facts | 62 | 2.8226 | 2.79651 | 1.234 | 0.304 | -0.273 | 0.599 |
| Solving difficult problems | 62 | 4.2742 | 2.51011 | 0.527 | 0.304 | -1.179 | 0.599 |
| Seeing many possibilities | 62 | 4.2581 | 2.60476 | 0.495 | 0.304 | -1.307 | 0.599 |
| Interacting with others | 62 | 3.6452 | 2.62458 | 0.744 | 0.304 | -0.893 | 0.599 |
| Decide and act quickly | 62 | 4.8226 | 3.03274 | -0.022 | 0.304 | -1.850 | 0.599 |
| Follow plans and priorities | 62 | 3.8710 | 2.61449 | 0.606 | 0.304 | -1.036 | 0.599 |
| Refuse to be pressured | 62 | 2.9516 | 2.14573 | 1.330 | 0.304 | 0.969 | 0.599 |
| Seek guidance or support | 62 | 3.3548 | 2.56775 | 0.912 | 0.304 | -0.552 | 0.599 |
| Speak with others | 62 | 3.5968 | 3.07534 | 0.646 | 0.304 | -1.448 | 0.599 |
| Think about what is being said | 62 | 3.1452 | 2.27493 | 1.257 | 0.304 | 0.443 | 0.599 |
| Observe what is going on | 62 | 4.4194 | 2.67072 | 0.375 | 0.304 | -1.473 | 0.599 |
| Listen to what is going on | 62 | 3.8387 | 2.56837 | 0.587 | 0.304 | -0.934 | 0.599 |
| People's names | 62 | 2.3871 | 2.35640 | 1.739 | 0.304 | 1.607 | 0.599 |
| Places we met | 62 | 2.7742 | 1.79635 | 1.508 | 0.304 | 2.360 | 0.599 |
| People's faces | 62 | 4.7581 | 2.75017 | 0.154 | 0.304 | -1.687 | 0.599 |
| People's personality | 62 | 5.0806 | 2.68144 | -0.078 | 0.304 | -1.551 | 0.599 |
| The power to influence others | 62 | 3.2419 | 2.20049 | 1.065 | 0.304 | 0.339 | 0.599 |
| Challenging assignments | 62 | 5.5484 | 2.75608 | -0.384 | 0.304 | -1.623 | 0.599 |
| Achieving my personal goals | 62 | 3.6935 | 2.38567 | 0.856 | 0.304 | -0.492 | 0.599 |
| Acceptance by the group | 62 | 2.5161 | 2.44776 | 1.598 | 0.304 | 1.053 | 0.599 |
| Energetic and ambitious | 62 | 3.7581 | 2.80331 | 0.677 | 0.304 | -1.234 | 0.599 |
| Self confident | 62 | 2.9194 | 2.16756 | 1.315 | 0.304 | 0.910 | 0.599 |
| Open minded | 62 | 4.7742 | 2.50520 | 0.239 | 0.304 | -1.406 | 0.599 |
| Polite and trusting | 62 | 3.5484 | 2.92909 | 0.714 | 0.304 | -1.247 | 0.599 |
| Become anxious | 62 | 3.1129 | 2.40290 | 1.203 | 0.304 | 0.148 | 0.599 |
| Concentrate on the problem | 62 | 5.8065 | 2.71510 | -0.581 | 0.304 | -1.424 | 0.599 |
| Become frustrated | 62 | 3.6774 | 2.11764 | 0.890 | 0.304 | 0.157 | 0.599 |
| Am forgetful | 62 | 2.4032 | 2.24309 | 1.753 | 0.304 | 1.883 | 0.599 |
| Aggressive | 62 | 2.0323 | 2.14222 | 2.180 | 0.304 | 3.490 | 0.599 |
| Disciplined | 62 | 4.6290 | 2.68715 | 0.253 | 0.304 | -1.584 | 0.599 |
| Imaginative | 62 | 3.1613 | 2.03408 | 1.368 | 0.304 | 1.149 | 0.599 |
| Supportive | 62 | 5.1774 | 2.65826 | -0.100 | 0.304 | -1.598 | 0.599 |
| Realistic and direct | 62 | 5.4194 | 2.98932 | -0.421 | 0.304 | -1.661 | 0.599 |
| Systematic or abstract | 62 | 2.4032 | 2.01193 | 1.756 | 0.304 | 2.473 | 0.599 |

| | N | Mean | Std. Deviation | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Broad and flexible | 62 | 3.5161 | 2.04652 | 1.091 | 0.304 | 0.550 | 0.599 |
| Sensitive to the needs of others | 62 | 3.6613 | 2.70363 | 0.717 | 0.304 | -1.026 | 0.599 |
| Losing control | 62 | 4.3065 | 2.86064 | 0.310 | 0.034 | -1.579 | 0.599 |
| Boring work | 62 | 4.6290 | 2.72351 | 0.174 | 0.304 | -1.532 | 0.599 |
| Following rules | 62 | 2.5484 | 1.80779 | 1.777 | 0.304 | 3.115 | 0.599 |
| Being rejected | 62 | 3.5161 | 2.78015 | 0.758 | 0.034 | -1.031 | 0.599 |
| What is your Industry Sector affiliation | 62 | 2.0484 | 1.09286 | 0.525 | 0.304 | -0.514 | 0.599 |
| What is your gender? | 62 | 1.4032 | 0.49455 | 0.404 | 0.304 | -1.899 | 0.599 |
| What is your age? | 62 | 3.4754 | 1.01798 | -0.702 | 0.034 | 0.069 | 0.599 |
| What is your level of education? | 62 | 4.6271 | 1.40138 | -0.843 | 0.034 | -0.608 | 0.599 |
| CEO / Executive | 20 | 1.0000 | 0.00000 | . | . | . | . |
| Business Owner | 19 | 1.0000 | 0.00000 | . | . | . | . |
| Board Member | 10 | 1.0000 | 0.00000 | . | . | . | . |
| Farmer | 11 | 1.0000 | 0.00000 | . | . | . | . |
| Director | 13 | 1.0000 | 0.00000 | . | . | . | . |
| Committee Member | 4 | 1.0000 | 0.00000 | . | . | . | . |
| Senior Manager / Manager | 20 | 1.0000 | 0.00000 | . | . | . | . |
| Consultant | 1 | 1.0000 | . | . | . | . | . |
| Rate your influence on the strategy formulation of your organisation? | 62 | 1.5484 | 0.88108 | 1.631 | 0.304 | 1.843 | 0.599 |
| The main actors understand strategy in the same way | 29 | 1.0000 | 0.00000 | . | . | . | . |
| There is conflict between the main actors | 18 | 1.0000 | 0.00000 | . | . | . | . |
| It is very much 'top / down' | 12 | 1.0000 | 0.00000 | . | . | . | . |
| It is a 'team effort' by all employees | 27 | 1.0000 | 0.00000 | . | . | . | . |
| There is no clear strategy formulation | 9 | 1.0000 | 0.00000 | . | . | . | . |
| Have you participated in advisory groups at the State level? | 62 | 1.3770 | 0.48465 | 0.524 | .304 | -1.766 | 0.599 |
| Have you served in an industry body? | 62 | 1.2787 | 0.44835 | 1.020 | .304 | -0.975 | 0.599 |
| Are you applying the concepts you have learned from leadership training in your leadership position? | 62 | 1.6271 | 0.65030 | 0.611 | .304 | -0.511 | 0.599 |
| Has your organisation benefited from your leadership training experience? | 62 | 1.6780 | 0.87667 | 1.314 | .304 | 1.823 | 0.599 |

| | N | Mean | Std. Deviation | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| I am a better leader after undertaking leadership training. | 62 | 1.5593 | 0.73040 | 0.960 | 0.304 | -0.436 | 0.599 |
| I learned skills from a leadership training that I am still applying in my position. | 62 | 1.5085 | 0.68647 | 1.068 | 0.304 | -0.059 | 0.599 |
| Leadership training is suitable in developing leaders in my industry. | 62 | 1.5789 | 0.72309 | 0.920 | 0.304 | -0.449 | 0.599 |
| Valid N (listwise) | 0 | | | | | | |

# Appendix F. TripleV foresight and strategic thinking survey

Orientation to Time Questionnaire Items

| In my organisation: | Strongly Disagree | Moderately Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Moderately Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| I am known for generating ideas | □ | □ | □ | □ | □ | □ | □ |
| Being organized is important to me | □ | □ | □ | □ | □ | □ | □ |
| People think of me as a visionary | □ | □ | □ | □ | □ | □ | □ |
| People think of me as organized | □ | □ | □ | □ | □ | □ | □ |
| I tend to dwell on "what was" | □ | □ | □ | □ | □ | □ | □ |
| People think of me as structured. | □ | □ | □ | □ | □ | □ | □ |
| I am known for invention / innovation | □ | □ | □ | □ | □ | □ | □ |
| People think I am best at planning and organisation | □ | □ | □ | □ | □ | □ | □ |
| I often think about past decisions | □ | □ | □ | □ | □ | □ | □ |

Foresight Styles Questionnaire Items

| In my organisation, I / I am: | Does not Describe me | Describes me | Describes me a little bit | Describes me very well | Describes me extremely well | Describes me perfectly |
|---|---|---|---|---|---|---|
| Test new products / trends very early | □ | □ | □ | □ | □ | □ |
| Quickly adjust to new situations | □ | □ | □ | □ | □ | □ |
| Hold the line when new plans are imposed | □ | □ | □ | □ | □ | □ |
| Don't want too much change | □ | □ | □ | □ | □ | □ |
| Consider how trends interact | □ | □ | □ | □ | □ | □ |
| Against changes that threaten one's position | □ | □ | □ | □ | □ | □ |
| Focus on future questions | □ | □ | □ | □ | □ | □ |
| Conscious of big trends in society | □ | □ | □ | □ | □ | □ |
| Go along when new trends come | □ | □ | □ | □ | □ | □ |
| Interested in future questions | □ | □ | □ | □ | □ | □ |
| Focus on greater future questions | □ | □ | □ | □ | □ | □ |
| Make things happen when future demands it | □ | □ | □ | □ | □ | □ |
| Take advantage of trends that pop up | □ | □ | □ | □ | □ | □ |
| Flexible person | □ | □ | □ | □ | □ | □ |

Decision Making Questionnaire Items

| | | Ranking | Frequency | | Ranking | Frequency |
|---|---|---|---|---|---|---|
| My prime Objective is to: | Have a position with status | | | Be the best in my field | | |
| | Achieve recognition for my work | | | Feel secure in my job | | |
| I enjoy jobs that: | Are technical and well defined | | | Have considerable variety | | |
| | Allow independent action | | | Involve people | | |
| I expect people working for me to be: | Productive and fast | | | Highly capable | | |
| | Committed and responsive | | | Receptive to suggestions | | |
| In my job, I look for: | Practical results | | | The best solutions | | |
| | New approaches or ideas | | | Good working environment | | |
| I communicate best with others: | In a direct one-to-one basis | | | In writing | | |
| | By having group discussions | | | In a formal meeting | | |
| In my planning I emphasise: | Current problems | | | Meeting objectives | | |
| | Future goals | | | Developing people's careers | | |
| When faced with solving a problem, I: | Rely on proven approaches | | | Apply careful analysis | | |
| | Look for creative approaches | | | Rely on my feelings | | |
| When using information, I prefer: | Specific facts | | | Accurate and complete data | | |
| | Broad coverage of many options | | | Limited data which is easily understood | | |
| When I am not sure about what to do, I: | Rely on intuition | | | Search for facts | | |
| | Look for a possible compromise | | | Wait before making a decision | | |

|  |  | Ranking | Frequency |  | Ranking | Frequency |
|---|---|---|---|---|---|---|
| Whenever possible, I avoid: | Long debates |  |  | Incomplete work |  |  |
|  | Using numbers or formula |  |  | Conflict with others |  |  |
| I am especially good at: | Remembering dates and facts |  |  | Solving difficult problems |  |  |
|  | Seeing many possibilities |  |  | Interacting with others |  |  |
| When time is important I: | Decide and act quickly |  |  | Follow plans and priorities |  |  |
|  | Refuse to be pressured |  |  | Seek guidance or support |  |  |
| In social settings I generally: | Speak with others |  |  | Think about what is being said |  |  |
|  | Observe what is going on |  |  | Listen to what is going on |  |  |
| I am good at remembering: | People's names |  |  | Place we met |  |  |
|  | People's faces |  |  | People's personality |  |  |
| The work I do provides me: | The power to influence others |  |  | Challenging assignments |  |  |
|  | Achieving my personal goals |  |  | Acceptance by the group |  |  |
| I work well with those who are: | Energetic and ambitious |  |  | Self-confident |  |  |
|  | Open minded |  |  | Polite and trusting |  |  |
| When under stress, I: | Become anxious |  |  | Concentrate on the problem |  |  |
|  | Become frustrated |  |  | Am forgetful |  |  |
| Others consider me: | Aggressive |  |  | Disciplined |  |  |
|  | Imaginative |  |  | Supportive |  |  |
| My decisions typically are: | Realistic and direct |  |  | Systematic or abstract. |  |  |
|  | Broad and flexible |  |  | Sensitive to the needs of others |  |  |
| I dislike: | Losing control |  |  | Boring work |  |  |
|  | Following rules |  |  | Being rejected |  |  |

## Demographics

What is your Industry Sector affiliation?

| |
|---|
| Seafood Industry |
| Dairy Industry |
| Cotton Industry |
| Horticulture Industry |
| Other |

What is your gender?

| |
|---|
| Male |
| Female |
| Cotton Industry Cannot identify |

What is your age?

| |
|---|
| 20-24 |
| 25–34 |
| 35–44 |
| 44–59 |
| 60+ |

What is your level of education?

| |
|---|
| Primary school |
| High school |
| Certificate |
| Diploma |
| Bachelor degree |
| Postgraduate  Degree |

What position do you hold in your organisation / business?

| |
|---|
| CEO / Executive |
| Business Owner |
| Board Member |
| Farmer |
| Director |
| Committee Member |
| Senior Manager / Manager |
| Consultant |
| Other |

# Appendix G. Delphi Email Invitation

Dear [name]

**Rural Development Corporation leadership: Fit for the future?**

You are invited to participate in an important research project on the topic of leader capabilities (foresight and strategic thinking) in Rural Development Corporations (RDCs) and leadership development. The study is in its last stage, which includes a Delphi study aimed at gaining greater understanding leadership development from the feedback of a panel of experts. A deeper understanding of leadership development is critical given the importance of the rural / regional / agricultural development futures of Australia.

The study has already completed an analysis of the literature related to rural development and leadership. It has also concluded the quantitative profiling of leaders in relevant RDC structures as well as the analysis of questions related to leadership development.

This research is being conducted by Mr Eric Perez, a Doctoral Candidate at the University of Southern Queensland under the supervisions of Dr Luke Van der Laan (University of Southern Queensland) and Dr Patrick Hone (Fisheries Research and Development Corporation).

**What is a Delphi study?**
The Delphi method gathers the opinion of experts through a series of semi-structured questionnaires. The Delphi method is an iterative process whereby the results of each round are summarised and fed back to participants for further contribution and to achieve group consensus or highlight key points of difference.

Experts respond independently and anonymously. In this study the Delphi will be administered by the researcher using an email platform for ease of use and efficiency.

**Why have you been invited to participate?**
As an established leader interested in Australia's rural development efforts, we would highly value your views regarding leadership in this domain.

**What will you be required to do**?
As you have expertise and knowledge in leadership, I am inviting you to participate in this research as a Delphi panel member. As a Delphi participant you will receive, via email, a pre-determined list of semi-structured questions. The questions may include scales, multiple choice questions and the possibility to comment on certain questions and statements related to study. It is expected that there will be three rounds of the Delphi and that the time to complete each round will be approximately 20 to 30 minutes.

Please be assured that participation is entirely voluntary and you are able to withdraw from the process at any time. All data collected will be coded and kept completely confidential with the identities of participants will only be known to the researchers. No results will be reported in any manner that would reveal identities of participants to other panel members or associate any participants with their answers.

**What are the anticipated outcomes of the research?**
The purpose of this study is to identify baseline leadership profiles of the participating RDCs with a specific focus on the leadership capabilities of foresight and strategic thinking. The insights gained from the profiles will then be used to investigate the degree to which the leader capabilities foresight, strategic thinking and individual demographic proxies are related to the leadership development initiatives provided by rural RDCs.

Once available, the results of the Delphi study will be included in the final doctoral thesis, and, where appropriate, academic and/or industry publications. You will also be aware of the results of the Delphi by receiving a concluding report.
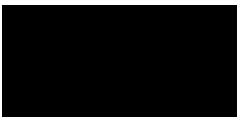
You can find more details of this research project by contacting me via email ███████████████████.

I sincerely hope you agree to participate. To consent to participate in the research project as a Delphi expert, please refer to the consent statement below and confirm via reply email that you consent and will participate and return via email ████████████████████.

Once your confirmation of participation has been received the first round of the Delphi will be emailed to you.

Your participation in this research is very important and much appreciated.

Yours Sincerely

███████████████

Eric Perez

**By confirming your participation by reply email, you are indicating that you:**

- Have read and understood the information document regarding this project.

- Have had any questions answered to your satisfaction.

- Understand that if you have any additional questions you can contact the research team.

- Understand that you are free to withdraw at any time, without comment or penalty.

- Understand that you can contact the University of Southern Queensland Ethics Coordinator on (07) 4631 2690 or email ethics@usq.edu.au if you do have any concern or complaint about the ethical conduct of this project.

- Are over 18 years of age.

- Agree to participate in the project.

# Appendix H. Delphi Consent Form

**University of Southern Queensland**

## Consent Form for USQ Research Project
## Delphi

### Project Details

Title of Project: Investigating the foresight and strategic thinking capabilities of Australian agricultural leaders in rural research and development corporations: A leadership development perspective

Human Research Ethics Approval Number: H18REA014

### Research Team Contact Details

**Principal Investigator Details**

Mr Eric Perez
Email: ▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇
Telephone: -
Mobile: 0417 631 353

**Supervisor Details**

Dr. Luke van der Laan
Email: luke.vanderlaan@usq.edu.au
Telephone: (07) 4631 5508
Mobile: -

### Statement of Consent

**By signing below, you are indicating that you:**

- Have read and understood the information document regarding this project.

- Have had any questions answered to your satisfaction.

- Understand that if you have any additional questions you can contact the research team.

- Understand that the interview will be audio recorded.

- Understand that I will not be provided with a copy of the transcript of the interview for my perusal and endorsement prior to inclusion of this data in the project.

- Understand that you are free to withdraw at any time, without comment or penalty.

- Understand that you can contact the University of Southern Queensland Ethics Coordinator on (07) 4631 2690 or email ethics@usq.edu.au if you do have any concern or complaint about the ethical conduct of this project.

- Are over 18 years of age.

- Agree to participate in the project.

**Please return this sheet to a Research Team member prior to undertaking the interview.**

# Appendix I. Delphi Participant Information Sheet

# Delphi Participant Information Sheet

## Project Details

| | |
|---|---|
| Title of Project: | Investigating the foresight and strategic thinking capabilities of Australian agricultural leaders in rural research and development corporations: A leadership development perspective |
| Human Research Ethics Approval Number: | H18REA014 |

## Research Team Contact Details

**Principal Investigator Details**

Mr Eric Perez
Email:
Telephone: -
Mobile: 0417 631 353

**Supervisor Details**

Dr. Luke van der Laan
Email: luke.vanderlaan@usq.edu.au
Telephone: (07) 4631 5508
Mobile: -

## Description

Leadership development within Australian rural industries continues to be the focus of considerable investment. For example, the Fisheries Research and Development Corporation (FRDC) spent approximately $1.5 million in developing industry leaders in the Australian seafood industry in 2017 alone. The Australian agriculture sector is facing changing domestic market conditions amongst its regional neighbors.

There is a critical need for a better understanding of foresight and strategic thinking as key leadership capabilities required in agricultural Research and Development Corporations (RDCs) within the context of rapid change and volatile contexts. This study seeks to benchmark and investigate the foresight and strategic thinking profiles of RDC leaders while assessing the impact of current leadership development initiatives.

The aims of this study include:
1. Identifying a rural RDC foresight and strategic thinking baseline profiles.
2. Identifying the relationship between the demographics of age, industry experience and education and foresight and strategic thinking capabilities.
3. A clear analysis of program, practice and outcomes of leadership development performance across rural RDCs;
4. Identify the gaps between Aims 1 and 3 and the implications for rural RDCs.
5. To contribute to the development of existing and future agriculture primary industry leaders.

## Participation

In your role as an expert in leadership development or leadership position within industry I am seeking your involvement as an expert Delphi anonymous panel member to help me develop a set of leadership development questions for further interviews.
Your participation will take approximately 45 minutes over three rounds to complete.

Participation in this project will involve:
- As the lead researcher I will be monitoring every stage of the research process.
- A key premise of the study is that foresight and strategic thinking capabilities are necessary outcomes of successful leadership development. This study will investigate the extent to which the premise applies.

Your decision whether you take part, do not take part, or to take part and then withdraw, will in no way impact your current or future relationship with the University of Southern Queensland.

## Expected Benefits

It is expected that this project will directly benefit you by understanding the strategic thinking and foresight profiles of industry leaders across the seafood, diary, cotton and horticulture sectors.

## Risks

There are no anticipated risks beyond normal day-to-day living associated with your participation in this project.

## Privacy and Confidentiality

All comments and responses will be treated confidentially unless required by law.

This project is funded by grants from the Fisheries Research and Development Corporation, Dairy Australia, Cotton Research and Development Corporation and Hort Innovation.

Any data collected as a part of this project will be stored securely as per University of Southern Queensland's Research Data Management policy.

## Consent to Participate

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate in this project. Please return your signed consent form to a member of the Research Team prior to participating in your interview.

## Questions or Further Information about the Project

Please refer to the Research Team Contact Details at the top of the form to have any questions answered or to request further information about this project.

## Concerns or Complaints Regarding the Conduct of the Project

If you have any concerns or complaints about the ethical conduct of the project you may contact the University of Southern Queensland Ethics Coordinator on (07) 4631 2690 or email ethics@usq.edu.au. The Ethics Coordinator is not connected with the research project and can facilitate a resolution to your concern in an unbiased manner.

**Thank you for taking the time to help with this research project. Please keep this sheet for your information.**

**Appendix J. Delphi Final Report**



# FINAL DELPHI REPORT 2020

*Investigating the foresight and strategic thinking capabilities of Australian agricultural leaders: a leadership development perspective*

Eric Perez, Doctoral Candidate

Mobile: ███████████, Email: ███████████████

The purpose of the study is to identify baseline leadership profiles of agricultural leaders identified through rural research development corporations (RDCs) with a specific focus on the leadership capabilities of foresight and strategic thinking. This is based on strategic leadership theory where the characteristics and abilities of leaders reflect how their organisations are likely to evolve and become in the future. Based on the foresight and strategic thinking capability profiles, the study proposes that the participating agriculture leaders and the agricultural sector in general, could get a glimpse of how they may evolve into the future.

Associated with this key premise, the study also sought to gain an understanding of leadership development efforts across the RDC industries and how may be linked to enhancing foresight and strategic thinking profiles of agriculture leaders. The study explores the following research question: *What are the foresight and strategic thinking capability profiles of agriculture leaders?*

The study administered an online questionnaire that established a quantitative baseline profile of agricultural leaders' foresight and strategic thinking capabilities. The questionnaire also collected data associated with strategy formulation, leadership development in the sector and the knowledge transfer of this training into practice. A Delphi study of sector leaders sought to consider to what extent the questionnaire findings applied in practice and the implications thereof.

Panel members in the Delphi study concluded the following:
- Agriculture leaders in the study are generally focussed on the present rather than the future;
- Agriculture leaders in this study are utilising multiple foresight styles that entail simultaneously thinking about and interrogating possible futures while adapting to change, new markets and organisational demands. The latter is more dominant due to the rate of change and operational pressures of their industry. However, there was a strong recognition that a futures orientation was an important priority;
- Agriculture leaders in this study largely rely on analytical inputs to their strategic thinking. This orientation was dominant with the more generative and conceptual inputs to strategy significantly under-utilised. This suggests that the opportunity for innovation and / or

conceptualising 'bigger picture' futures are generally constrained with panellists agreeing that strategy is still largely 'top down'; and

- Agriculture leaders in this study more likely to favour a collaborative approach in their leadership rather than a directive approach. This suggests an emphasis on the co-creation of value rather than a managerial style in achieving strategic priorities.

In terms of strategy formulation in the study the following outcomes were identified:

- There is limited influence from employees on strategy formulation;
- Agriculture leaders should focus on employing individuals with strategy formulation capabilities; and
- A greater emphasis is needed from agriculture leaders on strategy formulation.

With respect to leadership training the following outcomes were identified:

- Value – leadership training value was considered by panel members as related to aligning with improving business culture, providing an opportunity to engage in critical thinking, leading behaviour change, developing new leaders and envisioning strategic opportunities by offering opportunities to train and mentor leaders;
- Benefits – training has allowed leaders to develop skills and abilities to enhance management, technical competency, applying objective judgement, decision-making, participatory leadership openness, engagement and building employee capacity. In addition, training was recognised as helping to build communication skills, outside the square thinking, a focus on thinking about future possibilities and strategic decision-making. Encouraging leader development was considered both an individual and organisational priority and responsibility;
- Training Specificity – training should involve a degree of industry specificity as well as containing generic elements; and
- The panel suggested that leadership training could improve to translate into meaningful outcomes. While generic capabilities were valued it was suggested that opportunities and evidence of application, especially sector specific, was missing.

There is an increasing acknowledgement that foresight and strategic thinking capabilities contribute to effective, future-orientated organisations (van der Laan 2008; van der Laan & Erwee 2013; Bühring & Liedtka 2018). The critical need for a better understanding of foresight and strategic thinking as key capabilities are needed by organisational leaders:

> Foresight and strategic thinking are often mentioned but little understood concepts. Many organizations claim to be 'foresightful' and 'strategic' yet this often does not extend beyond empty statements, intuition, recipes of past success and the hubris of individual executives. Increasing business failures illustrate that this is not sufficient in meeting the demands of rapid change in an increasingly complex social and economic environment (Van der Laan & Yap 2016, p. 1).

There are 15 rural RDCs representing Australia's agriculture sector, four took part in the study to help access the agricultural leaders including: ████████████████████████ ████████████████████████████████████████████████████████ ██████████████.

The research design adopted for this study is an explanatory sequential mixed methods design. This design is defined by Creswell and Clark (2011, p. 69) and outlined in Figure 1. The explanatory sequential design is comprised of two distinct phases, an initial quantitative phase followed by a qualitative phase to gain a broader explanation and deeper understanding of the qualitative results (Creswell & Clark 2011).

Figure 1. Explanatory Sequential Design
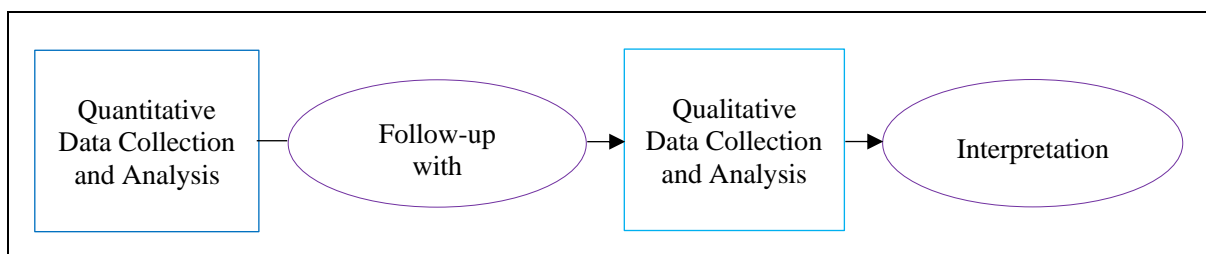


During the quantitative phase, data is collected and analysed to address certain research questions and highlight issues for further examination. The second qualitative data collection

phase allows the researcher to explain the quantitative findings from the first phase of the research within a broader and deeper context.

The research phases can be described as follows:

- Phase 1 (Quantitative research): Use of the TripleV foresight and strategic thinking quantitative measurement tool (questionnaire), strategy formulation and leadership training.

- Phase 2 (Qualitative research): Use of a Delphi method to triangulate the findings of the questionnaire.

The use of multiple research methodologies to pursue convergence, validation correspondence of research results is known as triangulation (Greene et al. 1989; Creswell 2011). It has been argued that combining multiple research methods will help address the biases and limitations of a single method or single-theory studies is a key benefit of triangulation (Creswell 2011; Fielding 2012; Mertens & Hesse-Bibe 2012). The two phases of the study, that is, the use of the TripleV foresight and strategic thinking questionnaire and the Delphi method will allow for a richer understanding of the foresight and strategic thinking baselines of Australian agriculture leaders in the study.

## 3. PHASE 1 / QUANTITATIVE RESEARCH

Foresight and strategic thinking have multiple dimensions in terms of how they are defined including highly desirable leader capabilities associated with temporal cognitive capabilities (Goldman 2007; Goldman 2012; Hamel & Prahalad 2005; Liedtka 1998; Van der Laan 2010). They have been described in the literature as the most important and potentially most challenging leadership capabilities required to navigate through an era of rapid change, disruption and complexity. The use of the TripleV foresight and strategic thinking quantitative measurement tool stems from considerable literature support for foresight and strategic thinking as critical leader capabilities. However, a valid and reliable quantitative measure did not exist until the development of the TripleV measure (Van der Laan 2010; 2012; 2013, 2016).

The following elements comprise the data collected under Phase 1 included:

- Demographics;

- Orientation to time;

- Foresight styles;

- Strategic thinking as decision styles;

- Strategy formulation, industry representation and leadership training;

- Correlations; and

- Conclusions.

## 3.1. DEMOGRAPHICS

Sixty-two individual leaders participated in the primary study. Tables 1 and 2 provide the demographics of the primary study.

Table 1. Demographics Part 1

| Gender | Male | Female | | | | |
|---|---|---|---|---|---|---|
| | 59.7% | 40.3% | | | | |
| Age | 20-24 | 25-34 | 35-44 | 45-64 | 65+ | No Response |
| | 4.8% | 12.9% | 22.6% | 46.8% | 11.3% | 1.6% |
| Sector Affiliation | Commercial Fisheries | Livestock Agriculture | Plant Agriculture | Agriculture Other | | |
| | 42.0% | 8.0% | 40.0% | 10.0% | | |
| Level of Education | Primary School | High School | Certificate | Diploma | Bachelor Degree | Post Graduate |
| | 14.5% | 9.7% | 4.8% | 4.8% | 33.9% | 32.3% |

Source: Developed for the study.

Table 2. Demographics Part 2

| What position do you hold in your organisation / business? | |
|---|---|
| CEO / Executive | 32.3% |
| Business Owner | 30.6% |
| Board Member | 16.1% |
| Farmer | 17.7% |
| Director | 21.0% |
| Committee Member | 6.5% |
| Senior Manager / Manager | 32.3% |
| Consultant | 1.6% |

Source: Developed for the study.

## 3.2. ORIENTATION TO TIME

It is useful to highlight differences between past, present and future thinking and has been defined by the TimeStyle Inventory (TSI) based on Furey's Theory of MindTime (Furey & Stevens 2004; Fortunato & Furey 2011). The inventory was designed to measure differences in the extent to which individuals utilize past, present, and future thinking (Fortunato & Furey 2009, 2010, 2011). The TSI and its definition of past, present and future thinking are defined in Table 3.

Table 3. Orientation to Time Characteristics

| Thinking Perspective | Abilities | Characteristics |
|---|---|---|
| Past thinking | • Retrieval of past experience and knowledge by reflection.<br>• To reconstruct, analyse and critical evaluate information in order to reduce risks associated with current events | • Dominantly risk reductive.<br>• Contemplative thinking.<br>• Accesses past experiences and knowledge. |
| Present thinking | • Organised thinking based on current observations that integrate.<br>• Past and Future perspectives in order to develop actions, allocate resources and efficiently apply them. | • Dominantly orientated toward 'getting things done'.<br>• Organised thinking.<br>• Mentally 'stepping out of time'. |
| Future thinking | • Creative imagineering / Infinite future possibilities.<br>• Foresees environmental changes. Generative process of creative problem solving and divergent thinking in order to detect gaps in knowledge, patterns and trends. | • 'Big picture thinking'.<br>• Imaginative thinking.<br>• Ability to see gaps in knowledge, patterns and trends that diverge. |

Source: Adapted from Fortunato and Furey (2009, 2010, 2011).

The views provided by panel members in round three provides support for the argument that the Australian agriculture leaders surveyed using the questionnaire suggests that the sector is focussed on the present.

Figure 2. Leaders' Orientation to Time
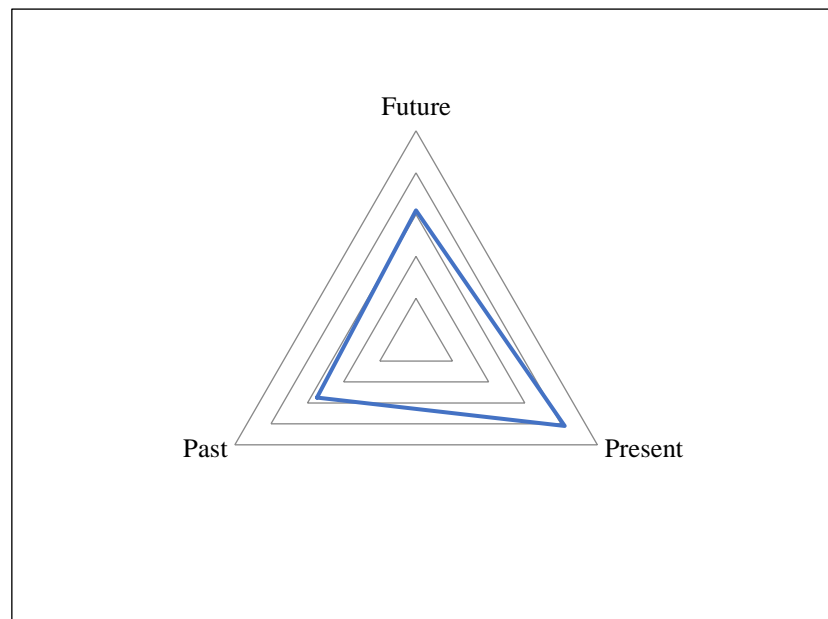


## 3.3. FORESIGHT STYLES

A key focus of the Delphi was to help understand the baseline foresight and strategic thinking profiles of agriculture leaders. The Foresight Styles Assessment (FSA) developed by Dian (2009) describes a variety of behaviors used by individuals to plan and envisage the future. The measure states that there are six distinct foresight styles including: (1) Futurist, (2) Activist, (3) Opportunist, (4) Flexist, (5) Equilibrist and (6) Reactionist. The FSA was refined and reduced to a four-factor model including the following elements: (1) framer, (2) adapter, (3) tester and (4) reactor (Gary 2008; 2009). Each foresight style and its characteristics are outlined in Table 4.

Table 4. Foresight Styles Characteristics

| Foresight Style | Characteristics |
|---|---|
| Framer | • Interrogates the future<br>• Future time orientated<br>• Interested in the long-term issues that define the future<br>• Envisions "bigger picture" futures |
| Adapter | • Adjusts to new situations as future demands<br>• Balances multiples challenges and choices<br>• Helps others adapt / Is flexible / Activates action<br>• Flexible leadership / Change Orientated Influencer |
| Tester | • Adopts new trends / Confirms diffusion of innovation theory<br>• Experiments with new trends when they arise<br>• Opportunistic / Not cognitive trend analysis |
| Reactor | • Preserves own position<br>• Mitigates and resists change |

Source: Adapted from Dian (2009), Gary (2008; 2009) and van der Laan (2010).

Agriculture leaders in this study are utilising multiple foresight styles that entail simultaneously thinking about and interrogating possible futures while adapting to change, new markets and organisational demands and the baseline profile is depicted in Figure 3.

Figure 3. Leaders' Dominant Foresight Styles
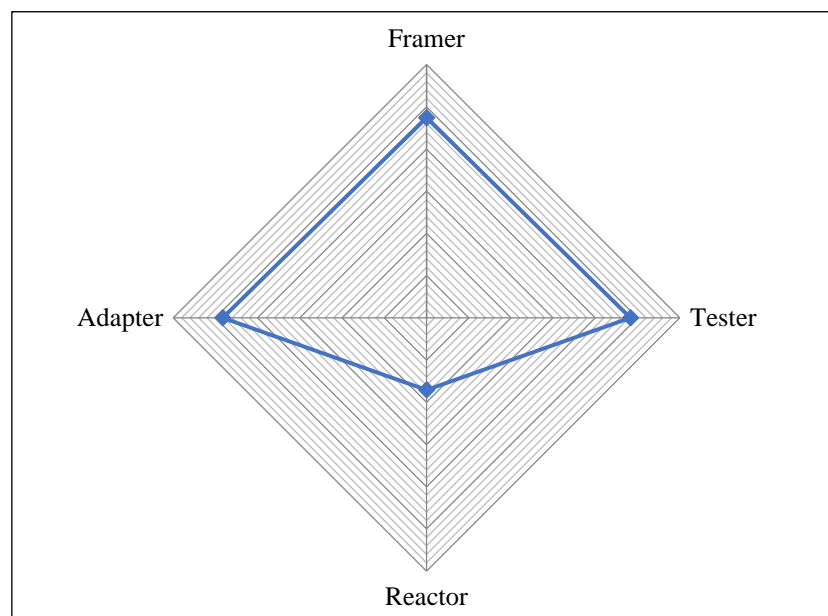
# 3.4. STRATEGIC THINKING AS DECISION STYLES

The Decision Styles Inventory (DSI) is a research tool that has multiple categories and measures an individual's preferences regarding decision-making approaches (Rowe & Boulgarides 1992; Leonard et al. 1999). The DSI's categorises an individual's preference to favour certain decision-making approaches. The categories are not mutually exclusive with scores indicating dominant, back-up and least preferred styles that depend on the decision-making situation facing an individual and are outlined in Table 5.

Table 5. Decision Styles Characteristics

| Decision Style | Definition |
|---|---|
| Directive<br><br>*Low cognitive complexity*<br><br>*Task orientated* | Intuition (expertise): (1) needs power, (2) aggressive / expects results / autocratic, (3) acts rapidly, (4) uses rules, (5) uses intuition and limited alternatives and (6) is verbal – adapted from Rowe and Boulgarides (1992). This style incorporates a low tolerance of uncertainty and are focussed on tasks and technical matters. Individuals that use this decision-making need structure and are focused on procedure, being guided by rules and consider facts. The use of this style is also characterised by the acquisition of data through sensing and the use of limited data reports – adapted from Leonard et al (1999). |
| Analytic<br><br>*High cognitive complexity*<br><br>*Task orientated* | Reasoning (inference): (1) needs achievement through challenges, (2) tolerance for ambiguity, (3) problem solver / thinker, (4) uses considerable data, (5) enjoys variety / is innovative and (6) careful analysis / wants control – adapted from Rowe and Boulgarides (1992). Individuals applying this style are also focused on technical and task issues and have a high tolerance for vagueness. This style is highlighted by analysis and the use of large amounts of information. This style is also characterised by abstract thinking to help evaluate data and innovative problem solving – adapted from Leonard et al (1999). |
| Behavioural<br><br>*Low cognitive complexity*<br><br>*People Orientated* | Instinct (feelings): (1) needs affiliation, (2) uses persuasion, (3) needs structure, (4) supportive / empathetic, (5) communicates easily / prefers meetings and (6) uses limited data – adapted from Rowe and Boulgarides (1992). Like the Directive style there is a low tolerance for ambiguity highlighted by a concern for others. Individuals applying this style are people focused, consider the emotional state of others and value the social aspects of work. Under this style, information is sourced by networking, listening, estimating the needs of others and information is assessed by an individual's instinct or personal feelings – adapted from Leonard et al (1999). |
| Conceptual<br><br>*High cognitive complexity*<br><br>*People orientated* | Judgement (values and beliefs): (1) needs recognition, praise and independence., (2) tolerance for ambiguity, (3) future / long-term orientated, (4) initiates new ideas, (5) humanistic / artistic and (6) creative / generates multiple alternatives / independent thinker – adapted from Rowe and Boulgarides (1992). Decision-makers that apply a conceptual style mirror the analytical style insofar as there is a high tolerance for ambiguity and focus on issues facing people and society. This style is highlighted by a focus on the individual, the multiple-facets and options to address an issue and the future. Individuals applying this style of decision-making are creative, are risk takers, form new strategies and explore alternatives. The final aspect of this style suggests that individuals collect information by speaking with others and evaluating the data through judgement and conversational signals – adapted from Leonard et al (1999). |

Source: Adapted from Rowe and Boulgarides (1992) and Leonard et al. (1999).

Figure 4 outlines the baseline strategic thinking profile which suggests that agriculture leaders in this study are reliant on analytical inputs to inform their strategic thinking. This orientation was dominant with the more generative and conceptual inputs to strategy significantly under-utilised.

Figure 4. Strategic Thinking
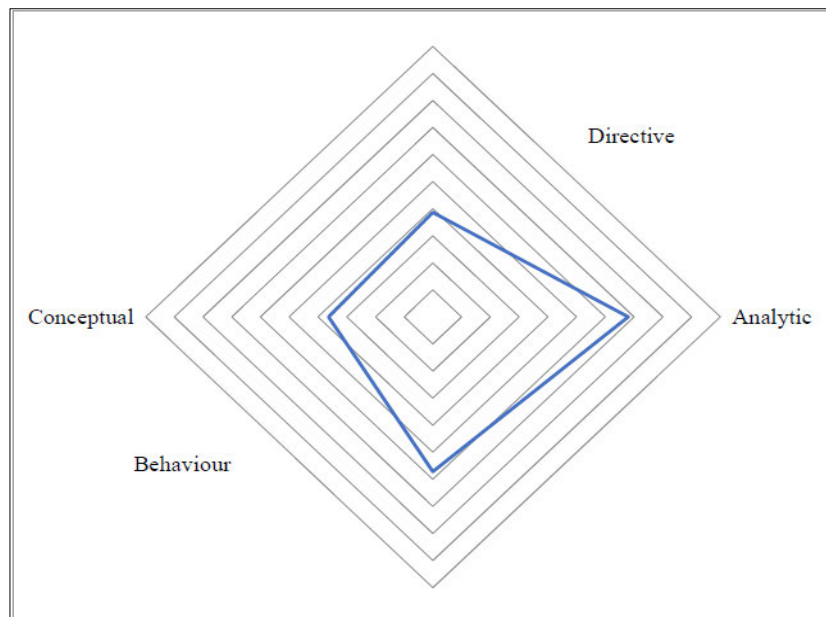


## 3.5. STRATEGY FORMULATION, INDUSTRY REPRESENTATION AND LEADERSHIP TRAINING

With respect to influence over strategy within their organisation 64.5% of respondents indicated they possessed a high degree of influence over their organisation's strategy formulation.

Table 6. Strategy Influence

|  | High | Medium | Minimal | None |
|---|---|---|---|---|
| Rate your influence on the strategy formulation of your organisation? | 64.5% | 22.6% | 6.5% | 6.5% |

Source: Developed for the study ($N = 62$).

Respondents at 46.8% indicated that within organisations the main actors understand strategy in the same way. Respondents also noted that at 43.5% that strategy formulation is an organisation-wide or 'team' effort.

Table 7. Strategy Formulation

| In terms of strategy formulation in my organisation: | |
| --- | --- |
| The main actors understand strategy in the same way | 46.8% |
| There is conflict between the main actors | 29.0% |
| It is very much 'top / down' | 19.4% |
| It is a 'team effort' by all employees | 43.5% |
| There is no clear strategy formulation | 14.5% |

Source: Developed for the study ($N = 62$).

In terms of advisory group representation 61.3% indicated they undertook a role as an industry advisor. A slightly larger percentage of respondents at 71% indicated participation within industry bodies.

Table 8. Industry Representation

| | Yes | No | No Response |
| --- | --- | --- | --- |
| Have you participated in advisory groups at the State level? | 61.3 | 37.1 | 1.6 |
| Have you served in an industry body? | 71.0 | 27.4 | 1.6 |

Source: Developed for the study ($N = 62$).

With an average of 80.7% respondents in Phase 1 indicated they are (1) applying the leadership concepts they had learned, (2) their organisation has derived a benefit from leader training, (3) that the training made them better leaders, (4) that skills training are being used and (5) that leader training experiences have been applicable to the industry in which they work.

Table 9. Application of Leadership Training Experiences

| Thinking about your most recent leadership training experience (workshop / program / course): | Yes - always | Sometimes | Not sure | Seldomly | No - never | No Response |
|---|---|---|---|---|---|---|
| Are you applying the concepts you have learned from leadership training in your leadership position? | 45.2% | 40.3% | 9.7% | - | - | 4.8% |
| Has your organisation benefited from your leadership training experience? | 53.2% | 22.6% | 17.7% | - | 1.6% | 4.8% |
| I am a better leader after undertaking leadership training. | 56.5% | 24.2% | 14.5% | - | - | 4.8% |
| I learned skills from a leadership training that I am still applying in my position. | 58.1% | 25.8% | 11.3% | - | - | 4.8% |
| Leadership training is suitable in developing leaders in my industry. | 53.2% | 24.2% | 14.5% | - | - | 8.1% |

Source: Developed for the study ($N = 62$).

## 3.6. CORRELATIONS

There was a statistically significant disassociation between a respondent's level of education and leadership training undertaken by respondents. In terms of the study, the most statistically significant disassociation identified in the data set was found between the variable, "I am a better leader after undertaking leadership training" and "level of education" at -.506.

Table 10. Education and Leadership Training (*N* = 62)

| | What is your level of education? |
|---|---|
| Are you applying the concepts you have learned from leadership training in your leadership position? | -0.486* |
| Has your organisation benefited from your leadership training experience? | -0.343* |
| I am a better leader after undertaking leadership training. | -0.506* |
| I learned skills from a leadership training that I am still applying in my position. | -0.480* |
| Leadership training is suitable in developing leaders in my industry. | -0.372* |

\* Correlation is significant at the 0.01 level (2-tailed).

There was a statistically significant disassociation between the application of learning and leadership training undertaken by respondents in the study.

Table 11. Application of Learning and Leadership Training (*N* = 62)

| | What is your Industry Sector affiliation | What is your gender? | What is your age? |
|---|---|---|---|
| Have you participated in advisory groups at the State level? | 0.263* | 0.450** | -0.412** |
| Have you served in an industry body? | 0.264* | - | -0.406** |
| Are you applying the concepts you have learned from leadership training in your leadership position? | -0.294* | - | - |
| Has your organisation benefited from your leadership training experience? | - | - | -0.269* |
| I am a better leader after undertaking leadership training. | -0.295* | - | - |

\* Correlation is significant at the 0.05 level (2-tailed).
\*\* Correlation is significant at the 0.01 level (2-tailed).

Approximately 40 percent of respondents associated the influence of strategy formulation with an organisational benefit that was derived from leadership training.

Table 12. Strategy Influence and Leadership Training (*N* = 62)

| | Rate your influence on the strategy formulation of your organisation? |
|---|---|
| Has your organisation benefited from your leadership training experience? | 0.395* |

* Correlation is significant at the 0.01 level (2-tailed).

Almost 30 percent of respondents associated training with influence of strategy formulation.

Table 13. Application of Learning and Strategy Influence (*N* = 62)

| | Rate your influence on the strategy formulation of your organisation? |
|---|---|
| Are you applying the concepts you have learned from leadership training in your leadership position? | 0.295* |

* Correlation is significant at the 0.05 level (2-tailed).

Sixty-three to eighty-two percent of respondents associated organisational benefits with leadership training.

Table 14. Organisational Benefits and Leadership Training (*N* = 62)

| | Are you applying the concepts you have learned from leadership training in your leadership position? |
|---|---|
| Has your organisation benefited from your leadership training experience? | 0.659* |
| I am a better leader after undertaking leadership training. | 0.701* |
| I learned skills from a leadership training that I am still applying in my position. | 0.815* |
| Leadership training is suitable in developing leaders in my industry. | 0.633* |

* Correlation is significant at the 0.01 level (2-tailed).

Respondent's age was disassociated with strategy influence in the study.

Table 15. Application of Learning and Strategy Influence ($N = 62$)

| | What is your age? |
|---|---|
| Rate your influence on the strategy formulation of your organisation. | -0.423* |

* Correlation is significant at the 0.01 level (2-tailed).

## 3.7. CONCLUSION

The first phase of the study provided a baseline foresight and strategic thinking profile. Additionally, the first phase of the research process provided agriculture leader views regarding strategy formulation and leader training which will be examined in the qualitative phase of the research process.

## 4. PHASE 2 / QUALITATIVE RESEARCH

The purpose of the Delphi was to (1) validate the foresight and strategic thinking profiles and (2) gain a deeper insight of the leader capabilities and development initiative across agriculture RDCs. The Delphi method seeks to synthesise contributions from a panel of experts aimed at addressing a clearly specified problem (Hsu & Sandford 2007; McGeary 2009). Panel members respond to semi-structured questions, in this instance via email. The primary researcher is responsible for the collation and distillation of responses, by processing responses seeking an in-depth understanding of the problem under investigation. The Delphi method frees participants from their personal biases, minimizes the "bandwagon effect" or "halo effect", allows free expression of opinions, encourages open critique, and facilitates admission of errors when revising earlier judgments (Avella 2016).

The method also protects the identity of participants by ensuring their anonymity. Panel members provide their own perspectives and expertise and are able to view the input of other experts. At any moment panel members can revise their earlier statements. The Delphi method has also been used as a tool to implement multi-stakeholder approaches for participative decision making and strategy development. As a result, widely acknowledged value in the form of collective intelligence is recognised, especially in an environment of rapid change. Figure 5 provides a summary of the method as conceptualised by Landeta (1999).

Figure 5. The Delphi Method
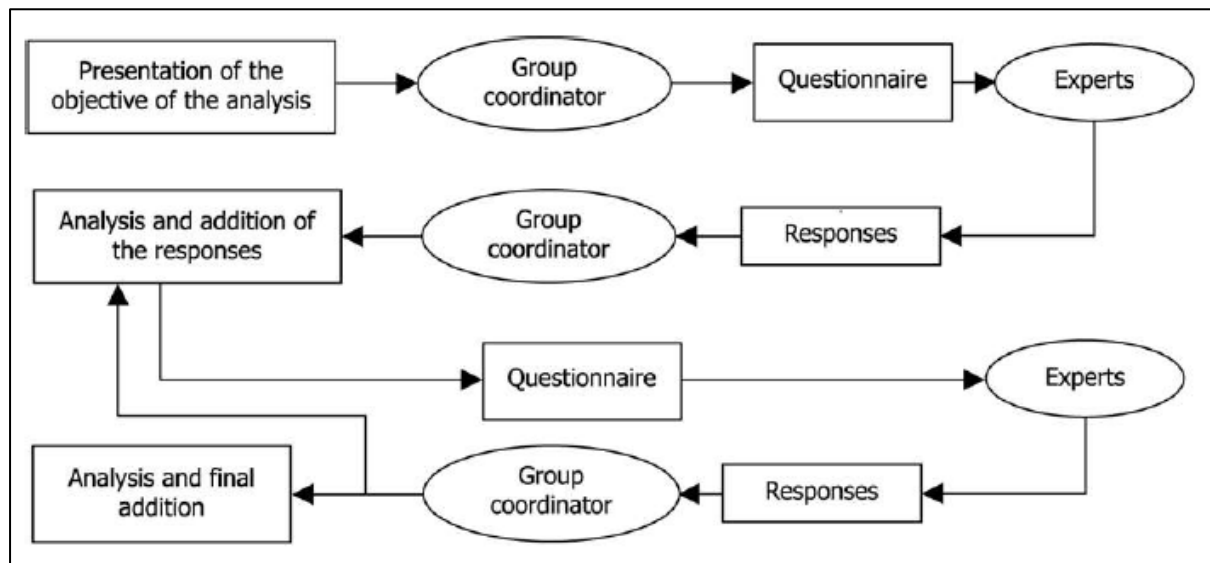


The Delphi method to provides a deeper understanding of the data secured in first phase of the research process. The following elements comprise the three rounds of data collection under Phase 2 of the study and is presented as follows:

- Overview of the Delphi method;
- Panel members;
- Demographics;
- Baseline foresight and strategic thinking profiles;
- Strategy formulation; and
- Leadership training.

## 4.1. PANEL MEMBERS

The Delphi method is an intensive problem-solving qualitative research approach to help understand a phenomenon by harnessing the knowledge and judgment of experts. Utilising this method, 16 email requests were sent to experts seeking their participation in the first round of the Delphi. Of the 16 experts who were asked to participate, five declined and two did not respond to the initial email invitation. To ensure participation follow-up emails were sent to the experts that did not respond to the initial participation request. Nine experts took part in the first round of the Delphi with an attrition rate of 33 percent between the first and second rounds and no attrition between rounds two and three.

| Participation in the Delphi – Rounds 1, 2 and 3 | | |
|---|---|---|
| Round 1 ($n = 9$) | Round 2 ($n = 6$) | Round 3 ($n = 6$) |

## 4.2 DELPHI FINDINGS

The Delphi forms part of a mixed methods, multi-level approach to investigating the foresight and strategic thinking capabilities of Australian agricultural leaders. The first phase involved the use of the TripleV measure developed by Van der Laan (2010; 2012; 2013; Van der Laan & Yap 2016) is a multi-factor questionnaire. Sixty-two leaders completed the questionnaire and based on their feedback the first phase of the research process.

The Delphi was developed and included 24 statements that were analysed and expanded through three rounds of analysis by Delphi panel members. The third round of the Delphi included a final verification round allowing the panel members to review their responses and data summaries. For all rounds of the Delphi the level of agreement for each round was set at 70 percent.

## 4.3. DEMOGRAPHICS

This section will provide findings regarding gender and age. Table 16 provides panel member's level of agreement to statements relating to demographic data provided to panel members in round one.

Table 16. Demographic Statements

| Statement No | Description | Level of Agreement |
|---|---|---|
| 1 | The gender profile in the study reflects the gender profile across RDC's | 88.9% |
| 2 | The age profile for the study reflects the age profile across RDC's. | 88.9% |
| 3 | The education profile for the study reflects the education mix across RDC's. | 55.6% |
| 4 | The organisational positions noted in the study reflect roles across RDC's. | 66.6% |
| 10 | Participation in representative groups in the study is reflective of RDC leaders. | 77.7% |

Source: Developed for the study.

## 4.3.1. GENDER

In round one there was almost unanimous agreement that gender data reflects the current Australian agriculture gender composition. In round two panel member feedback suggested that they agreed that in general, there is a gender skew and they also noted that adequately skilled and motivated individuals from diverse backgrounds should be encouraged to move into leadership roles.

Round three of the Delphi incorporated a series of 16 questions to help elaborate on round 1 statements. In terms of gender data, panel members were asked the following: *Question 1. Increasing women's participation in the agriculture sector will increase its diversity. Do you agree or disagree?*

Panel members noted that diversity of gender and skill is important ("I agree that it will increase diversity, especially gender diversity but it depends on the diversity of the women. So, if all the women are exactly the same, all you've done is get a gender difference versus an idea or capacity difference"). The panel's views included a reference to diversity leading to better decision-making ("In my experience, I found that in most cases, diversity provides better quality thinking, a more rounded and balanced approach to better decision making; That includes female presidents. In organisations, we struggle with female presence on our board, because we are a male dominated industry, our membership, our constitution dictates that you have to be a full member to be a Director").

## 4.3.2. AGE

There was agreement that the age demographic data reflected the age profile across the Australian agriculture sector. In round two panel members suggested an aging agricultural may lead to opportunities for input from younger leaders. Panel members suggested that input could include but was not limited to: (1) new ideas, (2) alternative responses to industry problems, (3) eagerness to use new technology, (4) consideration and drive based on current societal norms and (5) driving industry change. It was also noted that established leaders tend to fulfill voluntary roles as younger leaders may have limited time as a result of business or family commitments.

In terms of age data, panel members were asked the following in round three: *Question 2. Would the agricultural sector benefit from migrant knowledge which may partly address the challenges associated with an ageing leadership?* There was consensus that migrant knowledge may partly address the issue of an aging leadership. Panel members also indicated that the agriculture sector has been built on migrant knowledge, innovative thinking, market, technology knowledge and addressing current gaps with regards to industry knowledge ("I think that youthfulness and technology are key aspects in helping us address future problems and I certainly believe that technology is going to advance our systems; There's only two ways in which we could maximize that and that is to make sure we identify what knowledge is already here in the country, and then also identify where the knowledge gaps exist and invite the relevant people from overseas to have input").

In addition to migrant leader knowledge a panel member suggested adopting Traditional knowledge across the agriculture sector ("There's quite a lot of conversation around incorporating Traditional fishing knowledge or Traditional knowledge; I think that is something that we've been pretty poor at in in Australia in taking on broad knowledge and it'd be certainly something we should be investigating").

## 4.4. BASELINE FORESIGHT AND STRATEGIC THINKING PROFILES

## 4.4.1. ORIENTATION TO TIME

In round one the panel members confirmed that a very dominant orientation to time profile derived from 62 leaders in the study was generally reflective of Australian agriculture leaders.

Table 17. Orientation to Time

| Statement No | Description | Level of Agreement |
|---|---|---|
| 5 | The orientation to time reflects the predominant orientation to time of RDC leaders [present]. | 88.9% |

Source: Developed for the study.

Panel members in round two supported the view that leaders in the agriculture sector are focused on the present rather than the future. Panel members provided the following observations to support this view including: (1) daily business operations override a focus on the future, (2) current financial returns are more critical than contemplating future possibilities, (3) the pace of change leads to reactionary leadership and (4) the range of issues preoccupying leaders leaves no time for thinking about possible futures.

In round three, panel members were asked to provide additional commentary (*Question 3. Do you have anything else to add?*) to the finding that operational concerns override a futures orientation and that it may be a challenge for leadership in the agriculture industry ("I think that operational issues tend to have a greater urgency; but generally, we retreat to the now; But your focus is taken by those operational concerns. And being able to think beyond that is the challenge of leadership").  There was further agreement that the industry should recognise this and prioritise developing a futures focus in addition to being able to respond to current change ("My view is that if we are not strongly future oriented, and we are not thinking about the future, then we will actually cease to have a future; I would agree that a focus on future thinking isn't keeping pace, and I think that's something that really needs critical change"). However there was also an understanding that the industry wants to be futures orientated ("It's maybe by virtue of the pressures that exists in the industry, rather than a lack of willingness to think about future strategic issues; I think the culture in agriculture is about looking forward because of the nature of their markets").

It has been argued that to unlock innovation and organisational generative and creative thought processes the idealised profile for individuals' orientation to time would include equal orientation to the past and present and a slightly increased orientation to the future (Fortunato & Furey (2009, 2010, 2011; Van der Laan & Erwee 2013).  The leader's orientation to time in this study (as assessed using the TSI) are focussed on the present which is characterised by individual's disposition to accomplish an activity, organise their thinking and mentally 'stepping out of time' which Fortunato and Furey (2009, p. 242) defined as an ability to hypothesise about and observe sensory inputs, thinking about and act on sensory input.

## 4.4.2. FORESIGHT STYLES

A key focus of the Delphi was to help identify a baseline foresight profile of Australian agriculture leaders. Round one panel member feedback indicated that the dominant foresight style is that of Adapter.

Table 18. Foresight Styles

| Statement No | Description | Level of Agreement |
|---|---|---|
| 6 | The Adapter foresight style is the dominant foresight style of RDC leaders suggesting a focus on reacting to industry and environmental change. | 88.9% |
| 7 | The Framer foresight style is the back-up style of RDC leaders suggesting a "bigger picture" futures approach. | 55.5% |

Source: Developed for the study.

In round one panel members did not agree that the Framer style may be a back-up style. In round two, panel members noted a movement towards a balance between the Adapter and Framer styles amongst Australian agricultural leaders. The context in which this balance is sought may be influenced by regulation, operational traditions, and a conservative industry culture.

Panel members in round three indicated that it is difficult to move beyond the Adapter style in the context of dealing with non-government organisations, generating business income and dealing with regulations and they were asked if they had any additional feedback, *Question 4. Do you have anything else to add?* ("We wish to operate at a big picture level and then all of a sudden, all these issues come in and stop you doing it, so I agree very strongly with what you were said there"). The panel members also noted a desire to move toward a balance between an Adapter and Framer style ("I think that people are moving more toward that future orientation and I think they are having to achieve economic success and doing things in different ways; I think one of the keys to success will be moving from an adapter to more of a framing type of approach, moving forward"). It was also argued that shifting outside leader comfort zones is harder than focussing on current issues ("I agree with that to an extent but we are all just human beings, the nature of humans is that it's easier to operate in the now and in your comfort zone").

Round two yielded a general agreement from panel members that a shift toward a Framer style is important. The third round provided an opportunity to seek additional feedback from panel members with the following question posed to the expert panel: *Question 5. Do you agree that an approximate equal orientation toward the Framer and Adaptor style would reflect the needs of the agriculture sector?*

There was consensus regarding an approximate equal orientation toward the Framer and Adaptor styles reflects the needs of the agriculture sector. Being prepared to address change was also considered important ("I actually believe that being a strong framer and strong adapter is an enviable position; There are so many curveballs that are thrown at the food production sectors so they do need to be adaptive in a lots of ways; I think that a 50/50 between adapter and framer, roughly speaking, is probably a well-balanced approach. But in order to get there, we have to focus more on being framers because at the moment, it's probably been neglected"). Panel members also noted that currently, an adaptor foresight style is still the predominate style in the agriculture sector ("I think that there's an imbalance and adapter style seems to be the predominant approach. I also think it's by virtue of the pressures that are on the people that work in the sector; We need to start getting better at predicting what those changes might be and start transitioning as they're being developed, not after they have been developed").

Based on round two feedback panel members were also asked to consider the foresight styles profile of Australian agricultural leaders. In round three a profile foresight style was proposed based on panel member feedback and the following asked of the panel: *Question 6. Do you agree with the profile?* An average profile style was proposed based on round two feedback including: Framer – 30% / Adapter – 40% / Tester – 21% / Reactor – 9% Panel members agreed that the average foresight style profile reflected current leader foresight styles in the agriculture sector ("You'll see that there will be more of a balance between the Adapter and Framer will start to take place as we move forward. I would say that that rough breakdown is a good representation of the current status quo").

The dominant foresight style is that of Adapter and is the result adapting to change, new markets and organisational demands. However, the response from panel members suggests that an approximate equal orientation between the Adapter and Framer styles would be advantageous for the Australian agriculture sector. This would entail leaders that are

simultaneously thinking about and interrogating future possibilities while dealing with change, new market or organisational demands.

## 4.4.3. STRATEGIC THINKING

Through rounds one and two panel members indicated support for the proposition that the Analytical dimension of strategic thinking is dominant based on their inclination to have an Adapter and to a lesser extent a Reactor foresight style but not in all circumstances. There remains an element leadership in the Australian agriculture sector defaulting to a Reactor style of foresight which drives a purely analytical approach to strategic decision making.

Table 19. Decision Styles

| Statement No | Description | Level of Agreement |
|---|---|---|
| 8 | The Analytic strategic thinking style is the dominant strategic thinking style in the study and is reflective of RDC leaders. | 77.8% |

Source: Developed for the study.

Round three provided an opportunity to explore panel members views with regard to the following question: *Question 7. In terms strategic decision making, do you agree that a stronger emphasis on leaders' conceptual capability (the ability to conceive new ideas / approaches and generate new visions of the future) in strategic thinking is a priority across the agriculture sector?*

The panel members agreed that a stronger emphasis on leaders' conceptual capability in strategic thinking is a priority across the agriculture sector ("I think that the analytical piece is driving the decision-making art, I do believe that for innovation and for change, we need to accept a radical thinking approach and we need to be open to new ideas; You need to have a broad spectrum of ideas for the future that you can draw on given that there are a lot of unknowns"). A contrary view was offered suggesting strategic thinking is generated across an organisation ("I don't think leaders, any leader has that responsibility of conceptualizing and conceiving all of the new ideas. Certainly, helpful if you can, but it's also a process of assimilating ideas and theories from those around you").

Values in the DSI are oriented either to the task and technical concerns or to human and social concerns (Leonard et al. 1999). In terms of the study, agriculture leaders largely rely on analytical inputs to their strategic thinking.

## 4.5. STRATEGY FORMULATION

Table 20 provides panel member's level of agreement relating to the influence of the leader and organisation or leadership training on strategy formulation statements provided to the panel in round one. Overall, agriculture leader feedback suggests that they believe that leadership training and the concepts they explore in leader training have on influence on strategy formulation.

Table 20. Strategy Formulation

| Statement No | Description | Level of Agreement |
|---|---|---|
| 9 | Strategy formulation was influenced by the entire organisation rather than an individual leader. | 66.6% |
| 18 | Leadership training amongst respondents is having an impact on strategy formulation. | 88.8% |
| 19 | Leadership training concepts are impacting strategy formulation. | 75.0% |
| 21 | Respondent age was not necessarily a barrier to influencing strategy. | 71.5% |

Source: Developed for the study.

## 4.5.1. LEADER AND ORGANISATIONAL INFLUENCE ON STRATEGY FORMULATION

Panel members in round one were not in agreement regarding the influence on strategy by employees. By round two the panel member's responses suggested that strategy formulation is still driven by dominant leaders and the degree to which employees may influence strategy is unclear. In round three panel members were asked the following: *Question 8. Do you agree that employee influence over strategy formulation in the agriculture sector is limited?*

By round three agreement was reached amongst panel members that employee influence over strategy formulation in the agriculture sector is limited ("My feeling is that many employees live in the operational world because they're trying to do the day to day things. To think strategically it's actually a skill set that needs some nurturing and training; I think that in the

agricultural sector there's a real thought process around earning your stripes and until you've been able to do that your opinion is not as relevant for those that have been around longer"). A dissenting view argued that leaders will employ individuals that will have some influence over strategy formulation ("I think that a good leader employs the smartest people who can work for him or her. You would expect for there to be some influence over the strategy of that operation business organisation going forward").

An additional question was posed to panel members in round three: *Question 9. Do you agree that employee influence over strategy formulation is a sign of weak leadership?* The panel members reached consensus indicating their disagreement with the statement that employee influence over strategy formulation is a sign of weak leadership ("I actually want strong leaders in the future that actually understand strategy, then the best way to mentor them is to actually have them involved and engaged in strategy; A leader that thinks that they have all the answers and doesn't need a reference is not a leader; I think strong leadership is the person who might not have all the answers themselves but turns to the people underneath and looks for their opinion, insight and their ownership in in the planning and the direction").

## 4.5.2. LEADERSHIP TRAINING INFLUENCE ON STRATEGY FORMULATION

In round three panel members were asked: *Question 15. Do you agree that leadership programs need a greater focus on strategy formulation?* Consensus was not reached amongst panel members regarding leadership programs needing a greater focus on strategic thinking. Those panel members that agreed with the premise suggested that an evolving agriculture sector needs a greater focus on strategic thinking ("I think the strategic plan should not be sitting on a shelf, they should be your everyday discussion really, around, where is your organisation heading. What are the factors that are impacting your organisation? Is the strategy that we developed 12 months ago still valid based on the current circumstances; I think we've identified through, it's particularly relevant to the agricultural sector given the constant evolution of challenges that are happening in that space, you need to have strategic thinking; I guess it's in that we've traditionally had a history of being reactionary and blaming versus proactively working through how we come up with solutions and employee led solutions"). Those that did not support the statement identified the ability to outsource strategy ("Strategy now means you've got to come up with a mission and a vision and spend three days with a facilitator at $750 an hour trying to figure out what your vision statement is).

## 4.6. LEADERSHIP TRAINING

In round one panel members considered statements relating to the impacts of leadership training as outlined in Table 21. There was mixed support for statements 11 to 17, 20 and 22 to 24.

Table 21. Leadership Training

| Statement No | Description | Level of Agreement |
|---|---|---|
| 11 | Respondents in this study are partially applying leadership concepts learned through training. | 66.6% |
| 12 | Half the respondents in this study indicated that their organisations derived benefited from leadership training. | 99.9% |
| 13 | Half the respondents indicated they were better leaders due to leadership training. | 88.8% |
| 14 | Almost 60 percent of respondents are applying training in the workplace. | 88.8% |
| 15 | Almost 50 percent of respondents were unsure leader training is suitable for the industry sector in which they work. | 22.2% |
| 16 | Current leadership training may not be suited to the organisational needs of businesses across RDCs. | 22.2% |
| 17 | Current leadership training may not provide industry with the knowledge to apply learning in the workplace. | 44.4% |
| 20 | Leaders across RDCs believe they derive positive benefits from leadership training. | 99.9% |
| 22 | Australian RDCs do not spend enough funds developing leader capability. | 33.3% |
| 23 | Leadership training helps to develop strategic thinking capability amongst industry leaders. | 88.9% |
| 24 | Leadership training helps to develop foresight capability amongst industry leaders. | 62.5% |

Source: Developed for the study.

## 4.6.1. ASSESSING THE VALUE OF LEADERSHIP TRAINING

Panel members did not agree on the extent to which agriculture leaders had applied leadership concepts and the premise of the statement was changed to understand the measures used to assess the value of leadership training courses. In round two and n terms of leadership training value, panel members indicated that value could be measured as (1) learning new processes such as strategic planning, (2) behavioural change in the leader such as increased involvement, openness, engagement and (3) increased team productivity and (4) team building. A panel member noted the following, 'Change in behaviour and knowledge, need outcomes or training is of little value'. Panel members were asked: *Question 10. Do you have anything else to add?*

Panel members in round three provided additional considerations in terms of assessing the value of leadership training in terms of culture, critical thinking and behaviour change ("I think it's highly dependent on the culture of the place that you work. Measures to assess training is a different story when you're talking about a mum and dad operating a small business operation versus a corporate business; I'd probably sum that up by of critical thinking, how often that's applied, and what can be observed from that application in terms of not just behavioural change but organisational outputs; The ability to take your own self out of your own mindset and your pre-determined position, and listen and assimilate all the different perspectives that are happening around your business, your organisation, your sector, your industry, your environment and feed that into your thinking process. I think that's the element that changes the behaviour, the observable, critical thinking is the ability to just elevate yourself to a different type of mind"). Training and mentoring were also identified as a component of ongoing leader development ("Training will feed into strong leadership going forward rather than having a defined return for that investment; I think we need to have more mentoring type programs in place for young perspective leaders. They need a mentor to tell them that it's okay").

A follow-up question for round two of the Delphi regarding the predictive value of leadership development training which received mixed support. The panel noted a range of responses to this question ranging from 'no predictive value' to 'able to predict to a large degree'. Round three of the Delphi process provided an opportunity to explore *Question 16. If current leadership development training has 'no predictive value', what can be done to improve this?*

Panel members indicated more engagement with leaders and identifying value for the organisation of leader training and is critical to improve leader development ("The predictive value of that to me is that the more that we're engaged, the better the value you're going to be able to derive; If you believe in the programs and you believe in selecting your most promising people and delivering those programs and bringing them back to your organisation, you need a measurement to improve the value and the outcomes that your organisation can produce).

## 4.6.2. BENEFITS OF LEADERSHIP TRAINING

It can be argued that the key beneficiary of leadership training is the leader and the capabilities they develop are an important outcome of training. In round one panel members agreed that the organisation derives a benefit from leader training. In round two panel members identified a range of leader capabilities including (1) foresight and ability to envision the future, (2) managerial and technical competency, (2) applying unbiased decision-making, (3) participatory leadership, (4) openness and engagement and (5) building employee capacity. By round three panel members were asked the following: *Question 11. Do you agree that these capabilities are critical amongst leaders in the Australian agriculture sector?*

Panel members achieved consensus and agreeing that the previous capabilities are critical amongst leaders in the Australian agriculture sector. There was a caveat suggesting that the list is not definitive and could be amended ("We need to make sure we communicate with members; we need to make sure that we've got two-way communication and everything else in between; If we were able to have the capacity and capability to allocate more time before thinking or outside the square thinking, future thinking and instead of the consistent reactionary crap that we've all got to deal with issues as they all come through").

An additional question was posed in round three: *Question 12. Are there any other capabilities you consider a critical component of agriculture leaders?* Capabilities identified by panel members included communication including listening skills and feedback ("Being a good listener. That's something I see lacking. That should be on the list. And is absolutely imperative. If you can't listen, it's hard to lead you end up telling"), upskilling employees ("I think in terms of good leadership in the ag sector, it's about making sure that after an employee is invested in the company, and they're also invested in the industry, and I think that gets back to the upskilling and training will make staff feel as though they've got relevant training. I think that it's going to be essential for leadership moving forward") and strategic decision-making ("And you've got so many other things to focus on, how I make the best strategic decision?).

The underlying approach to increasing the value of leadership training is to encourage employees to participate in programs that might be available. Panel members in round three

were asked about where the responsibility lays with respect to leader development: *Question 13. Do you agree that leadership development is the responsibility of the individual to pursue?*

Panel members in round three did not achieve consensus regarding leadership development being the responsibility of the individual to pursue. Some panel members indicated support for the idea that it is the responsibility of the individual to purse leadership development ("I agree but I think a good leader should be asking the question of employees, what's motivating them; where do they see themselves in the future; I think it's yes, it's up to the individual because he or she can't be spoon fed it is up to them to try and reflect on where they're at and what skills they need to take on").

Those panel members that did not agree argued that leadership development is a shared responsibility ("I think it's a shared responsibility. It's shared across the sector, industry itself and being able to provide quality training programs, the employer and naturally the employee have a part in that decision as well; I guess you could say the sponsoring organisation should provide opportunities and push them and assist them through the learning curve"). It was also noted by the panel that some individuals will find it difficult to seek leadership roles or opportunities to undertake leadership training ("Deep thinkers aren't strong at coming forward and promoting themselves, the chances of them self-nominating onto a leadership program are slim to none. Somebody needs to put their arm around them and encourage them, talk to them about leadership development").

## 4.6.3. LEADERSHIP TRAINING SPECIFICITY

The panel members during round one provided a mix of responses regarding specificity of leadership training programs.  In round two a panel member summarised the responses up by stating, 'The generic element is valid and important to help leaders be versatile and not become set on any one particular approach. It should be combined with a tailored element that targets specific issues relevant to that industry'.  The statement was explored further: *Question 14. Do you agree with the panel members statement?*

Panel members achieved consensus by supporting the view that generic and industry specific elements in leadership training programs are important ("I think if you have the ability for the

staged programs that can cover different people for different needs at different points in their career, you're going to get a better outcome; If we want to develop a new cohort of exceptional leaders, we have to start taking the brightest sparks under our wings as peak bodies or sector associations and tailoring and providing them with mentorship opportunity. The opportunity for a diverse range of training opportunities to fill in the gaps and plug their knowledge and skill gaps to create the best leaders we can is critical").  In terms of benefits a panel member suggested that leaders will benefit from generic programs and the organisation from tailored programs ("There's a practical element that feeds into it that it needs to be somewhat generic due to the fact that we've got the agriculture is made up of lots of small industries, and they all have similar principles; I think for employers, they're going to see the most value if their staff are going through a tailored program, because they're going to come back with skill sets that are going to be really relevant, that they can apply straightaway and hopefully have a positive effect").

## 4.7. CONCLUSIONS

The purpose of the study was to identify a baseline foresight and strategic thinking leadership capability profile by addressing the following research question: *What are the foresight and strategic thinking capability profiles of agriculture leaders?*  During the first phase of the study an online questionnaire was administered that established a quantitative baseline profile of agricultural leaders' foresight and strategic thinking capabilities and also collected data associated with strategy formulation and leadership development.  The second phase of the research applied the Delphi method to address the extent to which the questionnaire findings applied in practice and the implications for the Australian agriculture sector.

## 4.7.1. DELPHI OUTCOMES

Panel members in the Delphi study concluded the following with respect to the foresight and strategic thinking baseline profiles:

- Agriculture leaders in the study are generally focussed on the present rather than the future;
- Agriculture leaders in this study are utilising multiple foresight styles that entail simultaneously thinking about and interrogating possible futures while adapting to change, new markets and organisational demands. The latter is more dominant due to the rate of

change and operational pressures of their industry. However, there was a strong recognition that a futures orientation was an important priority;

- Agriculture leaders in this study largely rely on analytical inputs to their strategic thinking. This orientation was dominant with the more generative and conceptual inputs to strategy significantly under-utilised. This suggests that the opportunity for innovation and / or conceptualising 'bigger picture' futures are generally constrained with panellists agreeing that strategy is still largely 'top down'; and

- Agriculture leaders in this study more likely to favour a collaborative approach in their leadership rather than a directive approach. This suggests an emphasis on the co-creation of value rather than a managerial style in achieving strategic priorities.

With respect to strategy formulation the following outcomes were identified:

- There is limited influence from employees on strategy formulation;

- Agriculture leaders should focus on employing individuals with strategy formulation capabilities; and

- A greater emphasis is needed from agriculture leaders on strategy formulation.

With respect to leadership training the following outcomes were identified:

- Value – leadership training value was considered by panel members as related to aligning with improving business culture, providing an opportunity to engage in critical thinking, leading behaviour change, developing new leaders and envisioning strategic opportunities by offering opportunities to train and mentor leaders;

- Benefits – training has allowed leaders to develop skills and abilities to enhance management, technical competency, applying objective judgement, decision-making, participatory leadership openness, engagement and building employee capacity. In addition, training was recognised as helping to build communication skills, outside the square thinking, a focus on thinking about future possibilities and strategic decision-making. Encouraging leader development was considered both an individual and organisational priority and responsibility;

- Training Specificity – training should involve a degree of industry specificity as well as containing generic elements; and

- The panel suggested that leadership training could improve to translate into meaningful outcomes. While generic capabilities were valued it was suggested that opportunities and evidence of application, especially sector specific, was missing.

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**Appendix K. Leaders Development Guidelines**

UNIVERSITY
OF SOUTHERN
QUEENSLAND

# LEADER DEVELOPMENT GUIDELINES

Eric Perez

Mobile: █████████

Email: ████████████████

## Leadership Development Guidelines

### Time Focus – Past

| Leader Training:<br>Past Focus | Not<br>Needed | Might be<br>needed | Needed |
|---|---|---|---|
| Use of past experiences and knowledge | ☐ | ☐ | ☐ |
| Reconstructing and analysing past decisions | ☐ | ☐ | ☐ |
| Critically evaluating information to reduce risk | ☐ | ☐ | ☐ |

### Time Focus – Future

| Leader Training:<br>Future Focus | Not<br>Needed | Might be<br>needed | Needed |
|---|---|---|---|
| Developing future scenarios | ☐ | ☐ | ☐ |
| Developing creative problem solving | ☐ | ☐ | ☐ |
| Case study material focussed on foresight capability development | ☐ | ☐ | ☐ |

### Building Foresight Capability

| Leader Training:<br>Building foresight capability | Not<br>Needed | Might be<br>needed | Needed |
|---|---|---|---|
| • Interrogates the future<br>• Future time orientated<br>• Focus on long-term issues that define the future<br>• Envisioning "bigger picture" futures | ☐ | ☐ | ☐ |
| • Adjusting to new situations<br>• Balancing multiples challenges and choices<br>• Helping others adapt<br>• Flexible leadership<br>• Addressing change | ☐ | ☐ | ☐ |
| • Adopting to new trends<br>• Experimenting with new trends<br>• Cognitive trend analysis | ☐ | ☐ | ☐ |

## Building Strategic Thinking Capability

| Leader Training:<br>Building strategic thinking capacity | Not<br>Needed | Might be<br>needed | Needed |
|---|---|---|---|
| • Organisation-wide strategy development | ☐ | ☐ | ☐ |
| • Strategy development process | ☐ | ☐ | ☐ |
| • Options to shift focus from an operational to a strategic thinking | ☐ | ☐ | ☐ |

## Building Strategy Formulation Capacity

| Leader Training:<br>Building strategic thinking capacity | Not<br>Needed | Might be<br>needed | Needed |
|---|---|---|---|
| • Organisation-wide strategy development | ☐ | ☐ | ☐ |
| • Networking | ☐ | ☐ | ☐ |
| • Developing employee participation in strategy development | ☐ | ☐ | ☐ |

## Leadership Training

| Leader Training<br>Training Elements | Not<br>Needed | Might be<br>needed | Needed |
|---|---|---|---|
| • Organisational culture and leadership | ☐ | ☐ | ☐ |
| • Critical thinking | ☐ | ☐ | ☐ |
| • Organisational behaviour change | ☐ | ☐ | ☐ |
| • Employee behaviour change | ☐ | ☐ | ☐ |
| • Mentoring | ☐ | ☐ | ☐ |
| • Leadership capabilities versus Managerial competencies | ☐ | ☐ | ☐ |
| • Leader decision-making | ☐ | ☐ | ☐ |
| • Participatory Leadership | ☐ | ☐ | ☐ |
| • Leader Communication Skills | ☐ | ☐ | ☐ |

# Appendix L. Achievement of Learning Objectives

| Year | Learning Objectives (LOs) | Task<br>Was LO achieved? |
|---|---|---|
| 2015 | LO.1 – Develop high level research skills and knowledge by conducting a mixed methods investigation of leadership development in my profession and documenting the findings in reports, research articles and conferences. | Submit dissertation and collecting question and Delphi data.<br>**LO Achieved** |
| Ongoing | LO.2 –Develop my collaboration skills by maintaining open communication channels through developing one on one professional relationships with members of my panel of experts, focus groups, study supervisors and rural RDC representatives to ensure the study is completed by ensuring: (1) Panel of experts feedback is incorporated in study design, (2) Supervisors are engaged for their ideas, concerns, feedback; and (3) Rural RDC representatives informed of progress. | Ongoing communisation with funding / grant bodies.<br>**LO Achieved** |
| Ongoing | LO.3 – To enhance my understanding of emotional intelligence by engaging with the social environment in which my study's participants work settings by conducting research on site. | Developed networks through rural RDCs.<br>**LO Achieved** |
| 2015-2019 | LO.4 – To develop and justify appropriate research criteria and methodologies thus enhancing my research skills, analytical thinking and objective judgement by designing a research methodology and present this in a research proposal for expert consideration | Successful completion of dissertation.<br>**LO Achieved** |
| Ongoing | LO.5 – To expand my worldview by enhancing my social capability, specifically my emotional intelligence to relate and work effectively across organisations and industry cultures and illustrate this by conducting research effectively across diverse industries and peoples. | Continual engagement with agriculture leaders.<br>Refining research methods and testing assumptions with Primary supervisor.<br>**LO Achieved** |
| 2018-2019 | LO.6 – To develop my communications skills through the management of focus groups, administration of survey tools. | Successful questionnaire and Delphi administration.<br>**LO Achieved** |
| 2014-2020 | LO.7 – To develop my analytic skills by exploring and identifying the key theories relating to leadership, analysing a mix of qualitative and quantitative response data and comparing and contrasting my findings to existing theories. | A deep exploration of leadership literature.<br>Analysis of questionnaire and quantitative data.<br>**LO Achieved** |
| 2018 | LO.8 – To develop my information management skills by ensuring that I apply best practice ethics when storing or using research data and to develop multiple communication channels to disseminate findings. | Ethics clearance granted.<br>Ethical research a critical part of the research process.<br>**LO Achieved** |
| Ongoing | LO.9 –To develop myself into a scholarly professional as a result of periodic introspection, revisiting of key learning areas, discussing issues, ideas and concerns with my supervisors. | Dissertation completed.<br>**LO Achieved** |

Source: Developed for the study.